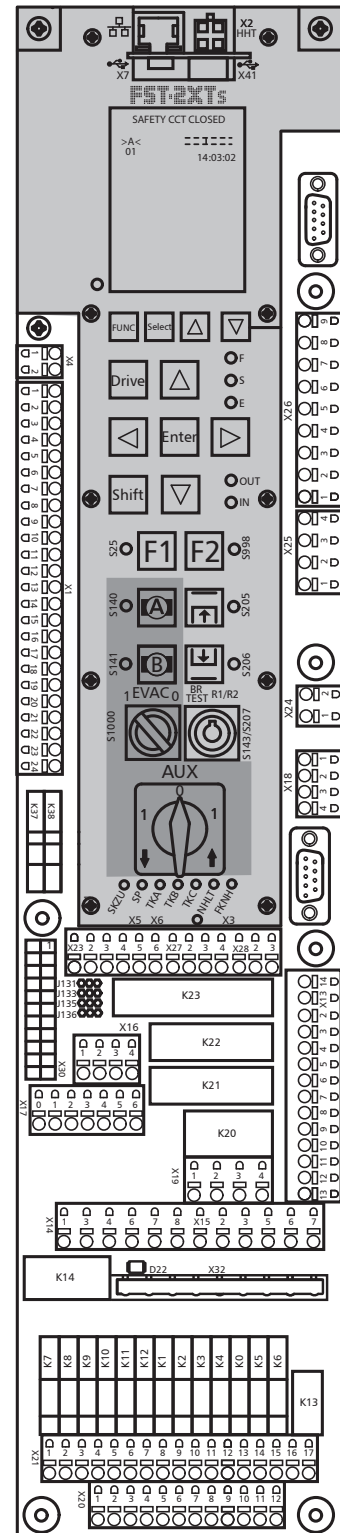
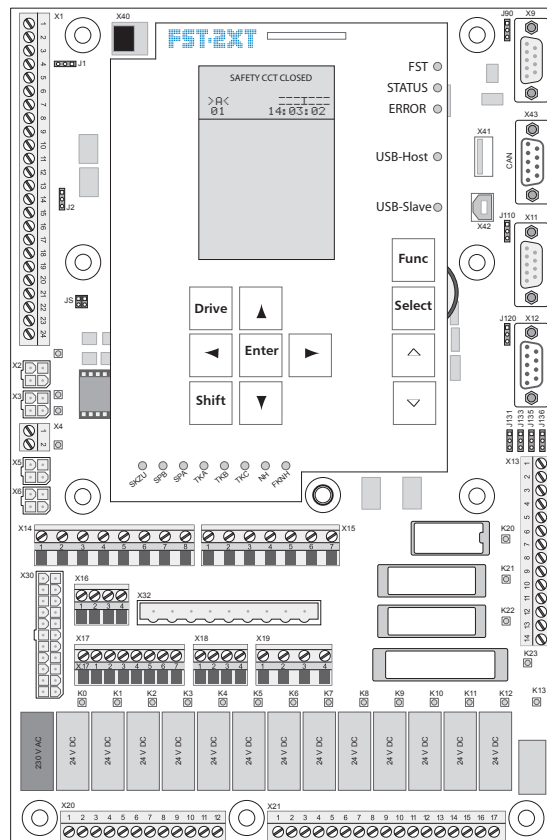


**FSTEXT FSTEXT**

## Lift control system

### MANUAL



**Manufacturer** NEW *LIFT* Steuerungsbau GmbH  
Lochhamer Schlag 8  
82166 Gräfelfing

Tel +49 89 – 898 66 – 0  
Fax +49 89 – 898 66 – 300  
Mail [info@newlift.de](mailto:info@newlift.de)

[www.newlift.de](http://www.newlift.de)

**Service line** Tel +49 89 – 898 66 – 110  
Mail [service@newlift.de](mailto:service@newlift.de)

**First edition** 09.07.2015

**Author** KH/TB/AL

**Last change** 06.12.2017 / DOS

**Release** 29.11.2017 AL

**Hardware version** FST-2XT 3.4 FST-2XTs 3.0

**Software version** V2.000.0138

**Doc. no.** hb\_fst2XT\_XTs\_2017-11\_en

**Copyright** © NEW *LIFT* Steuerungsbau GmbH, 2017.

This manual is protected by copyright. All rights, including those of copying, of reproduction, of translation and of modification, in whole or in part, are reserved by the publisher.

No part of this description may be reproduced in any form or copied with an electronic replication system without written permission.

Although great care has been taken in the production of texts and figures, we cannot be held legally liable for possible mistakes and their consequences.

## Content

<b>1</b>	<b>About this manual</b>	<b>6</b>
1.1	General	6
1.2	Abbreviations, characters and symbols used	6
1.3	Further information	7
1.4	How to contact us	7
<b>2</b>	<b>General safety regulations</b>	<b>8</b>
2.1	Qualifications of the installing engineer	8
2.2	Residual dangers	8
2.3	Safety regulations	9
<b>3</b>	<b>FST-2XT/s controller user interface</b>	<b>11</b>
3.1	Keypad functions	13
3.1.1	When switching on	13
3.1.2	Main screen	13
3.1.3	Main menu and test menu	15
3.1.4	Error list	15
3.1.5	Information page	16
3.1.6	Frequency inverter with DCP interface	16
3.1.7	Guide	16
3.1.8	Front panel / operating and display elements	19
3.1.9	Emergency mode monitor (NBM)	22
3.1.10	Evacuation - function principle	23
3.1.11	Brake test - function principle	23
3.1.12	Shaft door RESET - function principle	24
3.2	LCD-Display and messages	24
3.2.1	Main screen	24
3.2.2	Line A – Safety circuit messages	24
3.2.3	Line B – State messages	25
3.2.4	Line C – Status messages	27
3.2.5	Line C - Diagnostic messages	27
3.2.6	Line D - Drive mode messages	36
3.3	Information texts	37
3.3.1	Information page	40
3.4	LEDs	41
<b>4</b>	<b>Technical data</b>	<b>42</b>
4.1	Component overview – bus plan	42
4.2	FST controller	43
4.2.1	Technical details and data	43
4.2.2	FST jumpers	48
4.2.3	LEDs	50
4.2.4	Safety circuit bypass control	51
4.2.5	Terminal strips and sockets	52
4.3	Car top control module FSM-2	59
4.3.1	Technical data	59
4.3.2	Jumpers	60

4.3.3	LEDs	61
4.3.4	Terminal strips and sockets	62
		66
4.4	LON bus	68
4.4.1	Technical data	68
4.5	Flat travelling cable	69
4.5.1	Technical data	69
<b>5</b>	<b>Menu tree</b>	<b>71</b>
5.1	General	71
5.2	MAIN MENU - Lock Menu	83
5.3	MAIN MENU - Service	84
5.4	MAIN MENU - Drive	86
5.4.1	Drive optimisation	89
5.5	MAIN MENU - Config	90
5.5.1	Park drive programs	107
5.5.2	Show LON modules	108
5.5.3	ADM bus masks	109
5.5.4	Car ventilation	109
5.5.5	Display 0 ... 2	109
5.5.6	Pin 34 function	110
5.5.7	Loading function	110
5.5.8	Lobby Stop	112
5.5.9	Sel.Door-Security	112
5.5.10	VIP mode	113
5.6	MAIN MENU - Positioning	114
5.6.1	Positioning parameters	118
5.6.2	Relevelling limits	120
5.7	MAIN MENU - Calls	121
5.7.1	Special call mode	121
5.7.2	Attendant operation	122
5.8	MAIN MENU - System	123
5.8.1	Recording filter of FST controller	127
5.8.2	Copy from / to USB	127
5.8.3	Update via USB	128
5.9	MAIN MENU - Doors	128
5.9.1	Door-Lock Types	131
5.9.2	Door times diagram	132
5.10	TEST MENU	133
<b>6</b>	<b>Programmable I/O ports</b>	<b>135</b>
6.1	General	135
6.2	Bit calculation	136
6.3	Programmable I/O ports	137
6.4	I/O functions	138
6.4.1	Function "landing call"	139
6.4.2	Function "fire signal"	140
6.4.3	Function "landing priority"	140



6.4.4	Function "position indicator"	141
6.4.5	Function "door open button"	142
6.4.6	Function "door close button"	142
6.4.7	Function "flag"	142
6.4.8	Function "signal"	146
6.4.9	Function "evacuation"	148
6.4.10	Function "special drive"	148
6.4.11	Function "emergency call misuse"	149
6.4.12	Function "speed threshold"	150
6.4.13	Function "DRM I/O Port"	150
6.4.14	Function "destination call"	151
6.4.15	Function "ramp drive"	151
6.4.16	Function "bypass floor locking"	151
6.4.17	Function "block floors"	152
<b>7</b>	<b>LON module configuration</b>	<b>153</b>
<b>8</b>	<b>Error list</b>	<b>159</b>
8.1	Error messages	159
8.2	Event messages	167
<b>9</b>	<b>Index</b>	<b>169</b>
<b>10</b>	<b>Certificates</b>	<b>174</b>

# 1 About this manual

## 1.1 General

The FST-2XT/s manual is a comprehensive reference work for experienced lift service experts.

Objectives of this manual:

- › describe the features of the LON bus technology
- › describe the technical data of the FST and its sub-assemblies
- › describe the operation of the FST
- › describe the configuration of the FST
- › describe the FST menu and its settings
- › describe the messages of the FST

**Note!** The product designation FST always refers to both products unless explicitly denoted with FST-2XT and FST-2XTs.

## 1.2 Abbreviations, characters and symbols used

### **ADM**

Landing call module

### **CMM**

Critical Module Monitoring

### **FPM**

car operating panel module; is needed for controlling car operating panels and is available in two versions: FPM-1 and FPM-2.

### **FSM**

car top control module; is always required in combination with an FST controller. The two versions of the FSM are the FSM-1 (FST-1 controller) and FSM-2 (FST-2 controller).

### **GND**

ground; conductive body that is defined with potential 0 V. Serves as reference potential for all signal and operating voltages.

### **HSG**

emergency power supply unit

### **TC**

Correction, top

### **BC**

Correction, bottom

### **L**

live wire, external conductor; all electrically conductive parts that are under voltage during normal operation and are not neutral wires. With three-phase alternating current, the external conductors are designated with L1, L2, L3.

### **DRM**

Runtime monitoring

### **PE**

Protective earth; earth wire

The characters and symbols used in this manual have the following meaning:

### **System stop**

Marks settings requiring a system stop in case a change becomes necessary. The FST controller displays the text `Lift must be stopped to change the value. OK?` If you wish to change the value, confirm with YES, if you do not wish to change the value or wish to change it later, then confirm with NO.

**\* Delivery condition**

Settings that are supplied as standard are marked with an asterisk \*.

**Symbol + Key combination:**

Press the linked keys simultaneously.



**General warning notice**

This sign marks important notices that you should absolutely observe.



**Electrostatic charging**

- › Keep the electronic assembly in its original packaging until installation.
- › Before opening the original packaging, a static discharge must be performed. To do this, touch a grounded piece of metal.
- › During work on electronic assemblies, periodically perform this discharge procedure.



**Danger of falling**

This sign marks activities with danger of falling.



**Information notice**

Important notes are marked with this symbol.

## 1.3 Further information

The following documents, among others, are available for the FST-2XT/XTs controller and its components:

- › ADM manual
- › EAZ TFT.45.110.210 manual
- › EAZ-256 manual
- › EN81-20 manual
- › FPM manual
- › FST-2XT/s manual
- › Update-Backup-Analysis manual
- › FST-2XT MRL manual
- › GST-XT manual
- › LCS manual
- › RIO manual
- › SAM manual
- › UCM-A3 manual

These and other current manuals can be found in the download area of our website under Service at

<http://www.newlift.de/service/download/?L=1>

## 1.4 How to contact us

If, after referring to this manual, you still require assistance, our service line is there for you:

Tel +49 89 – 898 66 – 110

Mail [service@newlift.de](mailto:service@newlift.de)

Mon. - Thurs.: 8:00 a.m. – 12:00 p.m. and 1:00 p.m. – 5:00 p.m.

Fr: 8:00 a.m. – 3:00 p.m.

## 2 General safety regulations

All important safety regulations are summarised in this chapter. These safety instructions must always be adhered to during all work on the installation.

All persons performing installation and commissioning work on the FST controller must read this chapter and follow its regulations.

Laws, regulations, guidelines and standards that apply in the country of operation must be followed in addition to the safety regulations mentioned in this manual.

### 2.1 Qualifications of the installing engineer

The installing engineer must:

- › be over 18 years of age (exception: apprentices who are over 16 years of age and are permanently supervised by an engineer qualified for training apprentices).
- › have first aid training,
- › have theoretical and practical knowledge of regulations and measures for the prevention of fire and explosions in his work area,
- › be able to identify, avoid and rectify all dangers that might occur during his work in the shaft and in the operating rooms,
- › be able to identify and rectify all irregularities and faults that might occur during installation and operation of a lift system,
- › have theoretical and practical knowledge of operating principles and requirements of electric controls and drive systems.

All installation and commissioning work on electric and electronic components of the FST controller must be performed by or supervised by a qualified electrician.

A qualified electrician has appropriate training and knowledge of regulations that allow him to judge the quality of the work performed and identify possible dangers (DGUV instruction 3).

### 2.2 Residual dangers

#### Danger for persons

The following shall always apply during all work on the installation:



*Danger to life! Do not touch live parts while working on electrical equipment.*

- › Before starting work, make sure the system is off circuit.
- › Only carry out any installation work on electrical components when these are switched off and in an unpowered state.
- › Only use insulated tools when working on electrical system components.



*Risk of injury when lifting or moving the control cabinet if it falls down or tips over.*

- › Only transport and lift the control cabinet with suitable equipment (lift truck, hoisting gear etc.).
- › All workers must be trained in using these aids and must observe all applicable special regulations to avoid accidents.



*Falling parts or parts protruding into the shaft. Risk of serious injury or death.*

- › Block the shaft access points.
- › Before beginning installation work, remove all foreign parts and assembly aids that are not required from the shaft.



*Electrical hazard, leaking gas or water due to pierced supply lines. Risk of serious injury or death.*

- › Make sure no supply lines are in the installation location before starting any installation work.



*Danger of falling! Installing engineers and unauthorised persons can fall down the shaft. Risk of serious injury or death.*

- › Block the shaft access points.
- › Use suitable protection (e.g. safety harnesses, scaffoldings) when working on or in the shaft.



*Danger of crushing due to intentional or accidental car movement. Risk of serious injury or death.*

- › Block the shaft access points.
- › Before starting any work, make sure that there are no persons in the shaft or in the vicinity of moving parts of the drive.
- › Prevent unauthorised operation of the controller.

#### **Risk of material damage**

The following shall always apply during all work on the installation:



*Electrostatic charging*

- › Keep the electronic assembly in its original packaging until installation.
- › Before opening the original packaging, a static discharge must be performed. To do this, touch a grounded piece of metal.
- › During work on electronic assemblies, periodically perform this discharge procedure.



*Electronic assemblies are destroyed by defective, interchanged or incorrectly mounted connectors, short-circuiting or excess voltage.*

- › Check plugs for mechanical damage.
- › Never change pre-assembled connectors or cables.
- › Only connect loose or torn off wires according to circuit diagram details if this is possible on site (suitable material and tools must be available).
- › Pay attention to coding pins and latch lugs.

## **2.3 Safety regulations**

### **General**

- › The instructions of the lift manufacturer and the instructions in this manual must be followed during installation and commissioning of the lift system.
- › The shaft must be secured against unauthorised trespassing during installation and commissioning.
- › Assemblies, devices and cables must be installed and fastened securely and permanently.
- › Loads must be moved with suitable aids (lift trucks, hoisting gear etc.).
- › Sharp and pointed tools or other potentially dangerous objects may only be carried along in clothing if suitable protective measures have been taken to rule out any danger.
- › Alcohol and drugs must not be consumed before and during installation and commissioning.

### **Documentation**

- › A copy of the installation and commissioning manual must be available to the installing engineer at the time of installing and commissioning the FST controller and its components.
- › A copy of the installation and commissioning manual and the wiring diagrams must be kept in the control cabinet at all times after installation.
- › The wiring diagrams supplied with the FST controller are binding. Changes must only be made after consulting NEW LIFT and must be documented in writing on the system.
- › The factory test logs of the FST controller remain with NEW LIFT.

### **Electricity**

- › Regulations for installing and operating electrical equipment (VDE 0100) and regulations of local utilities must be followed.
- › The specified distances between different electrical assemblies must be controlled and maintained.
- › All installation work must be carried out with the system shut down and off circuit.
- › All cables and wires must be installed with sufficient strain relief.
- › The neutral and ground wires must be routed separately.
- › The control cabinet must be supplied with a clockwise rotary field.

### **Working in the shaft**

- › Any work in the shaft requires perfect and permanent communication between the supervisor on the FST controller in the motor room and the workers in the shaft.
- › Components in the shaft must be arranged or secured in such a way that persons accessing the shaft for inspection, maintenance or repair purposes are not in danger.
- › The maximum load of the lift system must not be exceeded.
- › The specified overruns of the emergency end switches in relation to the speed must be observed.
- › The emergency installations must not be activated during normal operation.
- › All emergency installations and braking systems must be checked for trouble-free operation and all shaft entrances closed off before beginning work.
- › Installation and operation are prohibited if other persons could be in danger.
- › Workers must be secured against falling.
- › In case of any work interruptions, the car must be moved to the lowest stop position, the control system switched off and the power supply (e.g. UPS) permanently disconnected.

### **Personal safety equipment of the installing engineer**

- › Eye protection
- › Safety boots
- › Protective helmet
- › Safety harness
- › Clothing suitable to the ambient conditions of the installation location
- › Jewellery, watches and similar items may not be worn; a hair net must be used if applicable.

### **Handling electronic assemblies**

- › Leave electronic assemblies in their original packaging until installation.
- › Touch a grounded piece of metal prior to opening the original packaging to prevent damage from static charges.
- › All bus inputs and outputs not in use must be equipped with a terminal resistor (terminator). Exception: FSM-2 X23 and FST X2 are only for use with the HHT hand-held terminal and must not be terminated with a terminator.

### **Waste disposal**

- › All packaging material must be disposed of in an environmentally acceptable manner; paper, plastic, metal, electronic assemblies etc. must be recycled.

### 3 FST-2XT/s controller user interface

The user interface of the FST controller is located on the FST main circuit board in the control cabinet of the lift system. The FST user interface consists of front panel, LCD-Display, keypad and LEDs.

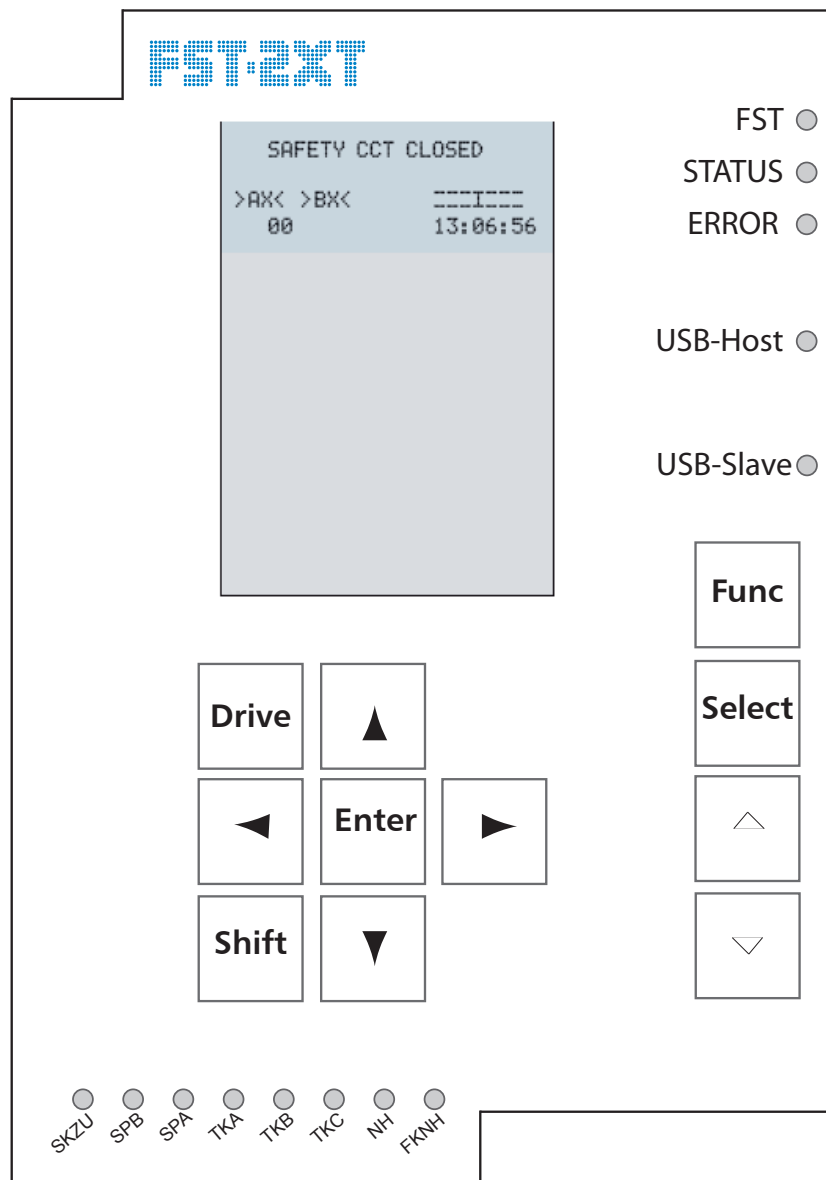


Fig. 3.1: FST-2XT controller user interface

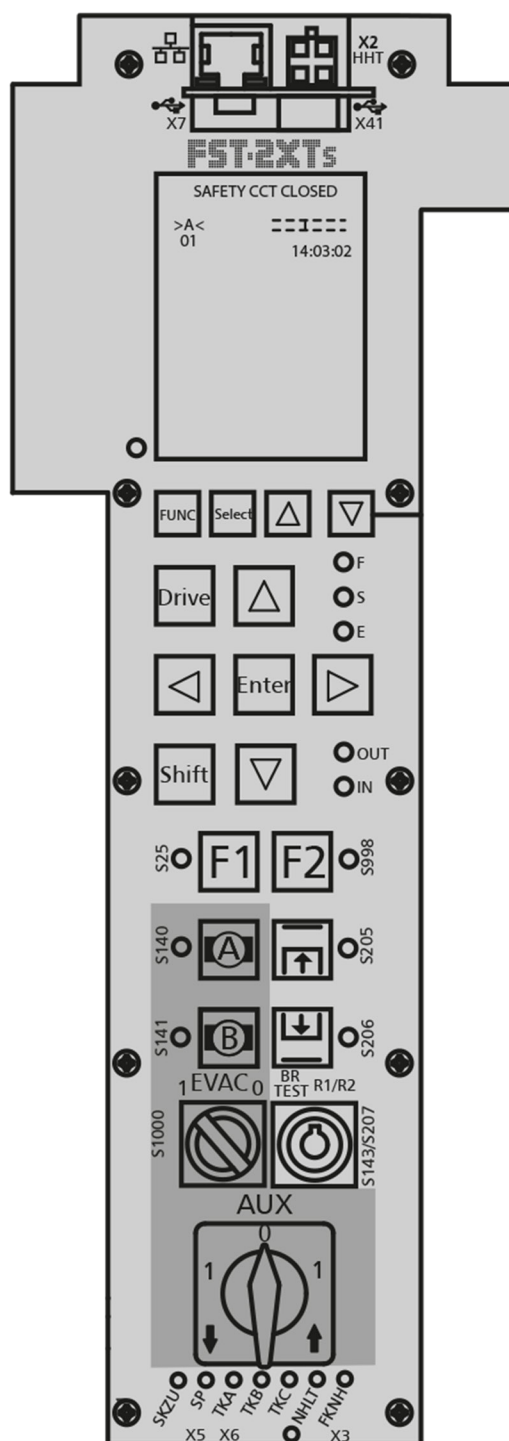


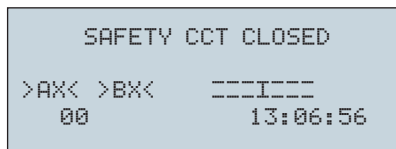
Fig. 3.2: FST-2XTs controller user interface



## 3.1 Keypad functions

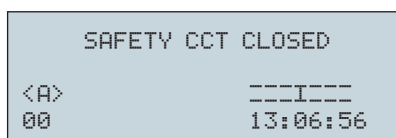
The FST controller is operated using seven buttons. The button have different functions in the different displays.

### 3.1.1 When switching on
















	Pressing and holding the  button during the switch-on sequence of the FST starts emergency operation. In emergency operation, no drives are possible. Emergency operation is required if the FST cannot be switched on in normal mode due to a malfunction. The complete FST menu and the USB interface are active in emergency operation!
--	--

### 3.1.2 Main screen








	Set car call to top floor
	Set car call to bottom floor
	Switch landing control on and off (switch function)
	Open test menu
	Open main menu
	Activating emergency operation: before switching on, press and hold down until the FST has completely started up ( <i>FST manual</i> )
	Set car call to next floor up
	Set car call to next floor down
	Scroll through the right status messages in line C
	Scroll through the left status messages in line C
	Display information page
	Switch diagnostic message in line C on or off
	Perform controller RESET
	Switch over to converter menu (DCP)

	Guide functions menu button
	Selection / Enter button for confirming the function in the Guide menu
	Menu navigation: scroll UP
	Menu navigation: scroll DOWN
	Function button F1 (S25)*
	Function button F2, currently without function (S998)*
	Button for manual activation of brake A (S140)*
	Button for manual activation of brake B (S141)*
	Key switch with three positions; BT = brake test (S143); contact connected in series upstream of R1/R2 for resetting shaft head or shaft pit (S207)*
	EAC switch (S1000) for switching evacuation ON/OFF; the toggle flashes* in the ON setting
	Button for resetting an access monitor of the shaft head*
	Button for resetting an access monitor of the shaft pit*
	Auxiliary control switch ON/OFF/DOWN/UP S21/22/23*






Notice: \* only with FST-2XTs

### 3.1.3 Main menu and test menu

```
MAIN MENU
Drive
Config
>Positioning
```





	Move cursor up
	Move cursor down
	Exit submenu
	Change menu level
	Select submenu / menu item
	Sets all places of a value to " _ "

```
Clock Setting
13:45:01
```

	Increase value
	Decrease value
	Move cursor left
	Move cursor right
	Confirm setting




### 3.1.4 Error list

```
ERROR[00037/00040]
28.09 10:18:26 [012]
Door close failed
FLOOR:03 V00 R01 I00
```




	Switch to 2nd to 8th information byte in line D
	Switch to initial display in line D
	To previous error message
	To next error message

### 3.1.5 Information page

```
-- FST Information ---
HW Ver.   :FST-2XT
SW Ver.   :V 2.000-0107
          : 26/11/2014
```

	Scroll one line up
	Scroll one line down
	Back to main screen

### 3.1.6 Frequency inverter with DCP interface

 Frequency inverters with DCP interface can be operated and configured from the FST menu (FST X11 connected). The menu of the frequency inverter is simulated on the FST display by pressing the  button once. The FST buttons then perform the function of the frequency inverter buttons. The FST display is restored by pressing the  buttons again.

### 3.1.7 Guide

#### General

The guide is an extension of the FST-2XT/s. In no way does it intervene in operations performed by the controller and is operated with a different group of buttons. The four blue buttons, which are responsible for the guide, are located on the right side of the front panel of the FST-2XT.

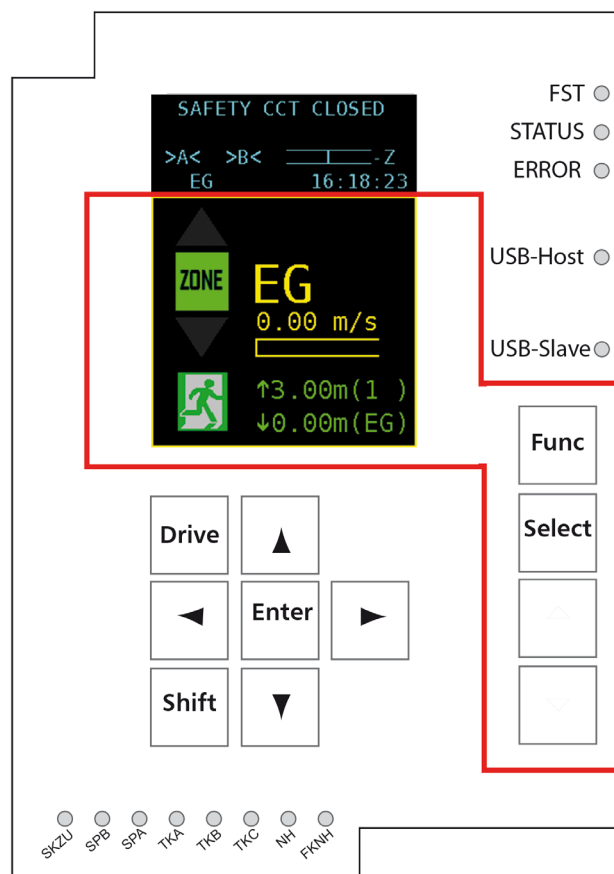


Fig. 3.3: Guide FST-2XT (marked red)

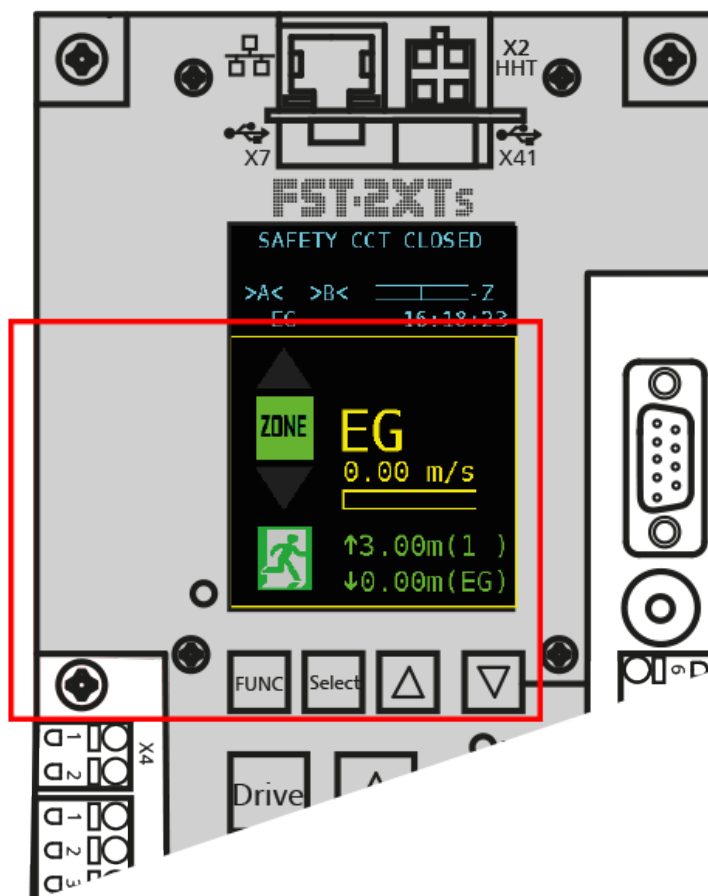


Fig. 3.4 Guide FST-2XT (marked red)

## Display

The display is divided into two sections and consists of the following parts:





### › FST-2XT/s screen





The top part of the display is the FST-2XT/s screen with the same functions, menus and navigation found in the previous versions of the FST controllers. These four lines are the familiar display of the FST controllers and consist of four lines of 20 characters each. They are operated with the four white arrow buttons and three grey function buttons located underneath. Nothing has changed in the presentation and the keypad functions; everything functions as previously. After switching on and during normal operation, the FST-2XT/s controller displays the main screen.

### › Guide


The lower part of the display shows the guide, which provides information about the individual menu items of the FST-2XT/s menu and which has additional functions that are described in the following.

## Buttons


The , ,  and  buttons are NOT needed for changing the FST-2XT/s parameters in the menu. They are used only for the navigation of the guide.



Use the  /  buttons to move the cursor in the text field. The text sections with a coloured background can be selected with the  button if the cursor is located on top of them. If no text section with a coloured background is selected, the  button can be used to move to the previous text section.

Use the  button to open the Function menu. Press the button again to exit the menu.

The ten functions of the guide can be selected with the  button.

- › Active Call List
- › Help
- › Event Recorder
- › Emergency Status
- › Door Status
- › I/O Ports
- › Safety Circuit
- › Positioning
- › Weight Sensor
- › Drive Curve

Choose the desired function by using the arrow buttons to move the colour highlighting over the terms and confirm the selection with the  button.

Return to the standard Help menu with the  button, use the arrow buttons to move the cursor onto the Help menu item and select with the  button or, if a different parameter or menu item is called up on the FST-2XT/s, the guide automatically switches to the Help function.

## Functions

### Active Call List

Specifies the position of the car as well as all car calls and landing calls.

The displayed table contains the following three columns:

- › In the **left column**, the existing floors are displayed from bottom to top with their floor name.
- › The **middle column**, IDR (car), shows the received and not-yet-processed car calls; these are marked with an "x" depending on door side. If no car call is pending, this is indicated with a "-".
- › The **right column**, ADR (landing), shows the received and not-yet-processed landing calls; these are marked with a "U" (up direction), with a "D" (down direction) or with a "B" (both directions) depending on door side and direction. If no landing call is pending, this is indicated with a "-".

The current destination is indicated with a "T" next to the corresponding floor name. The position of the car is indicated by a black rectangle next to the floor name.

### Help

General help for operating the FST-2XT/s.

### Event Recorder

Displays a filtered event list on the controller

### Emergency Status

Emergency mode monitor, (see „3.1.9 Emergency mode monitor (NBM)“ page 22)

**Door Status**

Graphic display of the car doors, photocell and their functions

**I/O Port**

Graphic display of the port's signal level with the specific adjustment, locality and function.

**Safety Circuit**

Graphic display and history of the safety circuit inputs of the FST

**Positioning**

Graphic display of the positioning and their diagnostics possibilities.

**Weight Sensor**

Tabular display / graphic display of the load threshold and load capacity (LCS)

**Drive Curve**

Graphic display of the speeds shown in diagram form

**3.1.8 Front panel / operating and display elements****General**

Like the previous version, the FST-2s, the FST-2XTs microprocessor controller forms a unit between the user interface for lift technicians and for the lift attendant.

The FST-2XTs front panel is divided into two different coloured areas to indicate the user interfaces.

»Blue: lift technicians (light grey)

»Yellow: lift attendant for the freeing of persons (dark grey)

Faulty operation of the blue user interface by the lift attendant is safeguarded against by a removable key, button locks and signage. The lift company is responsible for the safe storage of the key to protect against faulty operation! NEW LIFT recommends that the key be stored in the lower area of the control cabinet, which is inaccessible to the lift attendant, or the door frame.

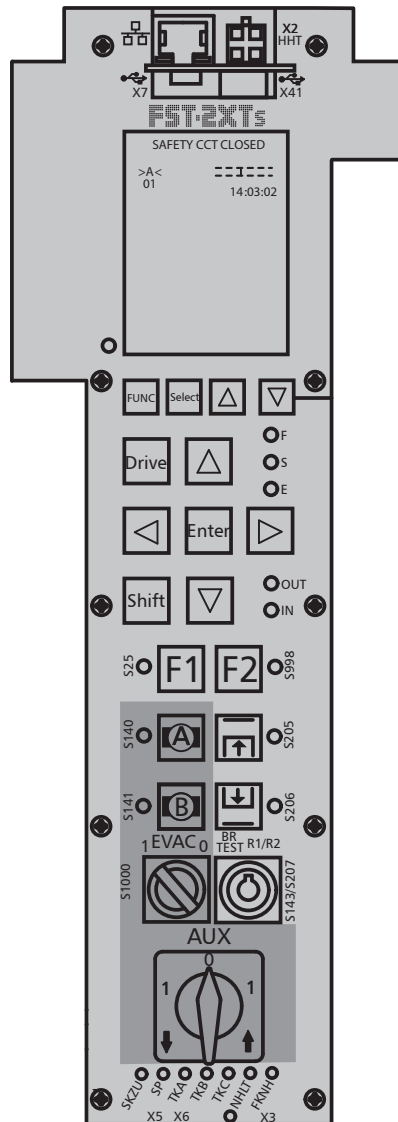


Fig. 3.5: Front panel of the FST-2XTs

#### Function button F1

This freely usable function button is preferably used to manually control anti-creep coils, which are located on the speed limiter. The connection of the positively driven operating contacts, controlled by function button F1 (S25), is located on clamping connectors X25:1 and 2 (NO) and on clamping connectors X24:1 and 2 (NC). The pitch and the conductor paths of the clamping connector are suitable for integration in the safety circuit. For acknowledgement upon button actuation, a yellow LED next to the button illuminates.



**Function button F2**

This function button currently has no function.

**Brake release button A**

Brake release button A (S140) is used to directly control brake A via relay K32-A. This control is only effective if the "EVAC" evacuation switch (S1000) or the "BR TEST" brake test key switch S143 is actuated. In addition, the external circuits, which are what enable direct control if, e.g., the main switch is switched off in "EVAC" operation, are necessary. Refer to the system circuit diagram for these external circuits. Upon actuation of the button and with "EVAC" or "BR TEST" switched on, the positively driven contacts of the K32-A interrupt the safety circuit. In addition, the rest position of the relay is queried by the standstill monitor of the FST-2XTs. Thus, upon actuation of the button or in the event of a malfunction, the "EMERGENCY STOP" message is output and, after approx. 2 seconds, the "DRM CONTACTOR MONIT." message. For acknowledgement upon button actuation, a yellow LED next to the button illuminates.

**Brake release button B**

The function of brake release button B (S141) is analogous to S140.

**Reset 1**

Button "Reset 1" (S205) is used to reset external peripherals to safeguard protected areas in the shaft head. In addition, the key switch (S207) is to be actuated. The potential-free contact of relay K35-A is connected to terminals 3 and 4 of terminal strip X27. For acknowledgement upon button actuation, a yellow LED next to the button illuminates.

**Reset 2**

Button "Reset 2" (S206) is used to reset external peripherals to safeguard protected areas in the shaft pit. In addition, the key switch (S207) is to be actuated. The potential-free contact of relay K29-A is connected to terminals 1 and 2 of terminal strip X27. For acknowledgement upon button actuation, a yellow LED next to the button illuminates.

**EVAC**

Switch "EVAC" S1000 is used to evacuate persons trapped in the car (freeing of persons). Upon actuation, visual and audible signals are emitted, thereby indicating to the user that an abnormal condition is active. According to the external NEW LIFT standard circuit (see system circuit diagram), relay K31-A initiates interruption of the safety circuit and activation of an uninterruptible power supply (UPS) to supply emergency power to the controller. For this reason, power for the switch and for the relay must be supplied via a 24VDC auxiliary power source.

**BR Test**

The "BR Test" key switch (S143) is used primarily to test the dual circuit system of the brake. Upon actuation of the button, relay K34-A activates the positively driven contacts and enables a bypass to the evacuation switch. Relay K34-A is monitored by the FST-2XTs via the standstill monitor. If actuated for a longer period of time, i.e., approx. 2 seconds, the "DRM CONTACTOR MONIT." message is output.

**Enable R1 / R2**

Key switch "R1/R2" (S207) is connected in series upstream of buttons S205 and S206. Unintended actuation of the Reset button is thereby prevented.

**AUX - auxiliary mode control**

The standard auxiliary mode control function (S21/S22) is used to move the car with the appropriate bridging function in the safety circuit.

### 3.1.9 Emergency mode monitor (NBM)

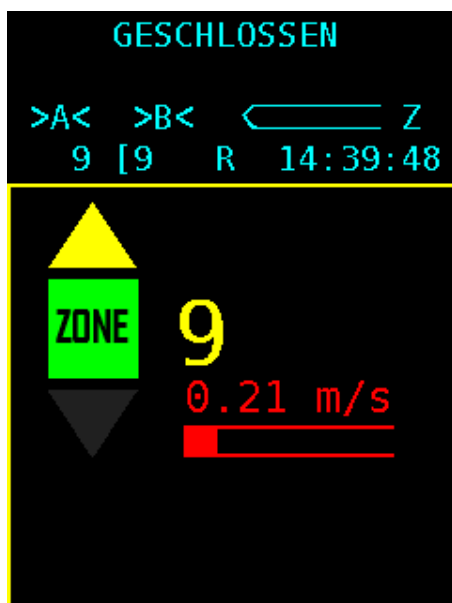


Fig. 3.6

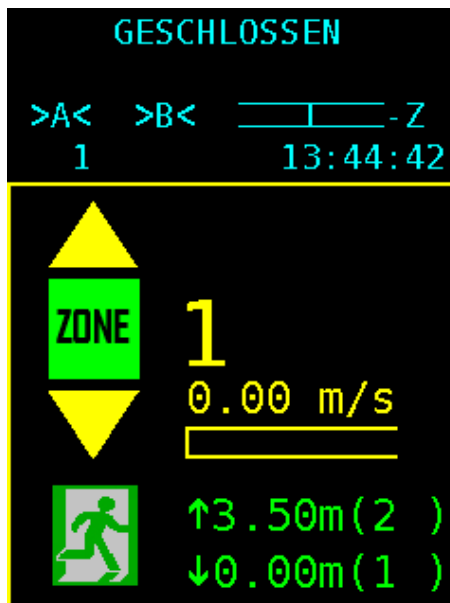


Fig. 3.7

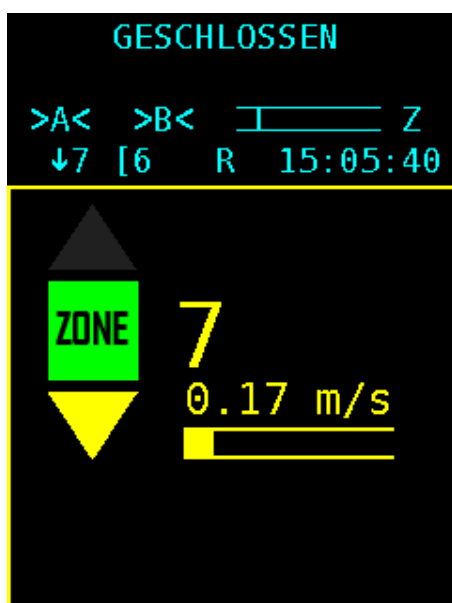








Fig. 3.8

#### Emergency mode monitor (NBM)

The emergency mode monitor contains all information needed for the freeing of persons, should it be necessary. These include the physical direction, position, door zone and speed of the car.

	This yellow arrow indicates the physical direction of the car in the up direction; the flashing frequency of the arrow is dependent on the speed, slow flashing = slow speed and fast flashing or permanently on = fast speed
	This yellow arrow indicates the physical direction of the car in the down direction, the flashing frequency of the arrow is dependent on the speed, slow flashing = slow speed and fast flashing or permanently on = fast speed
	If the lift is in the door release area (door zone), this field illuminates green with black text "ZONE"
	Displays the current car position with respect to the floor name. Attention! The car is only located in the door release area if the green "Zone" field illuminates!
	Displays the current speed of the car. At V greater than 0.2m/s, the colour changes from yellow to red.
	Illustrates the distance between two floors. This display is intended to illustrate the direction to the next closest floor in the event of evacuation with auxiliary mode control.

### 3.1.10 Evacuation - function principle

#### Manual evacuation

If evacuation by means of auxiliary mode control is not possible due to a power failure or a technical defect, manual evacuation, i.e., energising the brake coils, can be performed. Prerequisite for this function is a UPS (uninterruptible power supply) that provides the controller as well as the holding brake with sufficient power. This is always performed by switching off the main or remote switch and switching on the EVAC switch. In position "1", a beeper and an integrated LED on the switch toggle signal at a cycle rate of 0.5 sec that EVAC operation is activated. In this state, the brake circuits can be directly controlled via buttons S140 and S141. Each of the buttons controls one relay; these are located on the FST. The positively driven NC contacts of the relays are located in the safety circuit; following a confirmation, the "EMERGENCY STOP" message is then output in the FST display. An intermittent relay, which is located on the FST, interrupts the power supply of the relay at  $V > 0.2 \text{ m/s}$ . When the next floor (unlocking zone) is reached, the controller stops the car itself by means of the "levelled stop assistant". Actuate the S140/141 button again to activate the brakes again. The intermittent brake as well as the levelled stop assistant are comfort functions; the lift attendant remains responsible for performing the evacuation procedure according to the evacuation instructions that are provided with every controller.

### 3.1.11 Brake test - function principle

#### Dual circuit test

For the function test of a two-circuit brake, selective control is necessary. This is performed with brake release button S140/141. Enabling of the brake release button is performed by actuating key switch S143. This bypasses the evacuation circuit and goes directly to manual activation of the brakes. The key switch is monitored by the FST standstill monitor. If the key switch is actuated for longer than 2 sec, the "DRM CONTACTOR MONIT" message is output on the FST display. Thus, the switch is not to be actuated until during the drive; the S140 or S141 button is then to be actuated in order to force one of the two brake circuits to remain open. Refer to the system circuit diagram for detailed instructions. Upon completion of the test, the key is to be stored safely to protect against access by unauthorised persons.

### 3.1.12 Shaft door RESET - function principle

#### RESET 1 / 2

To reset any present external safety devices used for monitoring protected areas or access of those areas or that are used for other measures in the shaft pit and/or shaft head, two buttons as well as one key switch are provided on the front panel of the FST-2XTs. Connected in series upstream of buttons "RESET 1" (S205) and "RESET 2" (S206) is key switch "R1/R2" (S207). Resetting is thus only possible by actuating both the respective RESET button and the key switch. Upon actuation of the key switch, a signal sounds in 0.1 second intervals. Once resetting has been completed, the key is to be stored safely to protect against from access by unauthorised persons.




## 3.2 LCD-Display and messages

The LCD-Display consists of four lines (A, B, C and D) with 20 columns each. After switching on and during normal operation, the FST controller displays the main screen.

### 3.2.1 Main screen

SAFETY CCT CLOSED	
>AX<	-----
00	13:06:56

A	Maximum active state of the safety circuit
B	Active state or error
C	Status of the lift system / diagnostic message
D	Data for current drive mode

Line C has a special status. In the normal state (after switching on), it displays status messages (see „3.2.4 Line C – Status messages“ page 27). Switch with the ++ button combination to display diagnostic messages (see „3.2.5 Line C - Diagnostic messages“ page 27).

For further information, (see „3.1 Keypad functions“ page 13).


### 3.2.2 Line A – Safety circuit messages

Display	Description
SAFETY CCT CLOSED	The safety circuit is completely closed (FST X14.1, FST X14.2).
SAFTY-CLOSED MISSING	The input "Safety circuit closed" has no power. Possible causes: › Terminal FST X14.1 has no power (normally bridged with X14.2) › Relay K14 (230V) on the FST is faulty
DOOR LOCK-A OPEN	The shaft door contact of door side A is interrupted (FST X14.3).
DOOR LOCK-B OPEN	The shaft door contact of door side B is interrupted (FST X14.2).*
DOOR A OPEN	The car door contact of side A is interrupted (FST X14.4).
DOOR B OPEN	The car door contact of side B is interrupted (FST X14.5).
DOOR C OPEN	The car door contact of side C is interrupted (FST X14.6).
MANUAL DOOR OPEN	A manual door contact is interrupted (FST X14.6).
EMERGENCY STOP	An emergency switch in the shaft is interrupted (terminal FST X14.7).
EMERGENCY STOP CAR	An emergency switch on the car is interrupted (FST X32.4).

The messages DOOR C OPEN, MANUAL DOOR OPEN and EMERGENCY END SWITCH are triggered by the same safety circuit input of the FST (TC input: FSTX14.6) and exclude each other.

Note! : \* not with FST-2XTs.

### 3.2.3 Line B – State messages

Display	Description
LOW 24 V!	The 24V power supply of the FST board (FST X1.1, X1.2) is below the permitted range of 17 V. Check power supply and cables in the supply line.
POST-EMERGENCY STOP	Landing control is blocked by a safety circuit interruption (interruption before terminal FST X32.4), line A displays EMERGENCY STOP.
LANDING CALLS OFF	The landing control has been switched off manually. Possible causes of switch-off: <ul style="list-style-type: none"> <li>›  Button of the FST keypad</li> <li>› Programmable input of an external RIO module</li> <li>› Input FST X1.14</li> <li>› Programmable input on the FST controller</li> <li>› Key switch on car operating panel (FPM-1 X4.37 / FPM-2 X1.13)</li> <li>› Key switch on landing call panel (ADM input X3.12 / X3.13)</li> </ul>
FIREMAN MODE	A fire input is active. Possible causes of fire recall: <ul style="list-style-type: none"> <li>› Fire input on landing call module (ADM input X3.12 / X3.13)</li> <li>› Programmable input on the FST controller</li> <li>› GST Group Controller (see <i>GST manual</i>)</li> </ul>
END-SWITCH TEST	The manual end switch test is performed (see „5.10 TEST MENU“ page 135).
ES-SPEED MON. TEST	The manual test of the deceleration monitoring function at the top and bottom end floors is running (see „5.10 TEST MENU“ page 135).
EVACUATION	The controller is in evacuation mode. The reason for the evacuation signal may be: <ul style="list-style-type: none"> <li>› A programmable input on the FST controller</li> <li>› A programmable input on the GST Group Controller</li> <li>› LMS via protocol adapter module</li> </ul>
SEND FAX	The controller is in fax mode (see <i>Installation &amp; Commissioning – Fax modem</i> ).
LIFT OFF	The controller has been switched off. Possible causes of switch-off: <ul style="list-style-type: none"> <li>› Car lighting failure</li> <li>› Input "Car Lighting OFF", FST X1.13</li> <li>› Programmable I/O port of a RIO module (external)</li> <li>› Programmable I/O port of the FST controller</li> <li>› Externally by the GST Group Controller or the LMS Lift Monitoring System</li> </ul>
FIREMAN SERVICE	Fireman service mode has been activated. Possible causes of signal: <ul style="list-style-type: none"> <li>› Key switch fireman service in car operating panel (FPM-1 X4.4 / FPM-2 X2.13)</li> <li>› Programmable I/O port of the FST controller</li> <li>› The state was saved after a power failure and has been reconstructed. The Fireman Mode Reset function must be executed to reset this state.</li> <li>› Key switch on landing call panel (ADM input X3.12 / X3.13)</li> <li>› GST Group Controller (see <i>GST manual</i>)</li> </ul>
FILE TRANSFER ACTIVE	The controller is in data transmission mode to transfer files to a GST Group Controller or to a PC.
Attendant operation	The attendant controller is active.
INSPECTION MODE	The controller is in inspection mode (input FSM-2 X22.2). Attention: Line A of the FST display must show EMERGENCY STOP CAR!
CALIBRATION --	The calibration drive has been started. A ticker text displays the status. After completion of a successful calibration drive, the message CALIBRATION OK! appears. If the drive is interrupted prematurely, CALIBRATION ABORT! appears. Find the error in the error list and repeat the calibration drive.
APRON-EXTENDED!	The car apron is open (due to a shaft door interruption). Monitoring is performed via a programmable input on the FST controller.
LEARN DRIVE-ABORT!	The learn drive has been aborted due to an error. Find the error in the error list and repeat the learn drive.
LEARN DRIVE ACTIVE	The controller performs a learn drive.
LEARN DRIVE-START	The controller starts a learn drive.
LEARN DRIVE-OK!	The learn drive has been completed successfully.

Display	Description
SAFETY CURTAIN	The safety curtain replacing the car door has been interrupted. The contact is in the safety circuit instead of the car door contacts (see <i>System description – Safety curtain</i> ).
DRM	A runtime monitoring error has occurred, the installation is brought to a standstill. Possible reasons include, among others: <ul style="list-style-type: none"> <li>› Start-up problems</li> <li>› Runtime monitoring</li> <li>› Encoder failure</li> <li>› Car communication</li> <li>› Speed end switch</li> <li>› Zone missing</li> <li>› Motor failure</li> <li>› Forced stop</li> <li>› Emergency end switch</li> <li>› Door failure</li> <li>› Drive error</li> <li>› Special I/O port</li> </ul>
INSTALLATION MODE	The controller is in installation mode.
EMERGENCY END SWITCH	The top emergency end switch is interrupted (FST X14.6, X14.7)
ORIENTATION	Only incremental positioning: After switching on, the controller performs an orientation drive to an end floor. The orientation drive can take place automatically or when the first call is placed.
PARKING ACTIVE	The controller sends the car to the programmed parking floor.
LANDING PRIORITY	A priority landing drive has been triggered. Possible causes of signal: <ul style="list-style-type: none"> <li>› Key switch on landing call panel (ADM input X3.12 / X3.13)</li> <li>› Programmable input on the FST controller</li> <li>› Programmable input on an external RIO module</li> </ul>
CAR PRIORITY	A priority car drive has been triggered. Possible causes of signal: <ul style="list-style-type: none"> <li>› Key switch on car operating panel (FPM-1 X4.37 / FPM-2 X1.13)</li> <li>› Automatically after a type Auto 2 priority landing drive</li> </ul>
AUXILIARY MODE	The controller is in auxiliary mode (input FST X18.2). Attention: Line A of the FST display must show EMERGENCY STOP!
HOMING ACTIVE	The hydraulic lift is sent to the lowest landing.
SERVICE MODE !	The controller is in service mode.
SERVICE REQUIRED !	One of the service counters has exceeded a set limit.
SYSTEM STOP	The controller has been stopped via the FST menu.
OVER LOAD	The overload input on the FSM or on a programmable input is active.
USER ERROR	A user error has occurred (you can define up to three error messages as user errors). The number of the error is displayed.
USER ERROR 0	A user error has occurred (you can define up to three error messages as user errors). The number of the error is displayed.
USER ERROR 1	A user error has occurred (you can define up to three error messages as user errors). The number of the error is displayed.
USER ERROR 2	A user error has occurred (you can define up to three error messages as user errors). The number of the error is displayed.
V.I.P. MODE	The controller is in VIP mode. The source for the VIP mode can be: <ul style="list-style-type: none"> <li>› LMS via protocol adapter module</li> <li>› Programmable input on the FST controller</li> <li>› FPM-2 X2.14 in the car operating panel</li> </ul>
FULL LOAD	The full load input on the FSM is active.

### 3.2.4 Line C – Status messages

Line C is divided into two parts and displays one of the following status messages in the left part and one in the right part. This way you can select which two status messages you want shown simultaneously on the display.

Select the status message in the left-hand area with +Ø, in the right-hand area with +➡.

Status	Display	Description
Car doors	<A>	Door A completely open
	>A<	Door A completely closed
	↔A→	Door A is opening
	→A←	Door A is closing
	<A*>	Photocell or reversing contact door A active
	<A#>	Reversing contact door A active
	<AX>	Door A is locked (test menu)
	<AL>	Door is in loading mode (loading button has been pressed)
	-A-	Door A is stopped
	?A?	State of door A is unknown (check door end switches)
	↔↔↔	Door open button active
	→→→	Door close button active
	<↔>	Door open button permanently pressed
	>→←	Door close button permanently pressed
Shaft positioning	Z	Zone message active
	F	Zone message missing
	-	Car is in levelled position
		Car position relative to level position (2.5 mm / pixel)
	⌵	Bottom correction switch active
	⌶	Top correction switch active
Car position	P=6200	Current car position in relation to the level position of the bottom floor in mm.
Levelling	Pd= -2	Current position of the car relative to closest level position in [mm].
Car speed	V=1300	Current speed of the car in [mm/s]
Set / actual speed	I-----V2	Comparison between set and actual speed of the car. The left bar is a graphic display of the relation between actual speed and the set speed on the right.
Motor-Hours	BS=4351	Motor hours of the drive
Drive counter	FZ=123456	Number of completed drives
Load measurement	L=100 kg	Displays the current car load (only in combination with LCS)
Memory occupied	Rec: 45%	Memory occupied on the PC-Card when recording.

The door states marked with A also apply to doors B and C.

### 3.2.5 Line C - Diagnostic messages

Line C can be switched from status messages to diagnostic messages with button combination +Ø+Æ. To page within the diagnostic messages, use the +Ø or +➡ button combinations.

Display	Description
LIK-Errs:00000 00000	Absolute positioning only: Diagnostics of the absolute encoder function (see „Absolute encoder function“ page 29).
ENC:10000000[989680]	Real-time display of the counted increments of the encoder on plug X2. Together with the travelled path, the counted increments can be used to calculate the resolution that is to be set. The first value corresponds to the decimal value; the second value ([ ]) corresponds to the hex value.



Display	Description
Gray=43210 KO KU ZB	Current state of the magnet switch during incremental positioning (see „ <i>State of incremental positioning</i> “ page 29).
Door-A: F1=00 F2=00	Current state of the FSM-2 for door A (see „ <i>States of the FSM-2 car top control module</i> “ page 29).
Door-B: F1=00 F2=00	Current state of the FSM-2 for door B (see „ <i>States of the FSM-2 car top control module</i> “ page 29).
Door-C: F1=00 F2=00	Current state of the FSM-2 for door C (see „ <i>States of the FSM-2 car top control module</i> “ page 29).
Motor=00 VST=0000	Control-internal drive state and the states of the pre-control contact outputs (see „ <i>Controller-internal drive states</i> “ page 30).
Kop:Virt=0b Real=00	Generated and actually measured position messages of the car (see „ <i>Position messages</i> “ page 31).
SHK= ZbaABCNK	State of the safety circuit (see „ <i>Position messages</i> “ page 31).
Mgr1:Drv=00 Call=00	NEW LIFT internal diagnostic message
Mgr2:A=02 B=00 C=00	NEW LIFT internal diagnostic message
NextPoss=ff UT=U2	Next possible floor that can be driven to and the current set drive speed (see „ <i>Next possible floor and current set speed</i> “ page 32).
Port EXIN1=EGALPUDR	State of input EXIN1 (see „ <i>Input EXIN1</i> “ page 33).
Port EXIO2=76543210	State of input EXIN2 (see „ <i>Input EXIO2</i> “ page 33).
Port H8IN1=ZBSMU0	State of input H8IN1 (see „ <i>Input H8IN1</i> “ page 33).
FSM-X6: L=1 U=0 K=0	State of the outputs on the FSM-2 X8 and X19 (see „ <i>FSM-X6</i> “ page 33).
SRC:00 00 00 00 00	Source of the fireman mode, fireman service, landing control OFF, remote shutdown and service mode special drive signals (see „ <i>Source of the special drive signals</i> “ page 34).
LWE: 255% E0 F0 00	State of the weight sensor without LCS (see „ <i>Weight sensor</i> “ page 35).
LCS: 123456 E0 F0 00	State of the weight sensor with LCS. 123456 corresponds to the raw value of the A/D converter coming from the LCS. Used for checking the function of the weight sensor.
Proj.Status=.....	State of the project-related program parts (in-plant).
Media S0:1 S1:0 U:0	State of the memory media (see „ <i>Memory media</i> “ page 36).
Pkt/s In=005 Out=002	Incoming and outgoing data packets of the FST controller in packets/sec.
ASU: 0000000 P=[00]	State of the pawl-control (see „ <i>State of the pawl-control</i> “ page 36).
IN=0000 0000 00 #00 or OUT=0000 0000 00 #00	0000 0000 00 shows the last received/sent DCP data to/from the FST in HEX. #00 corresponds to the counter for current DCP transmission errors.
CMM: Module-01 =OK	State of the monitored LON modules OK: module responds Fail: module does not respond OFF: CMM is switched off
FSM T= 01 R= 02	Counter that represents the round trip time of transmission (T) and receipt (R) of the data between FST and FSM. Both values should be approximately in sync with one another, i.e., the counter values should differ by no more than one.



## Absolute encoder function

LIK-Errs: 00000 00000

The two numbers in the display indicate the number of encoder errors that have occurred since the last time the system was turned on. The left number shows the different values resulting from the double scanning; the right number shows the number of failed plausibility checks. Sporadic errors are compensated by the FST software and can be tolerated. A continuous increase of one of the values indicates a hardware error of the encoder or cable.

### Left number:

Display	Description
00000 or constant value	Communication between FST controller and absolute encoder is working correctly. Double scanning for suppressing electrical interference shows no deviations.
Constantly increasing value	Double scanning for suppressing electrical interference shows deviations. Electrical interference is present on the connection cable between FST and encoder. Check connection cables, inform NEW LIFT service line.

### Right number:

Display	Description
00000	The position values of the absolute encoder are plausible (are within the regular shaft). There are no invalid jumps in the position value.
RANGE	The position values of the absolute encoder are not plausible (are outside of the regular shaft). Check the direction of rotation of the encoder and commission absolute positioning (see "Installation and Commissioning manual").
DELTA	There are invalid jumps in the position value. The absolute encoder is mechanically defective.

## State of incremental positioning

Gray=43210 K0 KU ZB

Code	Description
43210	State of the Gray-encoded pre-end switch for high-speed units (optional)
K0	Top correction switch TC is active
KU	Bottom correction switch BC is active
ZB	Zone switch B is active

## States of the FSM-2 car top control module

Door-A: F1=00 F2=00, Door-B: F1=00 F2=00, Door-C: F1=00 F2=00

Each number encodes four input states (bits) of the F1/F2 table with its hexadecimal value. The decimal value of the number corresponds to the sum of the values of the activated functions according to the following tables.

Bit	Digit	Value	Set	F1 = Byte F1
0	Digit 1 (right digit)	1	Active	Configured car top control module FSM
1		2	Active	Door locked
2		4	Active	Door reversing
3		8	Door completely open	End switch "door open"

Bit	Digit	Value	Set	F1 = Byte F1
4	Digit 2 (left digit)	1	Door completely closed	End switch "door closed"
5		2	Active	Photocell interrupted
6		4	Active	Reversing contact
7		8	Active	Empty load input★

Bit	Digit	Value	Set	F2 = Byte F2
0	Digit 1 (right digit)	1	Active	Car lighting sensor•
1		2	Active	Inspection signal "fast"
2		4	Active	Inspection signal "down"
3		8	Active	Inspection signal "up"
4	Digit 2 (left digit)	1	Active	Inspection signal "ON"
5		2	Active	Door closing motor
6		4	Active	Door opening motor
7		8	Active	Door ready for drive

- Signal only relevant for door versions A and B.

Short instructions on converting from binary to hexadecimal values as well as a corresponding value table:  
(see „6.2 Bit calculation“ page 138).

**Example: status byte F1 = 6c and status byte F2 = 21**

SAFETY CCT CLOSED		A
Door-A: F1=6c F2=21		B
00 13:06:56		C
		D

This results in the following hexadecimal numbers, values and, thus, active bits:

- F1: Digit 1 = hex: c → decimal: 12 = 8 + 4 → bit 3 and bit 2 active  
→ doors reversed; end switch "open" has switched
- Digit 2 = hex: 6 → decimal: 6 = 4 + 2 → bit 6 and bit 5 active  
→ photocell interrupted; reversing contact has switched
- F2: Digit 1 = 1 → decimal: 1 = 1 → bit 0 active  
→ car light sensor active
- Digit 2 = 2 → decimal: 2 = 2 → bit 5 active  
→ door motor - closing

## Controller-internal drive states

Motor=02

The controller-internal drive state is decoded according to the following table:

Value	Drive states
00	Drive ready
01	Drive starting
02	Drive operating
03	Drive approaching stop position
04	Drive braking

Value	Drive states
05	Drive stopping

VSt=0000

The four-digit, hexadecimal-encoded display describes the states of the pre-selection relays in real-time according to the following table. The hex value is decoded digit-by-digit as described in (see „States of the FSM-2 car top control module“ page 29).

Bit	Digit	Value	Set	VST = pre-selection relay
0	Digit 1 (right digit)	1	Active	Output FST K0
1		2	Active	Output FST K1
2		4	Active	Output FST K2
3		8	Active	Output FST K3
4	Digit 2	1	Active	Output FST K4
5		2	Active	Output FST K5
6		4	Active	Output FST K6
7		8	Active	Output FST K7
8	Digit 3	1	Active	Output FST K8
9		2	Active	Output FST K9
10		4	Active	Output FST K10
11		8	Active	Output FST K11
12	Digit 4 (left digit)	1	Active	Output FST K12
13		2	Active	Zone signal B
14		4	Active	Safety circuit bypass FST K20
15		8	Active	Enable zone switching FST K21

Short instructions on converting from binary to hexadecimal values as well as a corresponding value table can be found Chapter 6.2 Bit calculation (see „6.2 Bit calculation“ page 138).

**Example: status byte motor = 02 and status byte VSt = 000a**

SAFETY CCT CLOSED		A
Motor=02      VSt=000a		B
00      13:06:56		C
		D

Motor: 02 → drive is operating

VSt: Digit 1 = a → decimal: 10 = 8 + 2 → bit 3 and bit 1 active  
→ output FST K3 and FST K1 active

Digit 2 - 4 = 0 → no active bits

## Position messages

Kop: Virt=0b Real=00

The generated (virtual) and actual (real) position messages of the car describe in hexadecimal coding the state of eight switches each (bits) in real-time according to the following tables. The hex value is decoded digit-by-digit as described in (see „States of the FSM-2 car top control module“ page 29).

Bit	Digit	Value	Set	Virt = virtual position
0	Digit 1 (right digit)	1	Active	Level (A and B)
1		2	Active	Level (A and B) with drive stopped
2		4	Active	Approach area
3		8	Active	Zone switch B (FST K23)

Bit	Digit	Value	Set	Virt = virtual position
4	Digit 2 (left digit)	1	Active	Relevelling "up"
5		2	Active	Relevelling "down"
6		4	Active	Enable zone switching (FST K21)
7		8		Not assigned

Bit	Digit	Value	Set	Real = real position
0	Digit 1 (right digit)	1	Active	Zone signal FST (K22 & FST K23 active simultaneously)
1		2	Active	Top correction switch TC (incremental positioning)
2		4	Active	Bottom correction switch BC (incremental positioning)
3		8	Active	Level at bottom BU (incremental positioning, optional)
4	Digit 2 (left digit)	1	Active	Level at top BO (incremental positioning, optional)
5		2	Active	Brake monitoring (FST X1.19, X1.20)
6		4	Active	Motor monitoring (FST X1.22)
7		8	Active	Zone switch B (incremental positioning)

Short instructions on converting from binary to hexadecimal values as well as a corresponding value table can be found in (see „Bit calculation“ page 138).

## States of the safety circuit

**FST:** Shk=ZbaABCNK

Display	Description
Shk=	Emergency stop car open
Shk= K	Emergency stop open
Shk= NK	Car door C open
Shk= CNK	Car door B open
Shk= BCNK	Car door A open
Shk= ABCNK	Door lock A open
Shk= aABCNK	Door lock B open
Shk= baABCNK	Circuit board defect
Shk=ZabABCNK	Safety circuit closed

## Next possible floor and current set speed

NextPoss=ff

Next possible floor that can be approached is decoded from hexadecimal values according to the following table:

Code	Description NextPoss=
ff	All floors possible (at rest)
fe	No further floors possible (when decelerating)
00..3f	Next possible floor = hexadecimal code

Ut=U2

The current set speed of the drive is decoded according to the following table:

Code	Description Ut=
U1..U8	Drive speed 1 ... 8 (for normal drives)
ve	Approach speed
Ui	Fast inspection speed

Code	Description U <sub>t</sub> =
Un	Relevelling speed

## Input EXIN1

Port EXIN1=EGALDUR

Input EXIN1 displays the states of the controller inputs according to the following table:

Bit	Terminal	Set	Description
R	FST X18.2	Active	Auxiliary mode control ON
U	FST X18.3	Active	Auxiliary mode control UP
D	FST X18.4	Active	Auxiliary mode control DOWN
L	FST X1.14	Active	Car lighting OFF
A	FST X1.15	Active	Landing control OFF
G	–	Active	GST
I	–	Active	Emergency call

## Input EXIO2

Port EXIO2=76543210

I/O port EXIO2 displays the states of the freely programmable I/O port:

Bit	Terminal	Set	Description
0	FST X1.4	Active	Programmable I/O port 0
1	FST X1.5	Active	Programmable I/O port 1
2	FST X1.6	Active	Programmable I/O port 2
3	FST X1.7	Active	Programmable I/O port 3
4	FST X1.8	Active	Programmable I/O port 4
5	FST X1.9	Active	Programmable I/O port 5
6	FST X1.10	Active	Programmable I/O port 6
7	FST X1.11	Active	Programmable I/O port 7

## Input H8IN1

Port H8IN1=ZBSMU0

Input H8IN1 displays the inputs of the drive processor according to the following table:

Bit	Terminal	Set	Description
0			Not assigned
1			Not assigned
0	FSM-2 X13.1	Active	Top correction switch "TC"
U	FSM-2 X13.3	Active	Bottom correction switch "BC"
M	FST X1.22	Active	Motor monitoring
S	FST X1.23	Active	Standstill monitoring
B	FST X1.19/20	Active	Brake monitoring
Z	FST X13.9	Active	Zone message

## FSM-X6

FSM-X6: L=1 V=0 K=0

FSM-X6 displays the states of the following outputs of the car top control module:

Code	Terminal	Set	L= car lighting
0	FSM-2 X19.1	Active	Car lighting switched off
1	FSM-2 X19.1	Inactive	Car lighting switched on

Code	Terminal	Set	V= car ventilator
0	FSM-2 X19.4	Inactive	Car ventilator switched off
1	FSM-2 X19.4	Active	Car ventilator switched on

Code	Terminal	Set	K= locking solenoid
0	FSM-2 X8.3	Inactive	Locking solenoid released
1	FSM-2 X8.3	Active	Locking solenoid activated

## Source of the special drive signals

SRC: 00 00 00 00

The fireman mode, fireman service, landing control OFF, lift off and service mode special drive signals can be activated by various signal sources (e.g., ADM, FPM, etc.). The sources are displayed as follows:

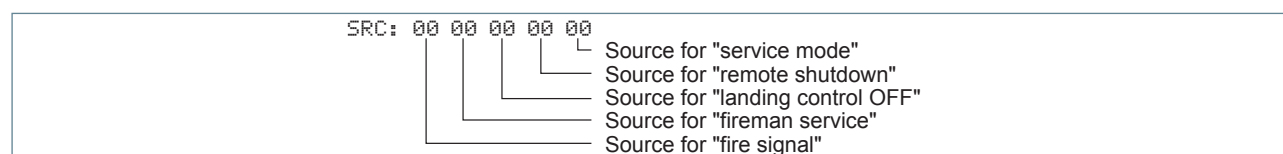



Fig. 3.9: The signal sources of the SRC display

## Decoding the source displays

Code	Source for service mode signal
01	External via the LMS Lift Monitoring System
02	TEST MENU - Service Mode ON
04	Programmable I/O port of the FST controller

Code	Source for remote shutdown signal
01	Remote shutdown following a car lighting error
02	Input "Car Lighting OFF", FST X1.13
04	Programmable I/O port of a CUS module (external) or ADM
08	Programmable I/O port of the FST controller or RIO module (external)
10	Externally by the GST Group Controller or the LMS Lift Monitoring System

Code	Source for landing control OFF signal
01	 Button of the FST keypad
02	Programmable I/O port of a RIO module (external)
04	Input "Landing control OFF", FST X1.14
08	Programmable I/O port of the FST controller
10	Car operating panel module FPM-1, X4.34 / FPM-2 X2.14
20	Landing call module ADM
40	Push-button mode (see „5.7.1 Special call mode“ page 123)

Code	Source for fireman service signal
01	Car operating panel module FPM-1 X4.4 / FPM-2 X2.13
02	Programmable I/O port of the FST controller
04	State was saved after a power failure and has been restored
08	Landing call module ADM
10	GST group controller

Code	Source for fireman mode signal
01	Landing call module ADM
02	Programmable I/O port of the FST controller
04	GST group controller

## Weight sensor

LWE: 255% E0 F0 00 or LCS: 123456 E0 F0 00

The state of the weight sensor inputs and of the loading level of the car when using analogue weight sensors is displayed as follows:

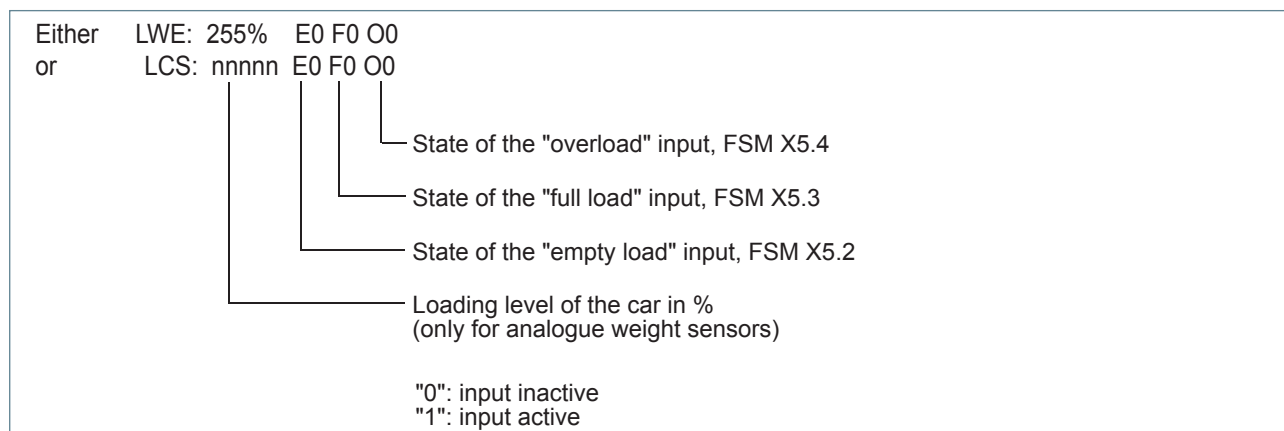


Fig. 3.10: State of the weight sensor

## Memory media

Media S0:1 S1:0 U:0

Indicates whether a memory medium is present, 0 = not present, 1 = present

Code	Description
S0:	microSD card
S1:	SD card (present, up to hardware version 3.2)
U:	USB 2.0 / X41

## State of the pawl-control

ASV: 0000000 P=[00]

The state of the pawl-control is decoded as follows:

Bit	Set	Description ASV: . . . . .
0 (right)	Active	Pump for bolt control switched on
1	Active	"Extend bolts" valve activated
2	Active	"Retract bolts" valve activated
3	Active	"Bolts extended" end switch is active
4	Active	"Bolts retracted" end switch is active
5	Active	"Car bottomed" input is active
6 (left)	Active	"Re-pump" input is active

Digit	Code	Meaning P=[. . .]
1 (right)	0	Standstill
1 (right)	1	Main contactors ON, wait for star/delta startup
1 (right)	2	Lift car (approx. 30 mm)
1 (right)	3	Motor run-on active
1 (right)	4	Wait for bolts to extend or retract
1 (right)	5	Bolts extended or retracted completely
1 (right)	6	Waiting for "car bottomed" input
1 (right)	7	Delay after stop
2 (left)	0	No bolt movement
2 (left)	1	Bolts are retracting
2 (left)	2	Bolts are extending
2 (left)	3	Re-pumping active
2 (left)	4	Error in bolt control





### 3.2.6 Line D - Drive mode messages

Column	Display	Description
1	T	Auto test drive active
	S	No serial connection to the frequency inverter (FST X11)
	s	Data transmission to the frequency inverter via serial connection is faulty (FST X11)
2	↑	Direction of travel UP
	↓	Direction of travel DOWN
3-4	10	Current floor for the car
5-8	[13]	Car call and landing call on target floor
	[13	Car call to target floor
	13]	Landing call to target floor
	X13	Car control blocked
	13X	Landing control blocked
9		Not assigned
10	G	FST is integrated in a GST Group Controller.
	g	FST is integrated in a GST Group Controller but communication with the GST is faulty
	s	"Separated" group participants
	P	Drive temporarily stopped
11	R	Flashes while recording data on the SD card
	F	Card is cleared
	B	Bank controller: user group active
9-11	FTX	Data exchange from FST active (from FST to GST, LMS, etc.)
	FRX	Data exchange to FST active (from GST, LMS, etc. to FST)
12		Not assigned
13-20	10:44:12	Current time of the FST

### 3.3 Information texts

When triggering actions in the FST menu, information texts may appear in the display. They contain information on the result of the respective action.

Display	Description
EMERGENCY MODE !	The controller is in emergency mode. Drives are not possible. Emergency operation is activated by pressing the  button while switching the system on.
ADM STUCK:	Landing call button mechanically or electrically stuck. The call is detected but not placed.
ADM unconfigured!	A landing call module connected to the shaft bus is not configured. Inform NEW LIFT service line!
DRIVE NOT READY	Inverter "Ready" signal does not arrive via the DCP interface within 0.5 seconds.
DRIVE INHIBIT ON!	Mutual start-up blocking via the LMS bus is active. Starting will be delayed until the other networked systems have completed their acceleration phases.
ARM SW UPDATE ERROR	Software update for the "ARM" drive processor failed. Repeat update procedure. Otherwise inform NEW LIFT service line!
Landing call button stuck: 03/A Car-call button stuck: 02/B	The landing call from the specified floor and door side is permanently activated (is stuck). The message is repeated every minute until the error has been corrected.
PLEASE WAIT...	The triggered action has not been completed. Please wait!
DIR NOT FOUND!	Update file directory on external memory medium not found. Update file "xxxxxx.tar" must be located in the "update" folder.
DIR NOT OPENED!	Update file directory could not be opened. Check update file and directory.
UNPACKING FAILED	Unpacking the ".tar" file failed. Check update file; the file may be defective.
FANG RESET ACTIVATED	Default function with FST-2XTs "on board". Action triggered via the "FangReset" test menu. Relay K38 controls the reset coil of the speed limiter. This can also optionally be performed via an I/O port.
ARREST TEST RUNNING...	Activation of "FangTest-Automatik" via the test menu. Arrest floor and offset are to be set under Main Menu/Config/Installation/. Following activation, keep  pressed down.
FAX/SMS SENT OK!	A status fax was sent successfully via the modem interface.
FAX/SMS -> GST!	A fax/SMS (text message) is sent to the group controller where it will be sent via the FAX-modem.
FEH_LIST TRANSFER ER	Transfer of the FST error list (xxxxx.txt file) faulty.
FEH_LIST TRANSFER OK	Transfer of the FST error list (xxxxx.txt file) triggered via Main Menu/System/Copy to/Error List-> USB successfully completed.
FILE NOT FOUND!	The inserted PC-Card does not contain the file(s) required for the triggered action.
FST Software Update	An FST software update with a USB 2.0 memory medium is being performed. The progress is displayed in %.
GST UPDATE COMPLETE!	The software update of the GST Group Controller has been completed successfully.
ZONE IS INCORRECT!	The zone measured during the learn drive is too long (max - 300mm to +300mm)
Calibration abort!	The calibration drive was aborted. Check function of connected drive speeds. Locate reason for drive abort in the error list.
NO <KO> SIGNAL!	The car is on the top floor and the correction top signal is missing (only incremental positioning). Check function of TC switch. Check settings in MAIN MENU / Positioning / Increm. Positioning / KO/KU-Level.
NO <KU> SIGNAL!	The car is on the bottom floor and the correction bottom signal is missing (only incremental positioning). Check function of BC switch. Check settings in MAIN MENU / Positioning / Increm. Positioning. / KO/KU-Level.

Display	Description
CONFIG TRANSFER ERR !	An error has occurred during copying of the controller configuration.
CONFIG TRANSFER OK !	Controller configuration copied successfully.
CONFIG(D) CORRUPT !	A parameter of the drive configuration is not plausible. Change a parameter in MAIN MENU / Drive and undo the change again. The information text disappears after saving the settings.
CONFIG(S) CORRUPT !	A parameter of the system configuration is not plausible. Change a parameter in MAIN MENU / Config and undo the change again. The information text disappears after saving the settings.
LCS OFFSET DELETED	All currently active weight offsets are deleted by the Main Menu/Config/Weight Sensor/LCS Settings/Auto Adjust/LCS Reset parameter.
LCS (L1) calibrated!	The LCS empty load measurement was performed.
LCS (L2) calibrated!	The LCS reference load measurement was performed.
LCS re-calibrated!	Re-calibration was performed. Activation via Main Menu/Config/Weight Sensor/LCS Settings/Correct Offset
LON INTERFACE ERROR	Sent or received data of the LON bus are faulty or completely missing LON bus communication
RESET LON	After "LON INTERFACE ERROR", restart of the LON controller
LON INTERFACE OK !	LON controller OK after "RESET LON" (restart)
LEARN DRIVE FAILURE !	The started learn drive was not successful. Check function of signals zone B, bottom correction (BC) and top correction (TC). Locate reason for drive abort in the error list.
LEARN DR. START FAILURE !	The started learn drive was aborted due to the car not moving even with pre-selection active.
DRM-TEST STARTED !	A DRM test was triggered.
DRM-TEST FINISHED !	The DRM test was not completed successfully.
CAR NUISANCE DETECT !	The car nuisance protection function has triggered. See MAIN MENU / Config / Anti Nuisance.
FAX/SMS NOT SENT ! [FAX/SMS]	Transmission of a status fax via the modem interface was aborted. Check modem and telephone connection. MAIN MENU / Config / Modem/Fax/LMS
NOT IN THE ZONE !	The started learn drive cannot be performed because the car is not in the door zone of the bottom floor. Check function of zone B signal and settings in MAIN MENU / Positioning / Increm. Positng. / ZoneB-Level.
NOT IN FLOOR-0 !	The started learn drive cannot be completed because the car is not on the bottom floor (check bottom correction switch, BC).
NOT FROM THIS FLOOR !	The car is at an end floor. The end switch test cannot be started from this floor.
EMERG.-CALL PRESSED	An emergency call button was pressed or is defective ( <i>see wiring diagram</i> ).
ONLY FROM END FLOOR !	The triggered DRM test can only be started from an end floor.
REC. ALREADY STOPPED	Repeated execution of the Main Menu/System/Recorder/Recorder STOP parameter even though it was already stopped.
RECORD TRANSFER ERR !	Copy operation of the record file faulty.
RECORD TRANSFER OK !	Copy operation of the record file successfully completed.
RECORDING RE-START !	An already-started recording was restarted.
RECORDING STOPPED !	Recording was stopped.
RECORDING NEW START !	Recording is restarted.
SD CARD REMOVED	An SD card was removed.
SD CARD OK	The inserted SD card is OK.
UNKNOWN SD CARD	The inserted SD card is unknown.
KEYPAD LOCKED	Keypad of the FST locked. Unlock with the "S" button.
KEYPAD UNLOCKED	Keypad of the FST unlocked.
TRANSFER RUNNING !	Data transfer to external USB memory medium.

Display	Description
UCM-A3 TEST...	A UCM-A3 test was triggered in the up or down direction in the test menu.
UNKNOWN DIR ERROR	Directory on external memory medium cannot be read or cannot be found.
UPDATE COMPLETE !	The software update of the LON modules was completed successfully.
USB stick REMOVED	A USB was removed from X41.
USB stick PLUGGED IN	A USB stick was plugged into X41.
USB stick OK	The USB stick that was plugged into X41 is detected by the FST-2XT controller.
USB stick UNKNOWN	The USB stick that was plugged into X41 is not detected by the FST-2XT controller. Only USB 2.0 sticks with FAT32 formatting and maximum size of 32GB are to be used.
*** WARNING ***	General warning notice scroll text; in connection with various plain text messages.
WAITING TO RESET...	Automatic Reset after changing a basic parameter (e.g. Drive type). This may take a few seconds.
EXCESSIVE SLIPPAGE!!	During the last drive of the learn drive, hysteresis of the connected magnet switches TC, BC and zone B was detected (only incremental positioning). This message appears if the result of the measurement is greater than 10 mm. Hysteresis will then automatically be limited to 10 mm.
DOOR-NUDGING !	Nudging (forced closure) of the car door is active. Photocell and reversing contacts are ignored. See MAIN MENU / Doors / Doors-Selective / Photocell and MAIN MENU / Doors / Doors-Selective / Nudge Time.

### 3.3.1 Information page

The information page contains important information on the individual configuration of your FST controller.

It can be accessed with the + button combination and closed with . and serve for navigation within the information page.


-- FST INFORMATION --	A
HW Ver. : FST-2XT	B
SW Ver. : U2.000-0102	C
: 19/08/2014	D

#### Messages in lines B, C and D

Display	Description
HW Ver. : FST-2XTs	Hardware version of the FST board
SW Ver. : U2.000-0102 : 19/08/2014	Software version with release date
Boot Ver : 1.3.4.13	Software version of the operating system
DRV Ver. : 0102	Software version of the drive system
FSM Ver. :	Software version of the FSM car top control module. If no software version is displayed here, there is no bus connection to the FSM.
FPM Ver. :	Software version of the FPM car panel module. If no software version is displayed here, there is no bus connection to the FPM.
LiftID:A	Internal identification of the controller. The ID displayed here must correspond to the jumper settings on the FSM and FPM.
MAC.. 1C:35:F1:0A:06:83	Hardware address of the FST as unique identifier for the network connection
Neuron-ID.. 07 00 05 90 0B 01	Unique ID for identification of the FST
Installation ID. 64-eta9e-simulator	System location or name
NEW-Factory No. RC12/2005	Order number of the individual lift system
Mem:12936 Cach.1404	Free "memory" and currently used "cache" memory of the FST
Start:01/08/11 12:00	Date and time of the last activation
Cal :27/05/13 15:27	Date and time of last calibration drive
Stats:07/08/13 09:44	Start date and time of the current statistics recording
Cfg :01/08/11 12:06	Date and time of the last change of a parameter in the FST menu
CfgBk:23/06/12 00:57	Date and time of the current backup in the internal buffer
Err :25/06/99 03:45	Date and time of the last error list reset
Sec.Level:2	Active security level of the FST
-- GST INFORMATION --	Only occurs if FST is member of a group
GST SW :U2.000-0020 :08/08/2014	GST (group controller) software version with release date
Start:04/09/14 07:13	Date and time of the last activation of the GST

### 3.4 LEDs

Three LEDs on the front panel of the FST controller display the device status.

LED	Colour	State	Reason	Action
FST	Green	On	The power supply is on	
			The hardware of the FST controller is working correctly	
		Off	No power supply	Check the 24V power supply of the FST controller
			The hardware of the FST controller is faulty	Contact the NEW <i>LIFT</i> service line
STATUS	Green	On	The drive processor is working correctly	
		Flashing	Landing control OFF	 switches landing control back on
		Off	Fault in drive processor	Contact the NEW <i>LIFT</i> service line
ERROR	red	On	Drive not possible	Line B shows the reason of the error. A drive is only possible after the error has been corrected.
		Flashing	One or more errors were added to the error list	The ERROR LED switches off after the error list is called up
		Off	There is no error or event	

You can find more information on other LEDs on the FST (see „4.2.3 LEDs“ page 52).

## 4 Technical data

The FST-2XT and FST-2XTs lift controllers are the result of years of product experience in the area of controller design for lift systems and close collaboration with various component manufacturers, the technical regulatory authorities and our customers.

The individual components of the FST-2XT and FST-2XTs lift controllers are described and dimensions, jumpers, LEDs, terminals and plugs explained.

### 4.1 Component overview – bus plan

For each lift system, NEW LIFT prepares an overview of the individual components, the so-called bus plan, which is included with the wiring diagram. Specified in the bus plan for each electronics assembly are the installation location, the associated bus affiliation and, with LON bus cables, the respective cable length. Each electronics assembly is clearly designated on the circuit board. Using this designation, the assignment between the individual components and the bus plan is performed.

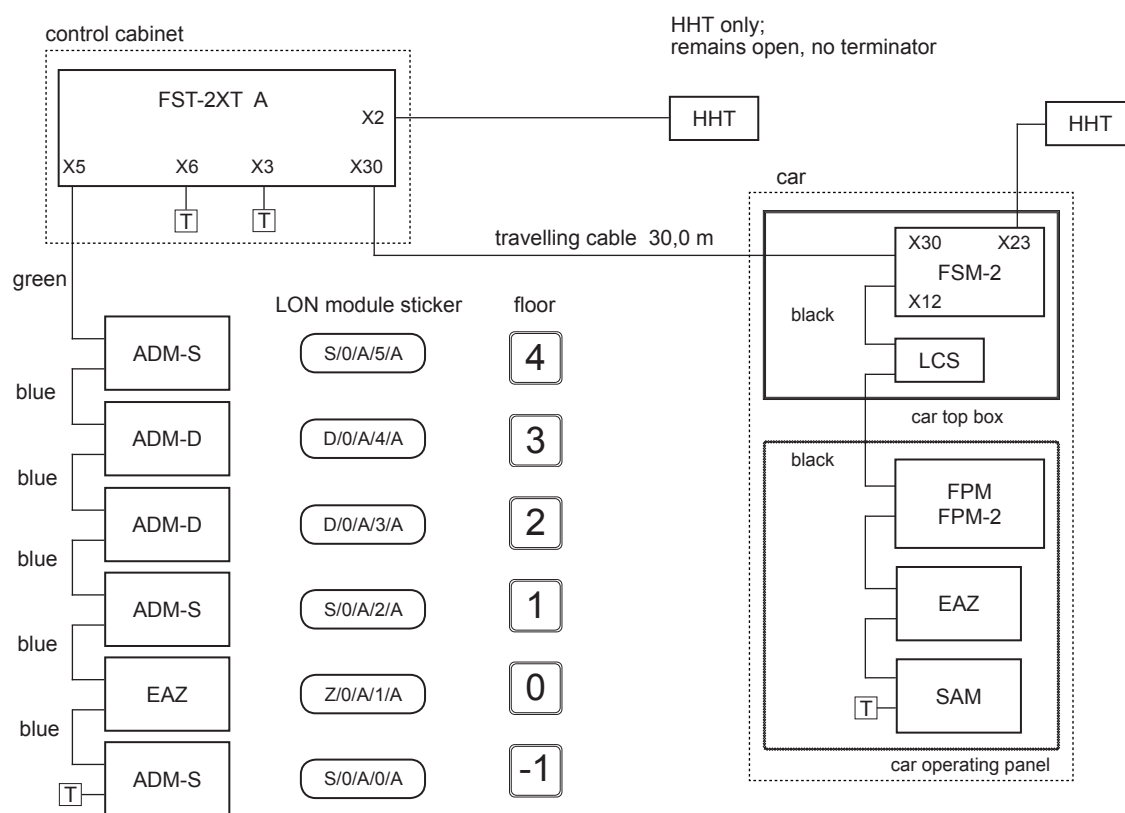


Fig. 4.1: Bus plan FST-2XT FST-2XTs controller

## 4.2 FST controller

The FST controller can be used to operate all common types of cable and hydraulic lifts. The pre-assembled FST controller can easily be adapted to any given lift system on-site using the FST menu. New software versions can easily be installed at any time via the USB 2.0 port without changing system-specific settings. The FST controller includes the following components and features:

### 4.2.1 Technical details and data

- › FST-2XT/s main circuit board with separate processors for call processing (32-bit), drive control and bus management
- › Integrated repeater for electrical isolation of shaft and car bus
- › RS-485 / RS-422 / regulator interface for communication with drive regulators
- › Encoder interface for connecting common absolute and incremental encoders
- › Flash memory and battery-buffered RAM for an error list with up to 100 entries
- › USB 2.0 type-A port for using USB memory media to download and update data
- › USB 2.0 mini-B as PC interface (laptop on-site)\*\*
- › RS-232 modem interface (remote data transmission, FAX, PAM or laptop on-site)
- › RS-485 CANopen Lift (CiA 417)
- › Network connection - Ethernet RJ45 LAN 10/100 MBit
- › Onboard microSD card for permanent, long-term recording of system activities for up to 31 days as well as for recording various statistics and the error list
- › 240x320 TFT display with 262K colours as split-screen for configuration and menu actions and for navigation and lift status displays using the NEW LIFT Guide
- › Keypad for intuitive navigation in the main menu, Test menu and Guide menu
- › 8 programmable I/O ports on the FST main circuit board
- › 72 programmable I/O ports on additional RIO modules spread over the switching cabinet or car top box
- › Onboard relays for manual or automatic triggering via the Test menu of the speed limiter using the NEW LIFT FAT Assistant\*\*
- › Integrated operating elements for auxiliary mode control as well as manual evacuation drive, brake test and control of external safety devices for reduced shaft head and/or shaft pit\*\*
- › Emergency mode monitor for the freeing of persons acc. to EN81-A2
- › Levelled evacuation stop assistant for the freeing of persons\*\*
- › Button lock against accidental actuation

See the controller description for an overview of the features and functions of the FST controller.

Description	Value
Supply voltage	24 V DC $\pm 10\%$
Typical power consumption	300 mA
Max. fuse rating of the 230V/50Hz inputs	(Characteristic B) 4A
24VDC / GND open collector outputs	Short circuit-proof
Length x width x depth	310 x 200 x 50 mm 500 x 106 x 101 mm**
Temperature range: Storage & transport / operation	-20 – +70 °C / $\pm 0$ – +60 °C
Relative humidity: Storage & transport / operation (non-condensing)	+5 – +95 % / +15 – +85 %



**The jumper, terminal and socket settings listed here are default values and apply only if no deviations are specified in the wiring diagram.**



All settings marked with ☐ are the settings set on delivery.

If marked with \*\*, only possible with FST-2XTs!

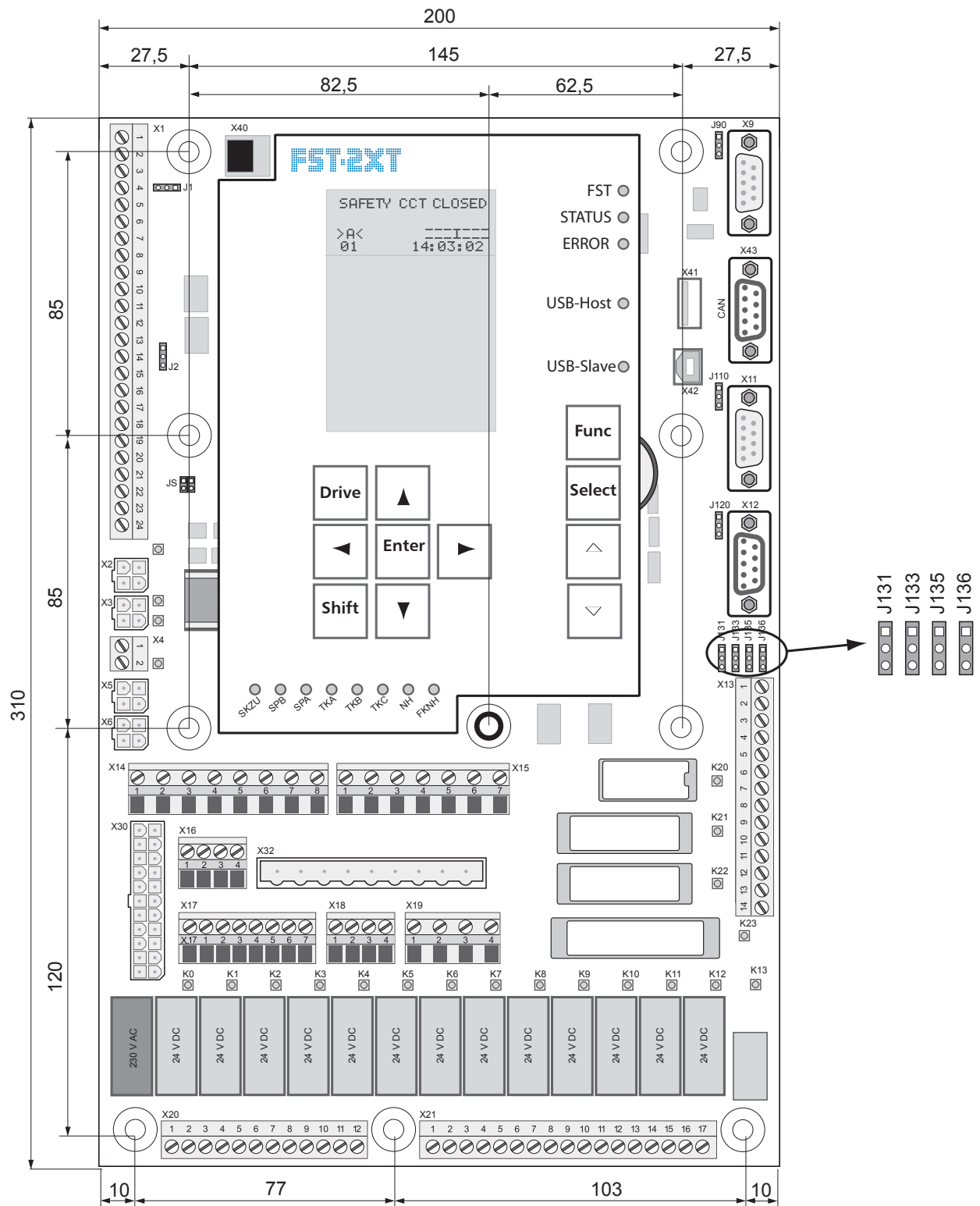


Fig. 4.2: FST-2XT controller

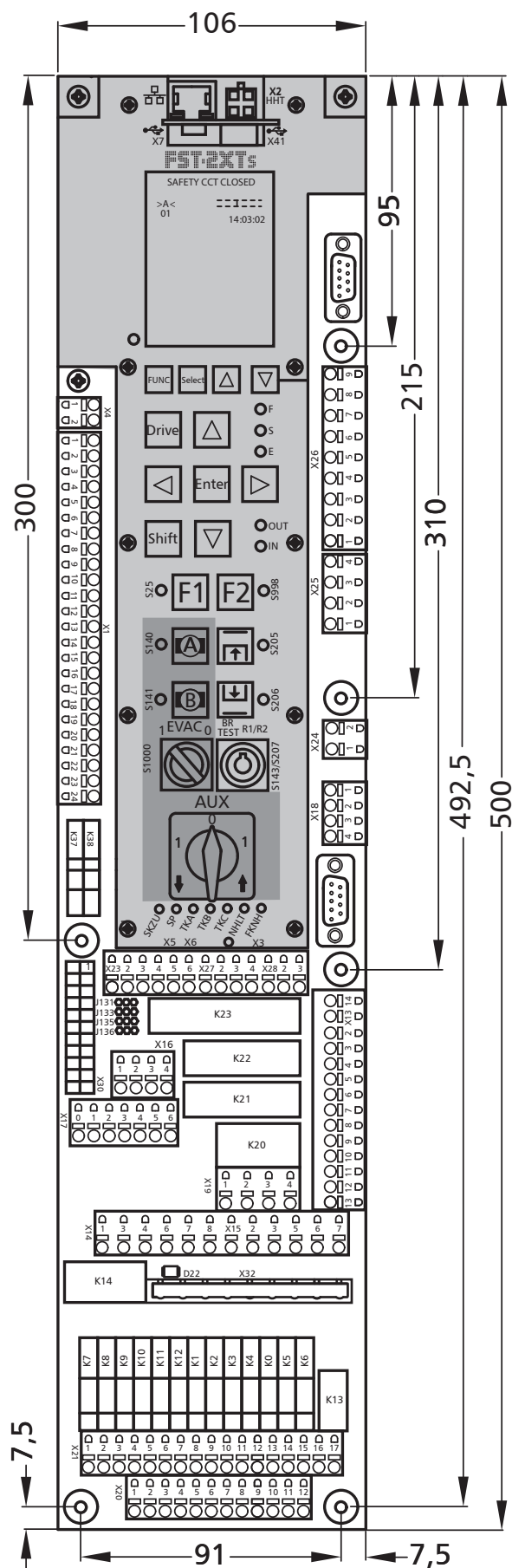
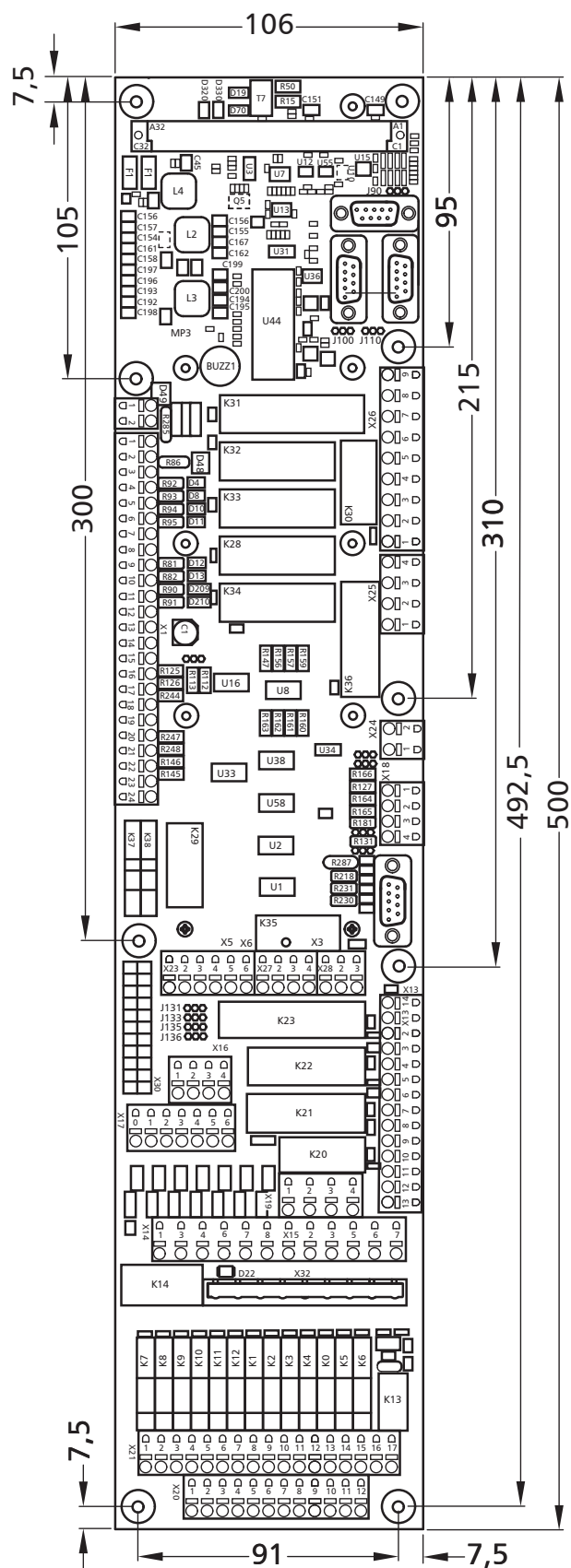


Fig. 4.3: FST-2XTs controller



*Fig. 4.4 FST-2XTs controller*

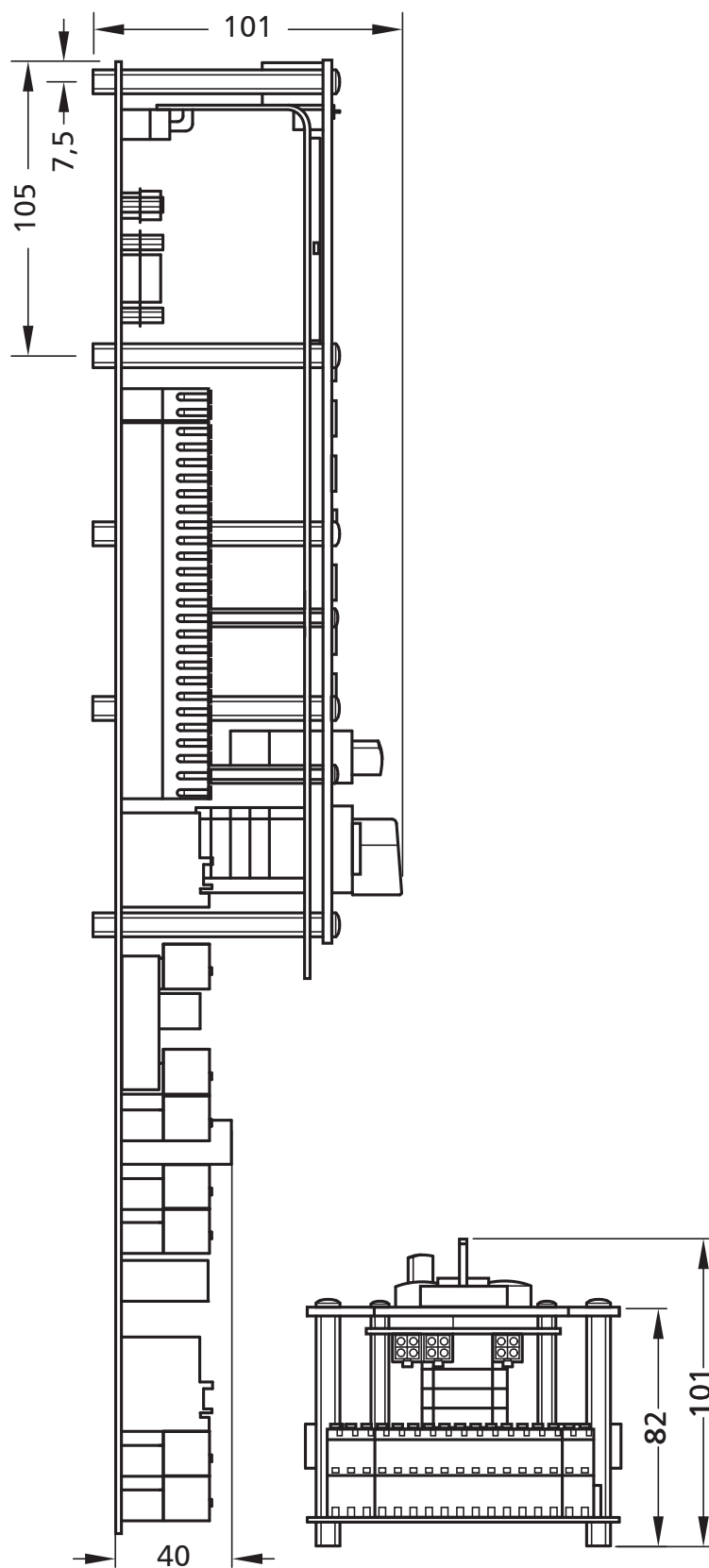


Fig. 4.5: FST-2XTs controller

## 4.2.2 FST jumpers

### FST-2XT jumper J1: service jumper

This jumper must always remain open.

FST-2XTs jumper J1: encoder - incremental / CAN Open LIFT

Function	J1
Incremental 24V	1-2 *
CANopen Lift ground	2-3

### FST-2XT and FST-2XTs jumper J2: load measurement inputs

Function	J2
Switched GND for load measurement inputs	1-2 *
Switched +24 V for load measurement inputs	2-3

### FST-2XTs jumper J3: encoder - incremental / CAN Open LIFT

Function	J3
Incremental 5V	1-2 *
CANopen Lift 24V	2-3

### FST-2XTs jumper J4: encoder - incremental / CAN Open LIFT

Function	J4
Incremental track A	1-2 *
CANopen Lift channel L	2-3

### FST-2XTs jumper J5: encoder - incremental / CAN Open LIFT

Function	J5
Incremental track A negated	1-2 *
CANopen Lift channel H	2-3

### FST-2XT and FST-2XTs jumper J90: shielding X9



**This jumper is in the open position on delivery. Set only after consulting with NEW LIFT.**

The shielding of service-PC cable X9 is connected to PE or GND potential with J90.

Function	J90
Shielding of the connecting cable on PE	1-2
Shielding of the connecting cable on GND	2-3
Shielding of the connecting cable insulated	Open *

### FST-2XT and FST-2XTs jumper J100: shielding X43



**This jumper is in the open position on delivery. Set only after consultation with NEW LIFT.**

The shielding of modern cable X10 is connected to PE or GND potential with J100.

Function	J100
Shielding of the connecting cable on PE	1-2
Shielding of the connecting cable on GND	2-3
Shielding of the connecting cable insulated	Open *

### FST-2XT and FST-2XTs jumper: shielding X11



**This jumper is in the open position on delivery. Set only after consulting with NEW LIFT.**

**The shielding of DCP cable X11 is connected to PE or GND potential with J110.**

Function	J110
Shielding of the connecting cable on PE	1-2
Shielding of the connecting cable on GND	2-3
Shielding of the connecting cable insulated	Open *

### FST-2XT and FST-2XTs J120: shielding X12

The shielding of encoder cable X12 is connected to PE or GND potential with J120.

Function	J120
Shielding rotary encoder cable on PE	1-2
Shielding rotary encoder cable on GND	2-3

FST-2XT and FST-2XTs jumper J131-J136: definition of the shaft positioning

The position of the shaft positioning system (car or shaft) is defined with J131, J133, J135, J136.


### Shaft positioning system on the car; FSM-2 X25:

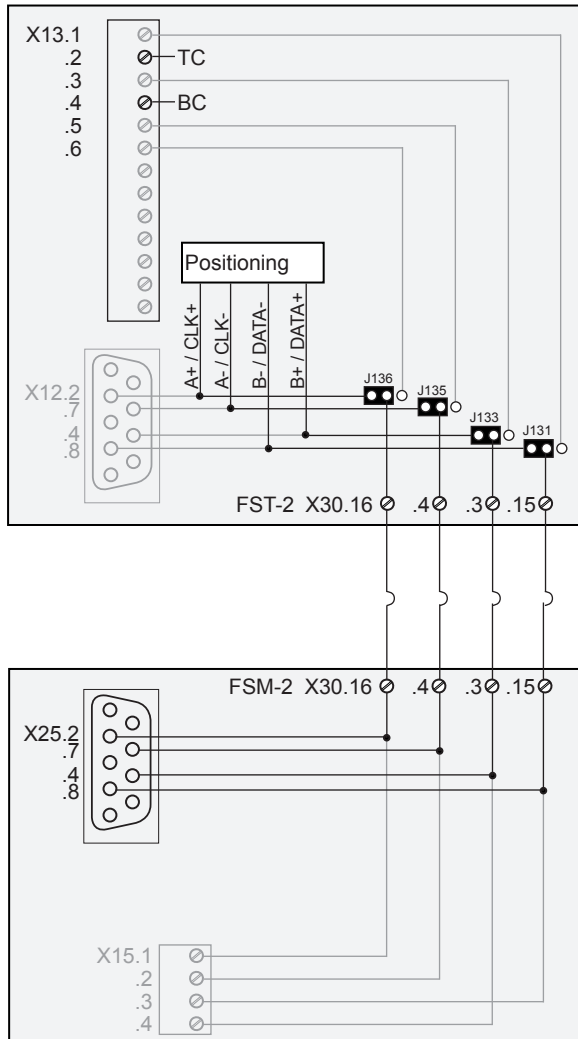
- › all jumpers are jumped to 1-2.

### Shaft positioning system in the shaft or machine room; FST X12:

- › all jumpers are jumped to 2-3
- › depending on the type of shaft positioning, two (incremental positioning with zone magnets) or four (absolute value positioning) freely travelling cable cores are available at terminal FSM-2 X15 / FST X13

Connection of the position encoder on the car; FSM-2 X25

 Jumper setting 1-2  
1 2 3



Connection of the position encoder in the machine room; FST-2 X12

 Jumper setting 2-3  
1 2 3

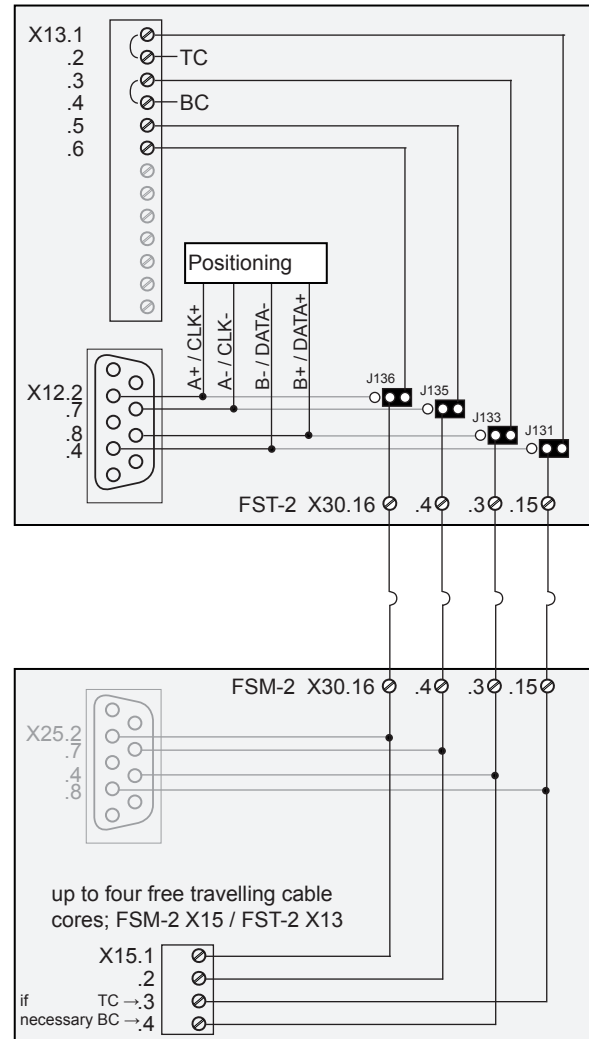


Fig. 4.6: Connection point of the position encoder and jumper setting J131, J133, J135, J136

### 4.2.3 LEDs

The LEDs listed in the following table are located on the FST controller next to terminal strips X2 - X4.

LED	Colour	State	Description
IN	Green	Flashing	Incoming data packets - LON bus
OUT	Green	Flashing	Outgoing data packets - LON bus
LD8	Green	On	Power supply - group bus

The LEDs listed in the following table are located on the FST controller above terminal strips X14 - X15.

LED	Colour	State	Description
SKZU	Green	On	Safety circuit closed
SPB	Green	On	Door lock or bolt contact door side B closed*
SPA	Green	On	Door lock or bolt contact door side A closed
TKA	Green	On	Car door contact of door side A closed
TKB	Green	On	Car door contact of door side B closed
TKC	Green	On	Car door contact of door side C closed
NHLT	Green	On	Emergency stop shaft closed
FKNHLT	Green	On	Emergency stop car closed

\* Not present with FST-2XTs!

The LEDs listed in the following table are located on the FST controller above pre-selection relays K0 ... K12.

LED	Colour	State	Description
LD21 K0	Green	On	Pre-selection relay K0 activated
LD22 K1	Green	On	Pre-selection relay K1 activated
LD23 K2	Green	On	Pre-selection relay K2 activated
LD24 K3	Green	On	Pre-selection relay K3 activated
LD25 K4	Green	On	Pre-selection relay K4 activated
LD26 K5	Green	On	Pre-selection relay K5 activated
LD27 K6	Green	On	Pre-selection relay K6 activated
LD28 K7	Green	On	Pre-selection relay K7 activated
LD29 K8	Green	On	Pre-selection relay K8 activated
LD30 K9	Green	On	Pre-selection relay K9 activated
LD31 K10	Green	On	Pre-selection relay K10 activated
LD32 K11	Green	On	Pre-selection relay K11 activated
LD33 K12	Green	On	Pre-selection relay K12 activated



#### 4.2.4 Safety circuit bypass control

The safety bypass circuit is integrated on the FST circuit board (K20..K23) and enables car movements in the door zone with open shaft and car doors. This makes approaching and relevelling with open doors possible.

**The safety circuit bypass control requires two magnet switches on the car roof (Zone A (S27) and Zone B (S28)).**

The safety circuit bypass control can therefore only be activated and put into operation if both magnet switches including the corresponding magnets are mounted and connected (see Installation and Commissioning manual).

If the two functions "Re-levelling with open doors" and "Approaching with open doors" are not required, the safety circuit bypass control is not activated and the magnet switches Zone A and B are not required.

The safety circuit bypass control is activated by one or both of the following parameters in the FST menu if zone switches A and B are mounted and connected:

MAIN MENU / Doors / Doors-Basic / Pre-Opening = YES

MAIN MENU / Drive / Relevelling = YES

Functionality

The relays K20, K21, K22, K23 are released in the initial state.

If the car approaches the target floor, K21 (zone enabling) is activated by the control.

If the car reaches the door zone, the magnet switches of zone A (S27) and zone B (S28) trigger and activate the two relays K22 and K23. The relays K22 and K23 provide the zone message for the control (car is in the door zone).

If the control software has received the zone message, bypass relay K20 is activated if required, thereby causing K21 to release again. This relay state (K20 activated, K21 released, K22 activated, K23 activated) bridges the door contacts in the safety circuit and allows drive movements with the doors open.

Checking the safety circuit bypass control

The safety circuit bypass control is designed so that malfunction of the two magnet switches is detected and results in a system shutdown.

The two following error states must be checked after commissioning the safety circuit bypass control:

- › Zone switch A (S27) is permanently open (disconnect FST X13.11)
- › Zone switch A (S27) is permanently closed (bridge FST X13.11 with FST X1.24)

In both cases, the controller shuts down the system with error message DRM-MISSING ZONE (see Installation and Commissioning manual).

LEDs

The LEDs listed in the following table are located to the right next to relays FST K20 ... K23.

LED	Colour	State	Description
LD17 K20	Green	On	Bypass door zone
LD18 K21	red	On	Enable door zone
LD19 K22	yellow	On	Encoder - door zone A
LD20 K23	yellow	On	Encoder - door zone B

#### 4.2.5 Terminal strips and sockets

The terminal strips are listed in numerical order.

##### FST-2XT and FST-2XTs terminal strip X1

FST: X1	Power supply / Messages Inputs/outputs
1	+24 V / 2 A (supply voltage of FST)
2	GND
3	+24 V / 2 A (supply voltage of FST)
4	Programmable I/O port 0
5	Programmable I/O port 1
6	Programmable I/O port 2
7	Programmable I/O port 3
8	Programmable I/O port 4
9	Programmable I/O port 5
10	Programmable I/O port 6
11	Programmable I/O port 7
12	GND
13	Car lighting OFF
14	Landing calls OFF
15	GND
16	Temperature monitoring motor room
17	Overload
18	Full load
19	Monitoring of brake A
20	Monitoring of brake B
21	Drive monitoring
22	Motor monitoring
23	Standstill monitoring
24	+24 V / 2 A (supply voltage of FST)

##### FST-2XT and FST-2XTs socket X2

The hand-held terminal is connected to socket X2 HHT.

FST: X2	Hand-held terminal
Pin 1	Bus signal A
Pin 2	Bus signal B
Pin 3	+24 V
Pin 4	GND

##### FST-2XT and FST-2XTs socket X3

X3 is an option bus socket for special applications (e.g., RIO module).

FST: X3	Option bus
Pin 1	Bus signal A
Pin 2	Bus signal B
Pin 3	+24 V
Pin 4	GND

##### FST-2XT and FST-2XTs terminal strip X4

The power supply for the shaft Bus is fed in via X4.

FST: X4	Power supply shaft bus / Groups
Pin1	+24 V
Pin 2	GND

### FST-2XT and FST-2XTs sockets X5, X6

Shaft bus side A is connected to X5, shaft bus side B is connected to socket X6.

FST: X5, X6	X5: shaft bus A X6: shaft bus B
Pin 1	Bus signal A
Pin 2	Bus signal B
Pin 3	+24 V
Pin 4	GND

### FST-2XTs socket X7 / USB 2.0 Mini-B

FST: X7	X7: slave, service PC interface
Pin 1	USB_S_DET (VBUS +5V)
Pin 2	USB_S_D- (Data-)
Pin 3	USB_S_D+ (Data+)
Pin 4	USB_S_ID (ID)
Pin 5	GND
Pin 6	GND
Pin 7	GND
Pin 8	GND
Pin 9	GND

### FST-2XT and FST-2XTs socket X9 /SUB-D

FST: X9	X9: Service PC / protocol adapter / modem (RS-232 interface)
1	DCD Data Carrier Detected
2	RxD Receive Data
3	TxD Transmit Data
4	DTR Data Terminal Ready
5	GND
6	DSR Data Set Ready
7	RTS Request To Send
8	CTS Clear To Send
9	RI Ring Indicator

For jumper settings, (see „FST-2XT and FST-2XTs jumper J100: shielding X43“ page 50).

### FST-2XT and FST-2XTs socket X11 /SUB-D

FST: X11	DCP for regulator activation
1	Not assigned
2	Not assigned
3	Not assigned
4	+ Tx
5	GND
6	Not assigned
7	+ Rx
8	- Rx
9	- Tx

For jumper settings, (see „FST-2XT and FST-2XTs jumper: shielding X11“ page 50).

#### FST-2XT and FST-2XTs socket X12 /SUB-D

FST: X12	Shaft positioning
1	GND
2	INK A+ / ABS CLK +
3	GND
4	INK B+ / ABS DATA +
5	GND
6	+24 V
7	INK A - / ABS CLK -
8	INK B - / ABS DATA -
9	VCC +5 V

For jumper settings, (see „FST-2XT and FST-2XTs J120: shielding X12“ page 50).

#### FST-2XT and FST-2XTs terminal strip X13

FST: X13	Safety circuit bypass control (SCBC) / TC BC for incremental positioning
1	FSM-2 X15.3 (only if J131 2-3)
2	Top correction switch "TC" (only for incremental positioning)
3	FSM-2 X15.4 (only if J133 2-3)
4	Bottom correction switch "BC" (only for incremental positioning)
5	FSM-2 X15.2 (only if J135 2-3)
6	FSM-2 X15.1 (only if J136 2-3)
7	SCBC zone release (with external SCBC)
8	SCBC zone bypass (with external SCBC)
9	SCBC zone signal (with external SCBC)
10	SCBC encoder zone switch A (always bridged with X13.11)
11	SCBC encoder zone switch A
12	SCBC encoder zone switch B
13	Simulation zone switch B (bridge with 13.12 if applicable)

#### FST-2XT and FST-2XTs terminal strip X14

FST: X14	Safety circuit query 1
1	Safety circuit closed
2	Door lock or bolt contact door side B closed (not with FST-2XTs)
3	Door lock or bolt contact door side A closed
4	Car door contact of door side A closed
5	Car door contact of door side B closed
6	Car door contact of door side C closed
7	Emergency stop shaft closed
8	Car emergency stop closed

#### FST-2XT and FST-2XTs terminal strip X15

FST: X15	Safety circuit query 2
1	Bypass UP
2	Bypass DOWN
3	L safety circuit
4	L safety circuit
5	Auxiliary mode bridging function
6	N safety circuit
7	Output bypass doors

#### FST-2XT and FST-2XTs terminal strip X16

FST: X16	Intercom
1	Intercom A or A
2	Intercom A or B
3	Intercom A or C
4	Intercom A or D

#### FST-2XT and FST-2XTs terminal strip X17

FST: X17	Emergency call device
0	+24 V or HSG +12 V (beginning of the emergency call loop)
1	Emergency call
2	Emergency power supply
3	GND
4	Level switch +
5	Level switch -
6	Emergency call line A
7	Emergency call line B

#### FST-2XT and FST-2XTs terminal strip X18

FST: X18	Auxiliary mode control 24 V
1	+24 V
2	Auxiliary mode control ON
3	Auxiliary mode control travel direction UP
4	Auxiliary mode control travel direction DOWN

#### FST-2XT and FST-2XTs terminal strip X19

FST: X19	Auxiliary mode control 230 V AC
1	Auxiliary mode control ON
2	Auxiliary mode control bridging function
3	L auxiliary mode control
4	Auxiliary mode control UP or DOWN

#### FST-2XT and FST-2XTs terminal strip X20

FST: X20	Pre-selection
1	Safety circuit "CLOSED"
2	N safety circuit
3	Pre-selection contact K0,K1 COM
4	Pre-selection contact K0 NO
5	Pre-selection contact K1 NO
6	Pre-selection contact K2, K3 COM
7	Pre-selection contact K2 NO
8	Pre-selection contact K3 NO
9	Pre-selection contact K4,K6 COM
10	Pre-selection contact K4 NO
11	Pre-selection contact K5 NO
12	Pre-selection contact K6 NO

#### FST-2XT and FST-2XTs terminal strip X21

FST: X21	Pre-selection
1	Pre-selection contact K7 - K8 COM
2	Pre-selection contact K7 NO

FST: X21	Pre-selection
3	Pre-selection contact K7 NC
4	Pre-selection contact K8 NO
5	Pre-selection contact K8 NC
6	Pre-selection contact K9, K11, K12 COM
7	Pre-selection contact K9 NO
8	Pre-selection contact K10 COM
9	Pre-selection contact K10 NO
10	Pre-selection contact K10 NC
11	Pre-selection contact K11 NO
12	Pre-selection contact K12 NO
13	Emergency call relay contact K13 COM1
14	Emergency call relay contact K13 NO1
15	Emergency call relay contact K13 NC1
16	Emergency call relay contact K13 COM2
17	Emergency call relay contact K13 NC2

#### FST-2XTs terminal strips X23

FST: X23	Speed limiter - remote triggering and resetting; activation via Test menu of the FST
1	Triggering of relay K37 NC contact
2	Triggering of relay K37 COM contact
3	Triggering of relay K37 NO contact
4	Resetting of relay K38 NC contact
5	Resetting of relay K38 COM contact
6	Resetting of relay K38 NO contact

#### FST-2XTs terminal strips X24

FST: X24	Anti creep device - relay; activation via button F1 (S25)
1	Anti creep device relay K36 NC contact 230VAC
2	Anti creep device relay K36 NC contact 230VAC

#### FST-2XTs terminal strips X25

FST: X25	Anti creep device - relay; activation via button F1 (S25) Evacuation - relay; activation via EVAC switch
1	Anti creep device relay K36 NO contact 230VAC
2	Anti creep device relay K36 NO contact 230VAC
3	Evacuation relay K31 NO contact 230VAC
4	Evacuation relay K31 NO contact 230VAC

#### FST-2XTs terminal strips X26

FST: X26	Brake test - relay; activation via BR TEST key switch (S143) Evacuation - relay; activation via EVAC switch (S1000) Brake A - relay; activation via button A (S140) Brake B - relay; activation via button B (S141) Monitoring contacts of the brake control
1	Brake test relay K34 NO contact 230VAC
2	Brake test relay K34 NO contact 230VAC
3	Monitoring contacts of relay K28(NO),33(NC),32(NC)
4	Brake B - relay K33 NO contact 230VAC
5	Monitoring contacts of relay K28(NO),33(NC),32(NC)
6	Brake A - relay K32 NO contact 230VAC
7	Evacuation relay K31 NO contact 230VAC

FST: X26	Brake test - relay; activation via BR TEST key switch (S143) Evacuation - relay; activation via EVAC switch (S1000) Brake A - relay; activation via button A (S140) Brake B - relay; activation via button B (S141) Monitoring contacts of the brake control
8	Evacuation relay K31 NO contact 230VAC
9	Supply for evacuation/brake test 230VAC

#### FST-2XTs terminal strips X27

FST: X27	Protected area safeguarding for shaft head reset 1 (S205) and pit reset 2 (S206)
1	Shaft pit reset K29 NO contact 230VAC
2	Shaft pit reset K29 NO contact 230VAC
3	Shaft head reset K35 NO contact 230VAC
4	Shaft head reset K35 NO contact 230VAC

#### FST-2XTs terminal strips X28

FST: X28	Monitoring manual brake control
1	+24VDC
2	Input of the monitoring contacts of the external manual brake control
3	Output for contactor monitoring

#### FST-2XT and FST-2XTs terminal strip X30

FST: X30 FSM-2: X30	Travelling cable
1	+24 V
2	LON bus car A
3 twisted with pin 15	Twisted with pin 15; assignment options: › Incremental encoder on car: track B+ › Incremental encoder in shaft: bottom correction BC › Absolute encoder on car: SSI DATA+ › Absolute encoder in shaft: freely available
4	Assignment options. › Incremental encoder on car: track A- › Absolute encoder on car: SSI CLK- › Incremental or absolute encoder in shaft: freely available
5 twisted with pin 17	Assignment options: › Speak A › Not assigned
6 twisted with pin 18	Assignment options: › Speak C › Not assigned
7	Door zone encoder A
8	Telephone A
9	Assignment options: › Incremental encoder on car: BC › Level reference A
10	Emergency power +
11	GND
12	GND
13	Emergency call
14	LON bus car B

FST: X30 FSM-2: X30	Travelling cable
15 twisted with pin 3	Assignment options: › Incremental encoder on car: track B- › Incremental encoder in shaft: top correction TC › Absolute encoder on car: SSI DATA- › Absolute encoder in shaft: freely available
16	Assignment options: › Incremental encoder on car: track A+ › Absolute encoder on car: SSI CLK+ › Incremental or absolute encoder in shaft: freely available
17 twisted with pin 5	› Speak B › Not assigned
18 twisted with pin 6	› Speak D › Not assigned
19	Door zone encoder B
20	Telephone B
21	Incremental encoder on car: TC Level reference B
22	+ 24 V

#### FST-2XT and FST-2XTs terminal strip X32

FST: X32 FSM-2: X32	Travelling cable
1	Car door side A
2	Car door side B
3	Car door side C
4	Emergency stop car
5	Bypass UP
6	Bypass DOWN
7	Bypass ON
8	Bypass
9	N safety circuit

#### FST-2XT and FST-2XTs socket X40 / RJ45

FST: X40	Network - Ethernet LAN 10/100MBit
1	TX+
2	TX-
3	RX+
4	Not assigned
5	Not assigned
6	RX-
7	Not assigned
8	Not assigned

#### FST-2XT and FST-2XTs socket X41 / USB 2.0 Type -A

FST: X41	X41: host, USB port for USB 2.0 memory media
1	5V
2	USB_H_D- (Data-)
3	USB_H_D+ (Data+)
4	GND
5	GND
6	GND



**FST-2XT socket X42 / USB 2.0 type -B, currently without function**

**FST-2XT and FST-2XTs socket X43 /SUB-D**

FST: X43	CAN Open LIFT interface
1	Not assigned
2	SEC_CAN_L
3	GND
4	Not assigned
5	GND
6	GND
7	SEC_CAN_H
8	Not assigned
9	+24VDC

## 4.3 Car top control module FSM-2

The FSM-2 car top control module forms the interface of the FST controller to all car signals. Signal exchange between FSM-2 and FST takes place via the LON bus. The FSM-2 is installed either in the car top box or in the car operating panel.

After switching off the main switch, parts of the car top control module are live:

- › Plug X19 (car lighting) is not free of power until the car and shaft lighting supply line has been switched off!
- › Plug X13 (emergency lighting) is not free of power until travelling cable plug X30 has been unplugged!

### 4.3.1 Technical data

Description	Value
Supply voltage	24 V DC $\pm 10\%$
Typical power consumption	300 mA
Outputs	Short circuit-proof
Length x width x depth	250 x 140 x 34 mm
Temperature range: Storage & transport / operation	-20 – +70 °C / $\pm 0$ – +60 °C
Relative humidity: Storage & transport / operation (non-condensing)	+5 – +95 % / +15 – +85 %

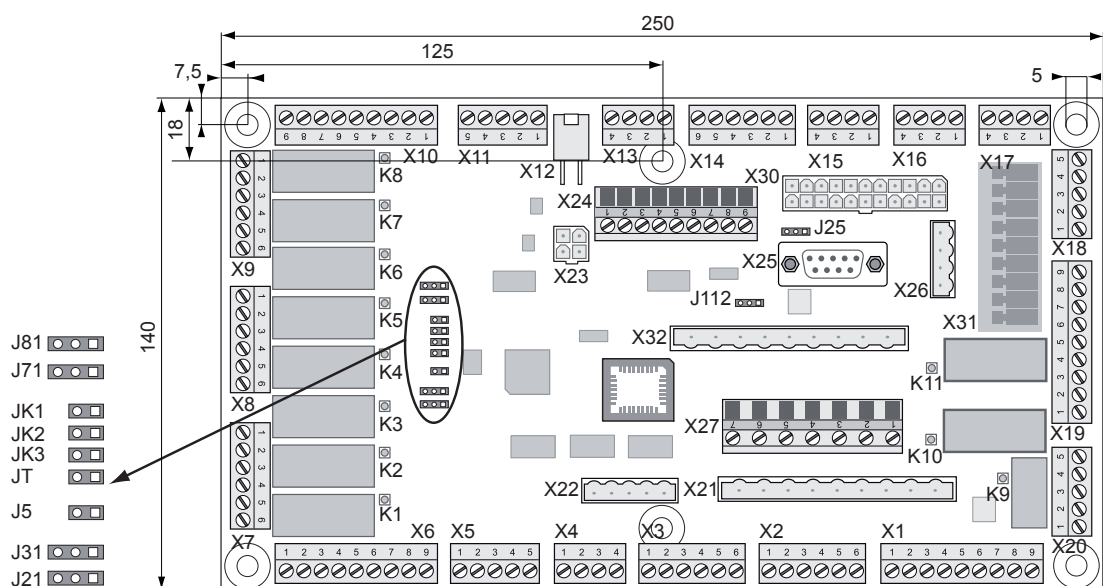


Fig. 4.7 Car top control module FSM-2

### 4.3.2 Jumpers

The service jumper J5 is not plugged in.

#### FSM-2 jumper J21: end switch "car door A closed"

Setting	J21
End switch in series with coil K2	1-2
Without end switch (coil K2 at +24 V)	2-3

#### FSM-2 jumper J25: shielding - encoder cable X25

The shielding of encoder cable X25 is connected to PE or GND with jumper J25.

Function	J25
Shielding rotary encoder cable on GND	1-2
Shielding rotary encoder cable on PE	2-3

#### FSM-2 jumper J31: end switch "car door A open"

Setting	J31
End switch in series with coil K3	1-2
Without end switch (coil K3 at +24 V)	2-3

#### FSM-2 jumper J71: end switch "car door B closed"

Setting	J71
End switch in series with coil K7	1-2
Without end switch (coil K7 at +24 V)	2-3

#### FSM-2 jumper J81: end switch "car door B open"

Setting	J81
End switch in series with coil K8	1-2
Without end switch (coil K8 at +24 V)	2-3



#### Notice on the activation of the door relays/contactors!

Except for door drives for which switching off must occur by means of excess current or similar directly at the contactor coil (OPEN/CLOSE), NEW LIFT recommends always connecting the door end switches without switching off the coil voltage of door relays K2, K3, K7 and K8. Therefore, jumpers J21, J31, J71 and J81 are to be plugged into 2-3. The OPEN/CLOSE relays of both doors are, thus, permanently connected to 24VDC. PIN 1 is thereby active for the OPEN or CLOSE response from the respective door. Prerequisite is that YES be set under Main Menu/Doors/Doors-Selective/Endswitches.

#### FSM-2 jumper J112: monitoring of car lightings

Setting	J112
Internal voltage monitoring	1-2
External sensor	2-3

### FSM-2 jumpers JK1, JK2, JK3: assign car in group mode

If more than one FST controller is administered with a GST Group Controller, the respective car is assigned to its FST controller with jumpers JK1, JK2 and JK3.

Car assignments of the FSM car top control module and the FPM car panel module of a car must be identical.

Setting	JK1	JK2	JK3
FST A	open	open	open
FST B	plugged	open	open
FST C	open	plugged	open
FST D	plugged	plugged	open
FST E	open	open	plugged
FST F	plugged	open	plugged
FST G	open	plugged	plugged
FST H	plugged	plugged	plugged

### Jumper JT: assignment of the car doors

Setting	JT
Door A and/or door B	open
Door C	plugged

If there are three car doors, a separate car top control module is always required for door C.

### 4.3.3 LEDs

LED	Colour	State	Description
LD1	Green	On	Nudging Door A
LD2	Green	On	Emergency call
LD3	Green	On	Close door A
LD4	Green	On	Car lighting on
LD5	Green	On	Open door A
LD6	Green	On	Car ventilator on
LD8	Green	On	Curve B
LD9	Green	On	+5 V power supply
LD10	Green	On	Curve A
LD11	Green	On	Nudging Door B
LD12	Green	On	Close door B
LD13	Green	On	Open door B

#### 4.3.4 Terminal strips and sockets

##### FSM-2 terminal strip X1

FSM-2: X1	Safety circuit without bypass 230 V
1	Switch 1
2	PE
3	Switch 1
4	Switch 2
5	PE
6	Switch 2
7	Switch 3
8	PE
9	Switch 3

##### FSM-2 terminal strip X2

FSM-2: X2	Safety circuit with bypass 230 V
1	Arrest switch
2	PE
3	Arrest switch
4	Switch 4
5	PE
6	Switch 4

##### FSM-2 terminal strip X3

FSM-2: X3	Safety circuit door contacts 230 V
1	Door contact of car door A
2	PE
3	Door contact of car door A
4	Door contact of car door B
5	PE
6	Door contact of car door B

##### FSM-2 terminal strip X4

FSM-2: X4	Outputs approach chime
1	+24 V
2	Approach chime UP
3	Approach chime DOWN
4	GND

##### FSM-2 terminal strip X5

FSM-2: X5	Inputs load measurement device
1	+24 V
2	Input empty load
3	Input full load
4	Input over load
5	GND

#### FSM-2 terminal strip X6, X10

FSM-2: X6	Inputs car door A
1	+24 V
2	End switch door open
3	+24 V
4	End switch door closed
5	+24 V
6	Reversing contact door
7	+24 V
8	Light barrier door
9	GND

#### FSM-2 terminal strip X7, X9

FSM-2: X7	Outputs car door A
1	Relay K2, K3 common door signals
2	Relay K3 door signal open door
3	Relay K2 door signal close door
4	Relay K1 for push function / light curtain test NO
5	Relay K1 for push function / light curtain test NC
6	Relay K1 for push function / light curtain test COM

#### FSM-2 terminal strip X8

FSM-2: X8	Locking solenoids
1	Relay K5 curve door side A NC
2	Relay K5 curve door side A COM
3	Relay K5 curve door side A NO
4	Relay K4 curve door side B NC
5	Relay K4 curve door side B COM
6	Relay K4 curve door side B NO

#### FSM-2 terminal strip X11

FSM-2: X11	Car lighting sensor
1	+24 V
2	External sensor
3	+ HSG
4	+8 V (max. 50mA)
5	GND

#### FSM-2 socket X12

FSM-2: X12	LON bus car
Pin 1	Bus signal A
Pin 2	Bus signal B
Pin 3	+24 V
Pin 4	GND

### FSM-2 terminal strip X13

FSM-2: X13	Emergency call button / Emergency lighting
1	Emergency lighting +
2	Emergency lighting -
3	Emergency call button car NC
4	Emergency call button car COM

### FSM-2 terminal strip X14

FSM-2: X14	Zone switch
1	+24 V resp. +HSG +12 V for A
2	Zone switch A
3	GND
4	+24 V for B
5	Zone switch B
6	GND

### FSM-2 terminal strip X15



**ATTENTION:** Only use the terminal on X15 if the position encoder is connected in the shaft (jumpers 131, 133, 135 and 136 on 2-3 and FSM-2 X25 not used).

FSM-2: X15	Spare conductors LIK/USP
1	USP+R
2	USP-R
3	USP+T / TC
4	USP-T / BC

### FSM-2 terminal strip X16

FSM-2: X16	Spare conductors for intercom
1	Speak D
2	Speak C
3	Speak B
4	Speak A

### FSM-2 terminal strip X17

FSM-2: X17	Spare conductors LMS 24/7
1	Level switch -
2	Level switch +
3	Exchange line B
4	Exchange line A

### FSM-2 terminal strip X18

FSM-2: X18	AC door 400V AC
1	PE
2	L3
3	L2
4	L1
5	N

#### FSM-2 terminal strip X19

FSM-2: X19	Car lighting / ventilator
1	Relay K10 car lighting
2	PE
3	N car lighting
4	Relay K11 car ventilator
5	PE
6	N car lighting
7	L car lighting
8	PE
9	N car lighting

#### FSM-2 terminal strip X20

FSM-2: X20	Emergency call
1	Emergency call button under car
2	Emergency call button under car
3	Relay K9 emergency call forwarding COM
4	Relay K9 emergency call forwarding NC
5	Relay K9 emergency call forwarding NO

#### FSM-2 terminal strip X21

FSM-2: X21	Inspection control pod
1	Inspection control pod UP
2	Inspection control pod DOWN
3	Inspection control pod ON
4	Auxiliary mode control bridging function
5	With bypass safety circuit switches 1 - 3
6	Without bypass safety circuit switches 1 - 3
7	N socket control pod
8	PE
9	L socket control pod

#### FSM-2 terminal strip X22

FSM-2: X22	Inspection controller 24 V
1	+24 V
2	Inspection On
3	Inspection UP
4	Inspection DOWN
5	Inspection drive fast

#### FSM-2 socket X23

FSM-2: X23	Hand-held terminal
Pin 1	Bus signal A
Pin 2	Bus signal B
Pin 3	+24 V
Pin 4	GND

### FSM-2 terminal strip X24

FSM-2: X24	Spare inputs and outputs
1	GND
2	Programmable I/O port72
3	Programmable I/O port73
4	Programmable I/O port74
5	Programmable I/O port75
6	Programmable I/O port76
7	Programmable I/O port77
8	Programmable I/O port78
9	+24 V

### FSM-2 socket X25

FSM-2: X25	Shaft positioning
1	GND
2	INK A+ / ABS CLK +
3	GND
4	INK B+ / ABS DATA +
5	GND
6	+24 V
7	INK A - / ABS CLK -
8	INK B - / ABS DATA -
9	+5 V

### FSM-2 terminal strip X26

FSM-2: X26	Car top box
1	Emergency call button
2	Emergency call button
3	L shaft light button
4	L shaft light

### FSM-2 terminal strip X27

FSM-2: X27	Inspection end switch
1	Inspection end switch UP
2	Inspection end switch UP
3	Inspection end switch DOWN
4	Inspection end switch DOWN
5	Foldaway railing contact
6	Foldaway railing contact
7	N safety circuit

### FSM-2 socket X30

Identical in construction to FST X30 (see „FST-2XT and FST-2XTs terminal strip X30“ page 59).



### FSM-2 terminal strip X31

FSM-2: X31	Travelling cable 400V AC	FSM-2 terminal strip
1	N	X18.5
2	L1 AC door	X18.4
3	L2 AC door	X18.3
4	L3 AC door	X18.2
5	N car lighting	X19.3
6	L car lighting	X19.7
7	L shaft light button	X26.3
8	L shaft light	X26.4
9	PE	X19.5

### FSM-2 terminal strip X32

FSM-2: X32	Travelling cable	FSM-2 terminal strip
1	Car door side A	X3.1
2	Car door side B	X3.4
3	Car door side C	X3.6
4	Car emergency stop	X2.1
5	Bypass UP	X27.1
6	Bypass DOWN	X27.3
7	Bypass ON	X27.5
8	Bypass	X214.
9	N safety circuit	X27.7

## 4.4 LON bus

The FST controller is connected to the FST components via the LON bus. The number of bus cables is dependent on the number of electronic assemblies.

Unused bus inputs and outputs must be terminated with a terminator.



Make absolutely certain to ensure adequate strain relief of all bus cables on the FST controller!  
All bus cables may only be plugged in and unplugged while in a power-free state!

### 4.4.1 Technical data

Description	Value
Supply voltage	24 V DC $\pm 10\%$
Weight	0.072 kg/m
Maximum cable length	1000 m
Temperature range: Storage & transport / operation	-20 – +70 °C / $\pm 0$ – +60 °C
Relative humidity: Storage & transport / operation (non-condensing)	+5 – +95 % / +15 – +85 %

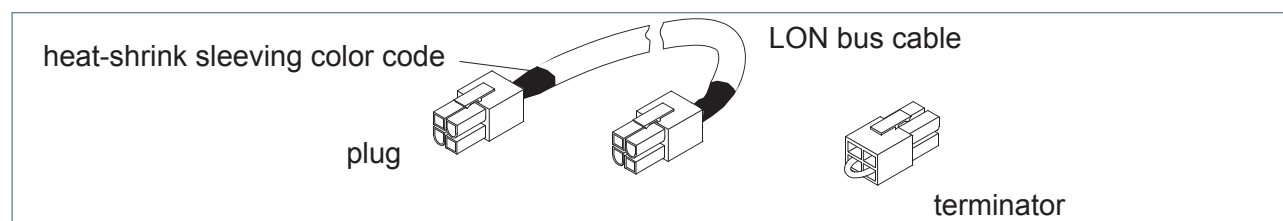


Fig. 4.8: LON bus cable

#### Colour code of shrink tubing

Colour	Bus cable length
bk	0.5 m
rd	1.0 m
wh	3.0 m
ye	5.0 m
bl	7.0 m
gn	10.0 m
bk	15.0 m
rd	20.0 m

#### Plug

X...	Colour code	LON bus plug
1	bk	Bus signal "A"
2	wh	Bus signal "B"
3	rd	+ 24 V / 4 A
4	pr	0V / GND

## 4.5 Flat travelling cable

The FST controller is connected to the electronic assemblies on the car via the flat travelling cable. The power supply for the car components and transmission of safety-relevant signals also take place via the flat travelling cable.

All plugs of the travelling cable may only be plugged in and unplugged while in a power-free state!

### 4.5.1 Technical data

Description	Value
Supply voltage	24 V DC $\pm 10\%$ 230 V AC $\pm 10\%$
Weight	0.7 kg/m
Maximum free suspension height	50 m
Minimum bending radius (moveable)	0.5 m
Temperature range: Storage & transport / operation	-30 – +70 °C / -15 – +70 °C
Relative humidity: Storage & transport / operation (non-condensing)	+5 – +95 % / +15 – +85 %

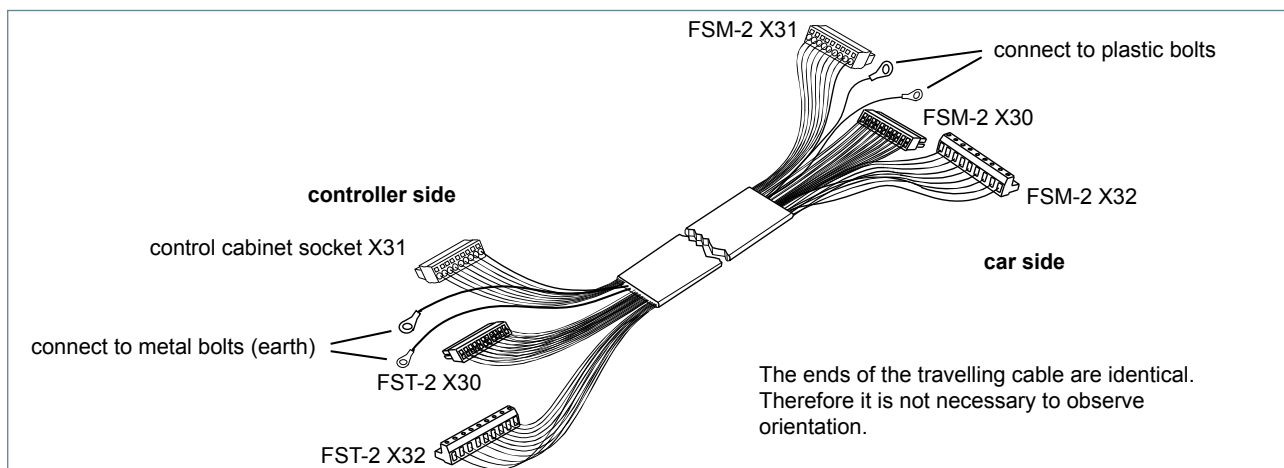


Fig. 4.9: Flat travelling cable

### Travelling cable

Wire ID	from FST	Function	to FSM
1	X32.1	Car door side A	X32.1
2	X32.2	Car door side B	X32.2
3	X32.3	Car door side C	X32.3
4	X32.4	Car emergency stop	X32.4
5	X32.5	Bypass UP	X32.5
6	X32.6	Bypass DOWN	X32.6
7	X32.7	Bypass ON	X32.7
8	X32.8	Bypass	X32.8
9	X32.9	N safety circuit	X32.9
10	X30.11	GND	X30.11
11	X30.22	+ 24 V	X30.22
12	X30.10	+ HSG	X30.10
13	X30.13	EMERGENCY CALL	X30.13
14	X30.1	+24 V	X30.1
15	X30.12	GND	X30.12
16	X31.1	N	X31.1
17	X31.2	L1	X31.2
18	X31.3	L2	X31.3
19	X31.4	L3	X31.4
20	X31.5	N car lighting	X31.5
21	X31.6	L car lighting	X31.6
22	X31.7	L shaft light button	X31.7
23	X31.8	L shaft light	X31.8
yellow / green	X31.9	PE	X31.9
vi (S1)	X30.21	Level Ref+	X30.21
tu (S1)	X30.9	Level Ref-	X30.9
wt (S1)	X30.20	Telephone B	X30.20
bl (S1)	X30.8	Telephone A	X30.8
vi (S2)	X30.18	SPR-D	X30.18
tu (S2)	X30.6	SPR-C	X30.6
wt (S2)	X30.17	SPR-B	X30.17
or (S2)	X30.5	SPR-A	X30.5
vi (S3)	X30.16	SSI DATA+	X30.16
tu (S3)	X30.4	SSI DATA-	X30.4
wt (S3)	X30.3	SSI CLK+	X30.2
gn (S3)	X30.15	SSI CLK+	X30.15
vi (S4)	X30.19	Door zone encoder B	X30.19
tu (S4)	X30.7	Door zone encoder A	X30.7
wt (S4)	X30.14	LON bus B	X30.14
bn (S4)	X30.2	LON bus A	X30.2

S1 - S4 = each with four twisted wires with shielding

### Colour codes acc. to IEC 60189-2

vi: violet	tu: turquoise	wt: white
bl: blue	or: orange	gn: green
bn: brown		

## 5 Menu tree

### 5.1 General

The FST software is configured via the FST user interface or the HHT hand-held terminal with the help of the FST menu. The FST menu is displayed in the menu tree.

#### **Software version**

The menu tree corresponds to that of software version V2.000.0138.

#### **Executions**

Following the depiction of the menu tree, all menu items are described together with their functions and setting ranges.

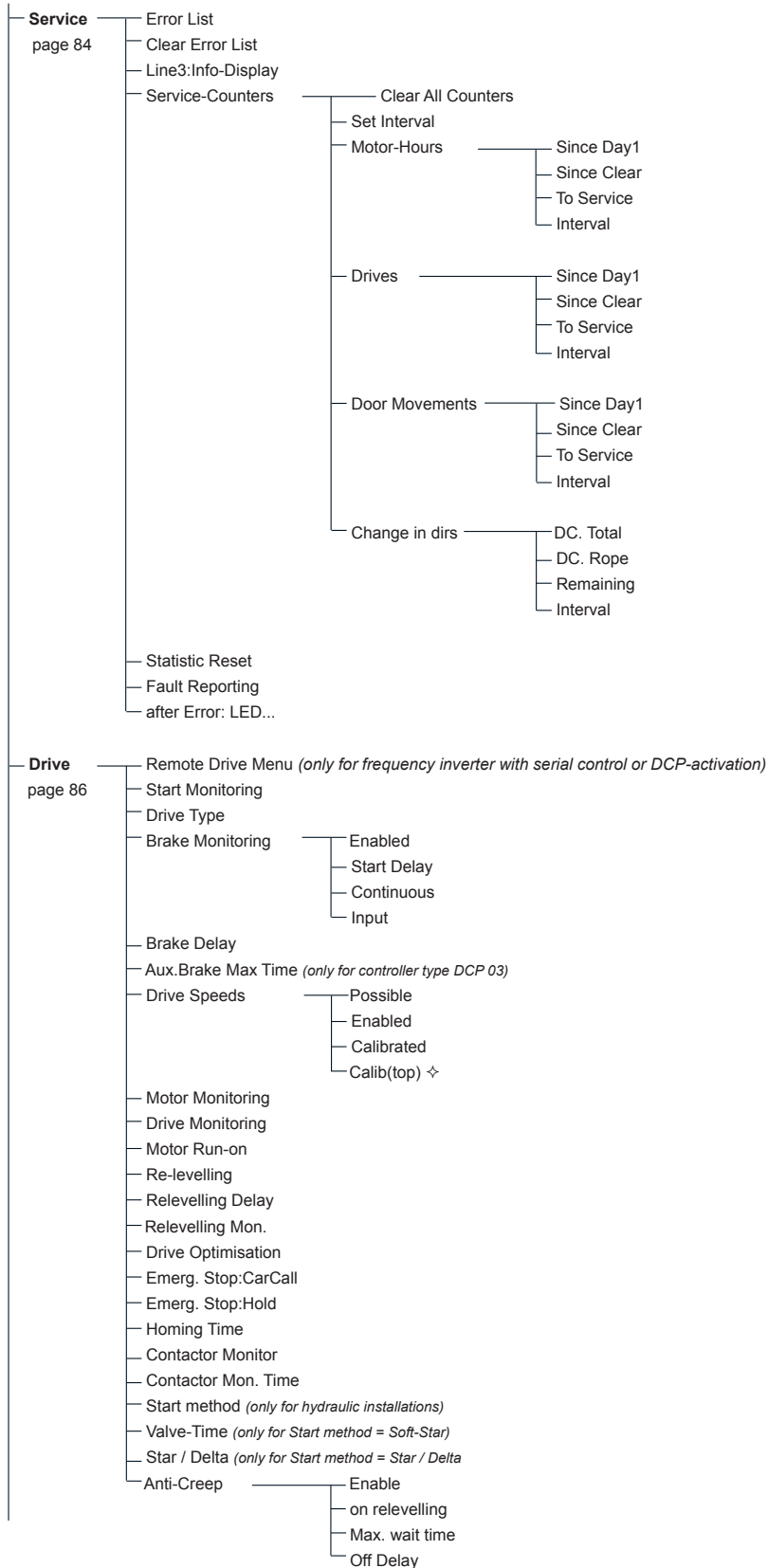
Hidden menu items are marked with ✧. These can be displayed with `System / Factory Menu / Hidden Menus`.

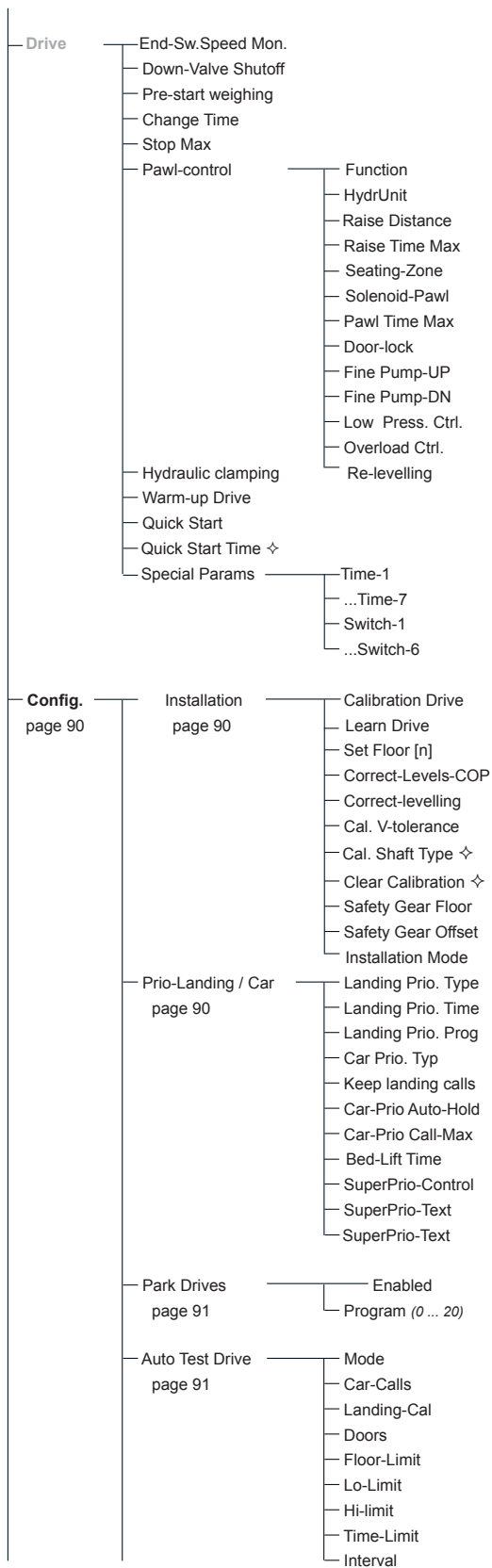
For all menu items with adjustable numerical values, the value "0" corresponds to deactivation of the respective function.

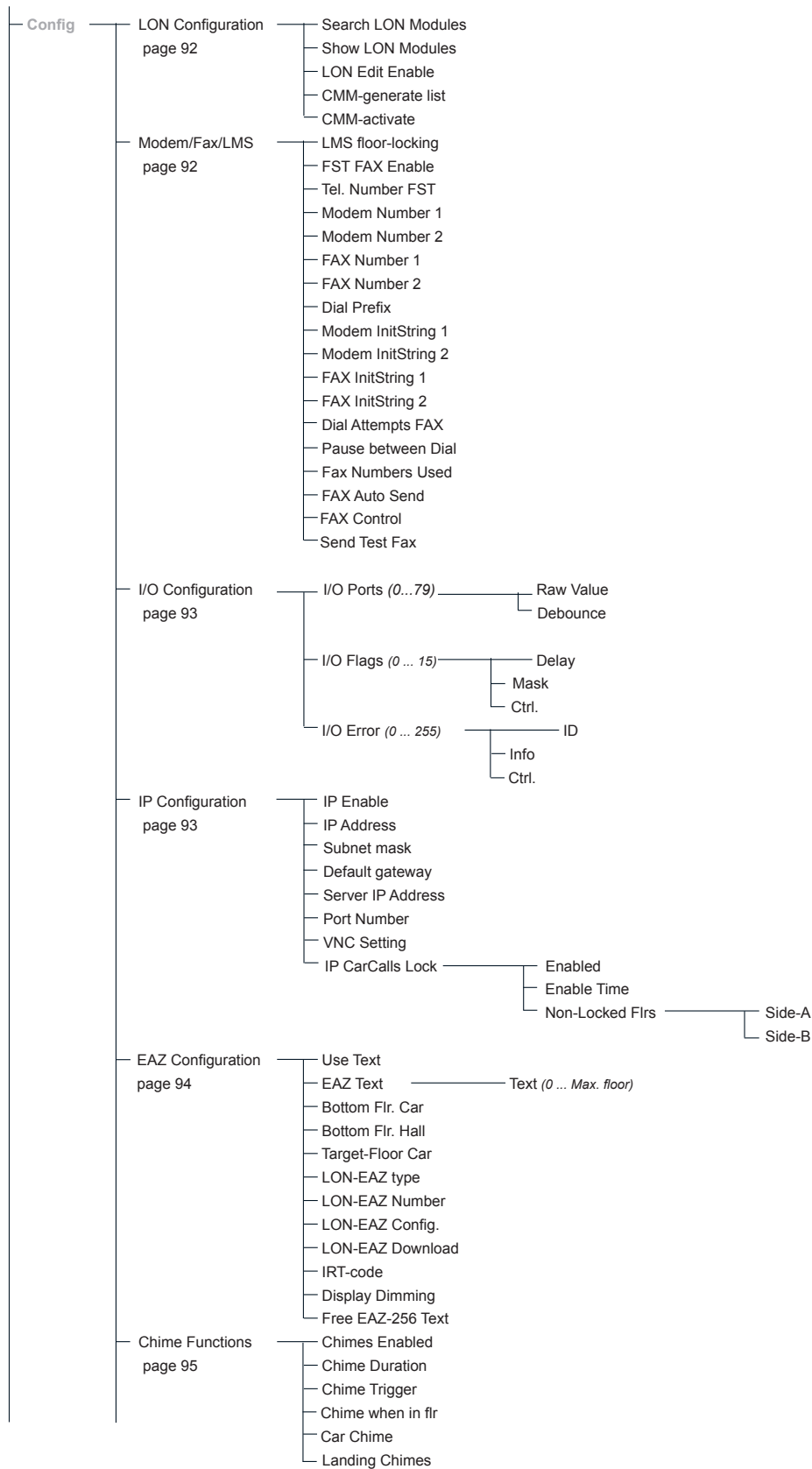
#### **Optional**

Configuration can be performed both directly on the FST or comfortably on a laptop using the FST Editor (via serial interface or remote data transmission).

MAIN MENU

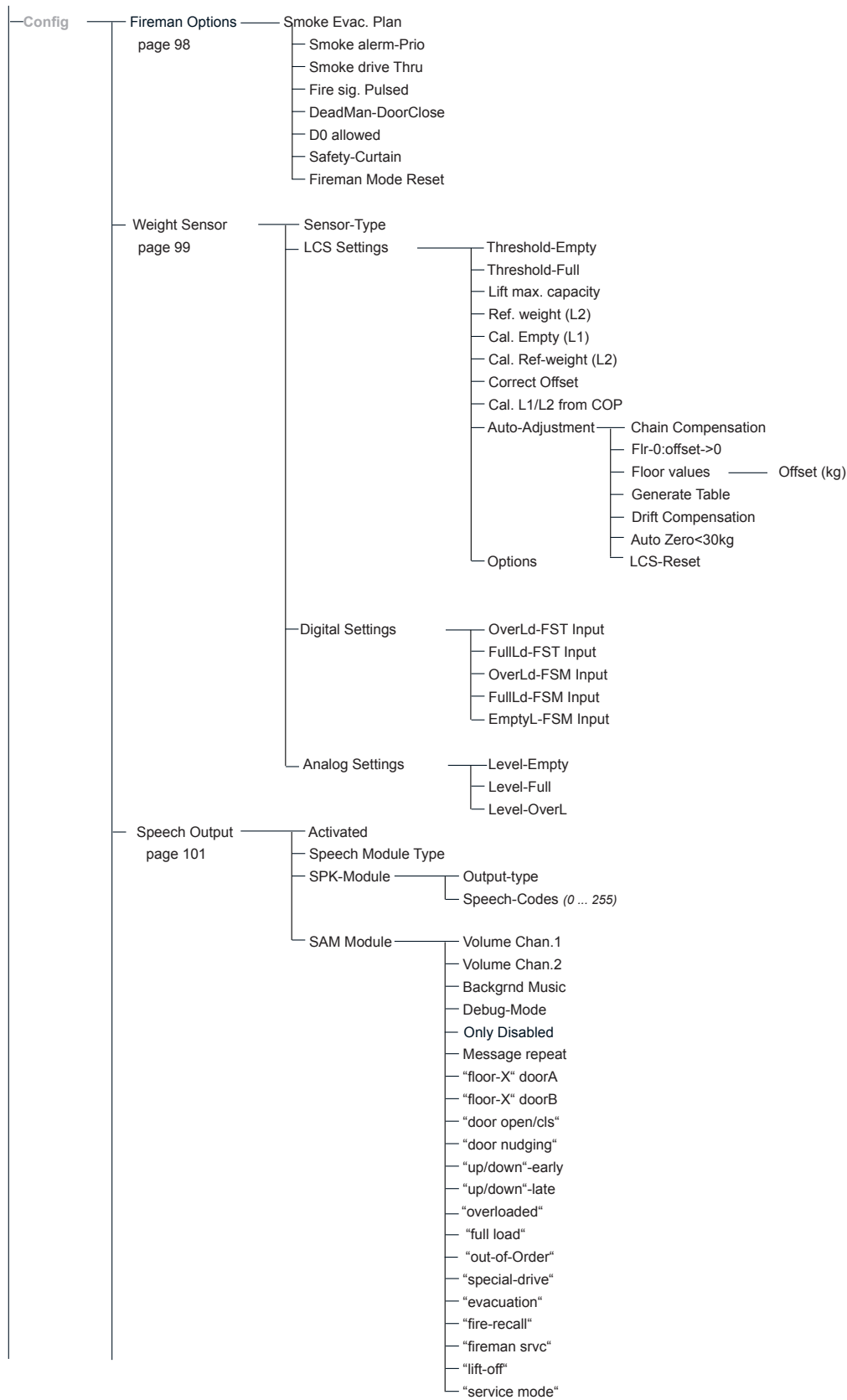


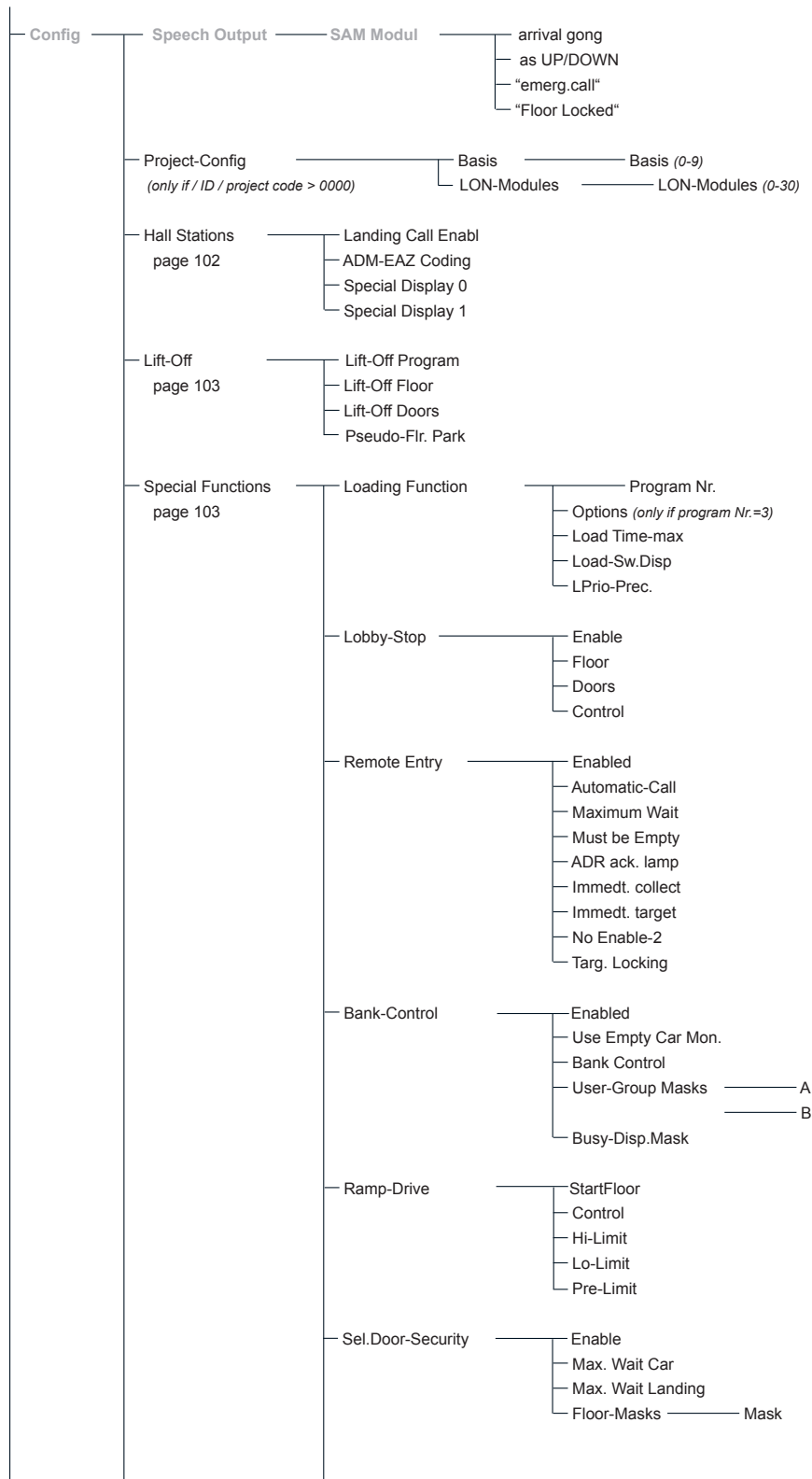


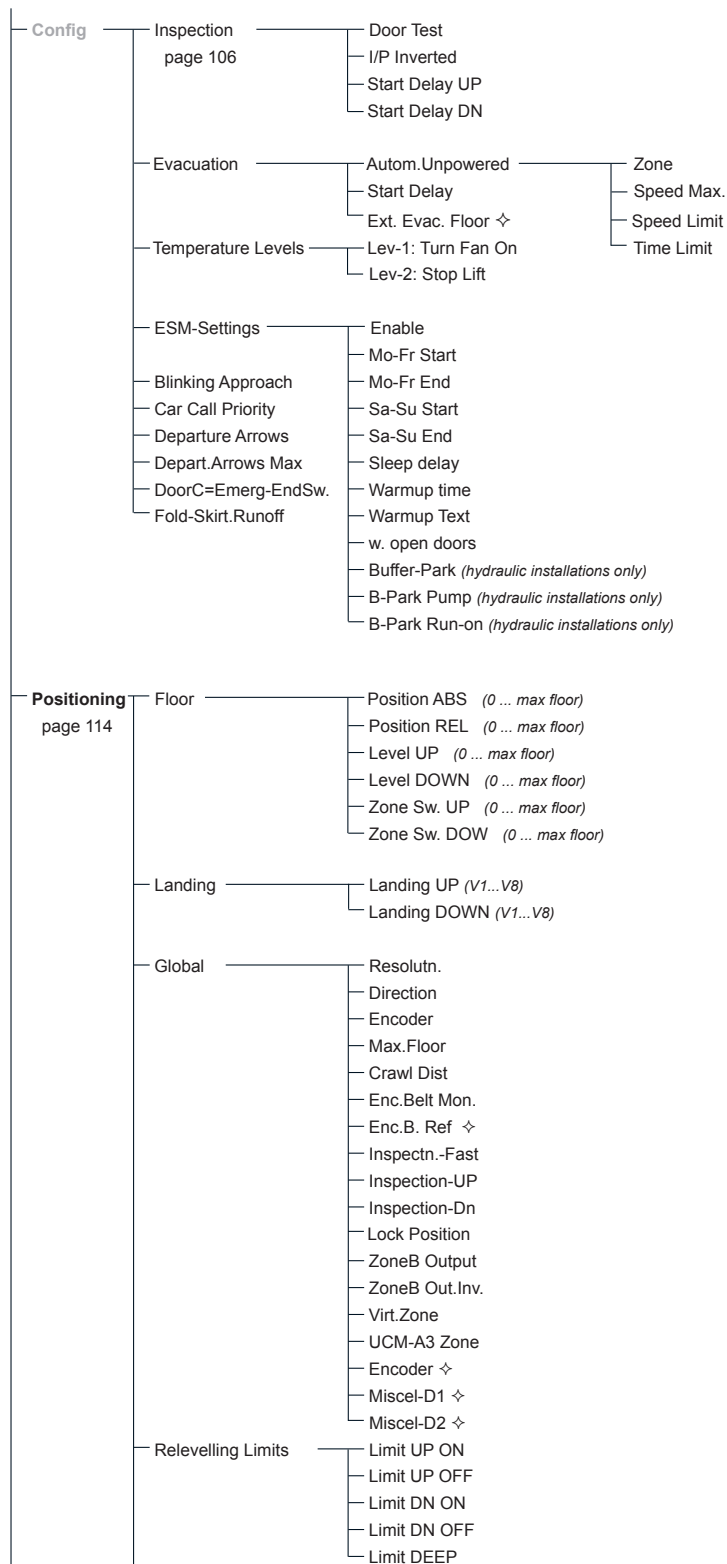


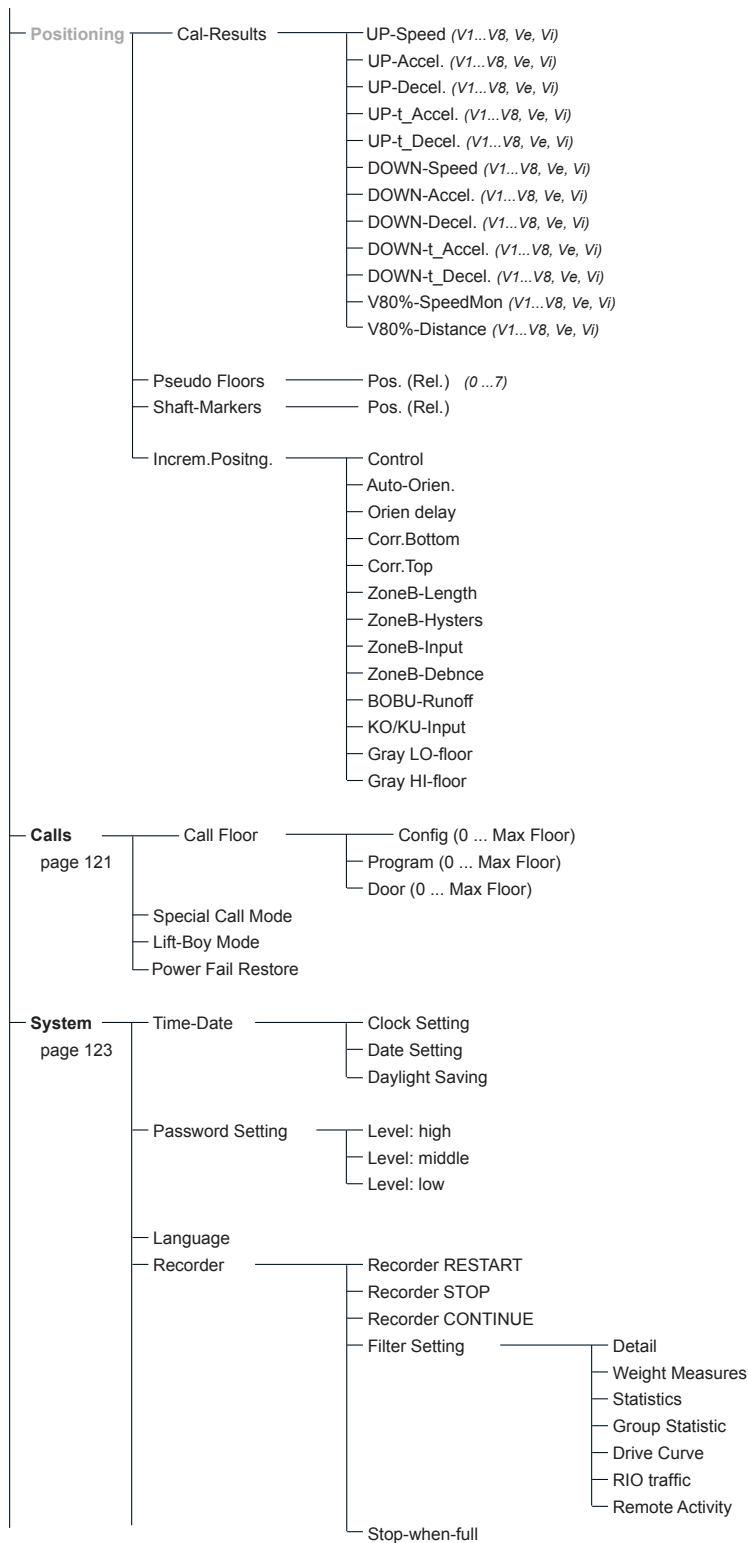


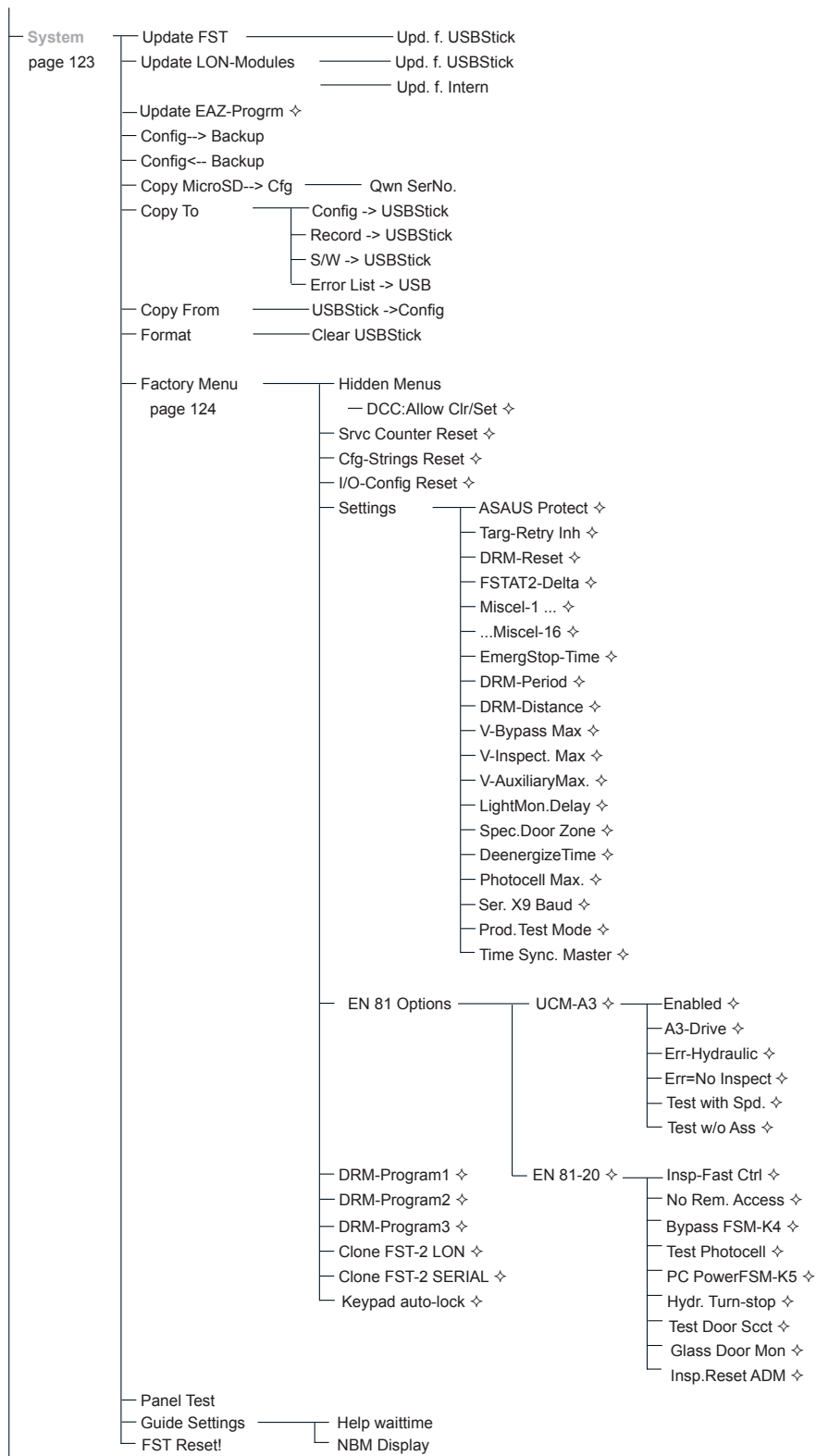
Config	ID's page 95	<ul style="list-style-type: none"> <li>Lift ID-Number</li> <li>Lift ID-Name</li> <li>NEW-Factory No.</li> <li>Lift Manufac. No.</li> <li>Project-Code</li> </ul>
	Group Settings page 95	<ul style="list-style-type: none"> <li>GST Menu <i>(only with GST board; see GST manual)</i></li> <li>Lift ID-Number</li> <li>Group Member</li> <li>Group Floor Offset</li> <li>Flr Offset-Car</li> <li>Flr Offset-Landing</li> <li>ADM-Bus Mask-1</li> <li>ADM-Bus Mask-2</li> </ul>
	Anti Nuisance page 96	<ul style="list-style-type: none"> <li>Maximum Car Calls</li> <li>Stops w/o Exit</li> <li>Empty Car Sence</li> <li>Weight / Car-Calls</li> <li>Call Direction</li> <li>always clear Up/Dn</li> <li>Emergency-Call</li> </ul>
	Car Ventilator page 96	<ul style="list-style-type: none"> <li>Control Mode</li> <li>Vent. Off Delay</li> <li>Output Inverted</li> </ul>
	Car Light page 96	<ul style="list-style-type: none"> <li>Light-Off Delay</li> <li>Light Monitoring</li> <li>Evac. - Light Off</li> </ul>
	Car-Operate-Panel page 97	<ul style="list-style-type: none"> <li>EAZ type</li> <li>Lamp type</li> <li>Display-0</li> <li>Display-1</li> <li>Display-2</li> <li>OPEN = A+B</li> <li>CLOSE = A+B</li> <li>OPEN=last</li> <li>Card Reader</li> <li>-"- Clear Opt</li> <li>Chime-Roof</li> <li>Chime-Floor</li> <li>DoorOpen NC</li> <li>O-Load Blink</li> <li>Pin-34 Functn</li> <li>Xtra-Inputs</li> <li>Click Off</li> <li>Chk ack. lamps</li> <li>2xCall=Clear</li> <li>HEX+n Offset</li> </ul>
	Fireman Options page 98	<ul style="list-style-type: none"> <li>Fire Standards</li> <li>Fire-&gt;Fireman (ADM)</li> <li>Fire-&gt;Fireman (I/O)</li> <li>Only ADM-&gt;Fireman</li> <li>Off only in M-Flr</li> <li>Door Open in M-Flr</li> <li>Fire Main Floor</li> <li>Fire MainFlr Door</li> </ul>

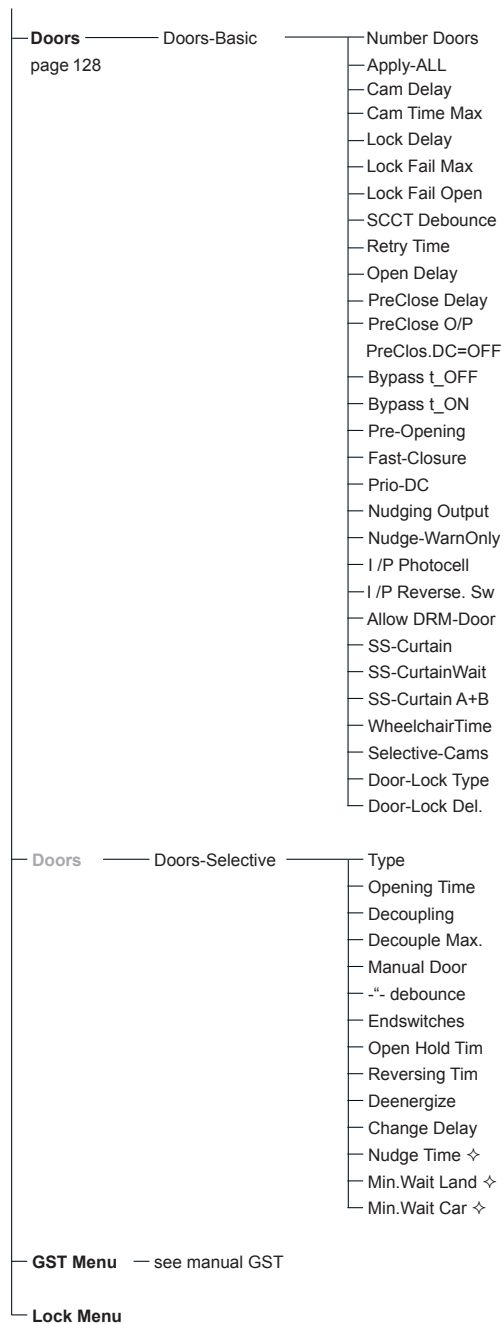












**TEST MENU** page 133

- Fault Reset
- Doors-LOCK
- Test Drive ON
- Auto Test Drv ON/OFF
- Service Mode ON/OFF
- Endswitch Test Top
- Endswitch Test Bot
- V-Mon. Test Top
- V-Mon. Test Bot.
- DRM Test
- Buffer Test Up
- Buffer Test Down
- UCM-A3 Test Up
- UCM-A3 Test Down
- UCM-A3 Test Act.
- UCM-A3 Fault Reset
- Brake Measurmt. ON/OFF
- Safety Gear Autom.
- Safety Gear Manual
- Safety Gear Reset



## 5.2 MAIN MENU - Lock Menu

Menu item	Description	Setting range
Lock Menu	Closing the main menu: The main menu can only be opened again with the password for the corresponding security level.	YES NO





The FST controller is password protected to prevent unauthorised manipulation of control parameters and endangerment of persons or impairment of the lift system resulting from unauthorised manipulation. Three security levels are available for commissioning, customer service and maintenance.

### Security levels

Level	Access	Activity
HIGH	Unlimited	Commissioning
MEDIUM	Limited	Customer service
LOW	Non-editable menus	Maintenance

The password of the FST controller has four digits. The password is set to "0000" on delivery.



### Setting the password

- ▶ Select MAIN MENU / System / Password Setting.
- ▶ Select LEVEL 1 with E.
- ▶ Set password for level 1 with  .
- ▶ Confirm password with .
- ▶ Exit menu and save settings with .

Repeat the above steps for levels 2 and 3.

### Locking the main menu

The main menu is not automatically locked when a password is defined; rather, it must be locked separately after a password has been defined.

- ▶ Select MAIN MENU / Lock Menu.
- ▶ Activate password settings with .
- ▶ Exit menu and save settings with .















The password must be entered the next time you change from the main screen to the main menu.




### 5.3 MAIN MENU - Service

Menu item	Description	Setting range
Error list	Display of the last 100 error messages (see „FST-2XT and FST-2XTs terminal strip X13“ page 56).	
Clear Error List	Clear entries in the error list	YES NO
Line 3: Info-Display	Switches the display of line C from status messages to diagnostic messages	
Service-Counters - Clear All Counters	The controller has three internal service counters for drives, motor hours and door movements. A service interval can be assigned to each counter after which a programmable I/O port signals that maintenance is due The current counter values for motor hours, drives and door movements can be reset here (e.g., following maintenance).	YES NO
Service-Counters - Set Interval	Overwrite counter values with a new interval (e.g., following maintenance).	YES NO
Service-Counters - Motor-Hours - Since Day1	Motor hours since commissioning of the FST controller; value cannot be reset.	Read only
Service-Counters - Motor-Hours - Since Clear	Motor hours since the last Clear All Counters	Read only
Service-Counters - Motor-Hours - To Service	Motor hours remaining until the next maintenance	Read only
Service-Counters - Motor-Hours - Interval	Motor hours of the maintenance interval	0 ... 9999 h
Service-Counters - Drives - Since Day1	Drives since commissioning of the FST controller; value cannot be reset.	Read only
Service-Counters - Drives - Since Clear	Drives since the last Clear All Counters	Read only
Service-Counters - Drives - To Service	Drives remaining until the next maintenance	Read only
Service-Counters - Drives - Interval	Drives of the maintenance interval	0 ... 99999
Service-Counters - Door Movements - Since Day1	Door movements since commissioning of the FST controller; value cannot be reset.	Read only
Service-Counters - Door Movements - Since Clear	Door movements since the last Clear All Counters	Read only
Service-Counters - Door Movements - To Service	Door movements remaining until the next maintenance	Read only
Service-Counters - Door Movements - Interval	Door movements of the maintenance interval.	Read only
Service-Counters - Change in dirs - DC. Total	Number of drive direction changes of the car since the FST controller was commissioned.	Read only
Service-Counters - Change in dirs - DC. Rope	Number of drive direction changes of the car since the last Clear All Counters	Read only



Menu item	Description	Setting range
Service-Counters - Change in dirs - Remaining	Remaining drive direction changes of the car until it is necessary to replace the means of suspension. The "CABLES !" message alternating with time is less than 100000 or less than 10% of the interval.	Read only
Service-Counter - Change in dirs - Interval	Interval that is to be defined at which the means of suspension are to be replaced.	0 ... 99999
Statistic Reset	Reset FST-internal drive and call statistics	YES NO
Fault Reporting	Enable output of error messages (programmable inputs/outputs, modem, PAM, fax)	ON OFF
after Error: LED...	Function of the error LED on the FST circuit board after adding a new entry to the error list	BLINKS REMAINS OFF

## 5.4 MAIN MENU - Drive

Menu item	Description	Setting range
Remote Drive Menu	If a corresponding drive is connected (e.g., DCP), the Remote Drive Menu is available. To access or exit the Remote Drive Menu, press  .	
Start Monitoring	Maximum time permitted between pre-selection of the drive and leaving the level position. If the car does not leave the level position within the set time, the installation is shut down with <b>DRM-START PROBLEM</b> (see „8.1 Error messages“ page 161).	0 ... 30 s
Drive Type 	Drive type used. Select from a list of all common drive types.	
Brake Monitoring Enabled 	Monitoring of the drive brake (brake bleed contact) at FST X1.19, .20. When starting, input FST X1.19, .20 must be activated during the set <b>Brake Delay</b> (+24 V). When stopping, the input must be deactivated during the set <b>Brake Delay</b> . If this fails, the system is shut down with <b>DRM-BRAKE FAILURE</b> (see „8.1 Error messages“ page 161).	YES NO
Brake Monitoring Start Delay 	Time between drive start and start of brake monitoring	1000 ... 9999 ms
Brake Monitoring Continuous 	Brake is monitored continuously after the brake monitoring delay elapses (default: one-time check).	YES NO
Brake Monitoring Input 	Brake monitoring contact as normally closed contact instead of normally open contact	NC,NO,NC+NO
Brake Delay	Maximum time permitted between activation of the drive brake and confirmation from the brake bleed contact at terminal FST X1.19, .20. (see <i>Brake Monitoring</i> ).	0 ... 9999 ms
Aux.Brake Max Time	Maximum time that the auxiliary brakes may be opened prior to start.	0...2999 ms
Drive Speeds Possible 	Possible drive speeds V8...V1 of the set drive type ("1" means speed is possible).	Read only
Drive Speeds Enabled 	Enabled drive speeds V8...V1 of the set drive type ("1" means speed enabled). Only speeds that are displayed with "1" under <b>Possible</b> can be enabled!	00000000 ... 11111111
Drive Speeds Calibrated 	Overview of the drive speeds V8...V1 successfully measured during the calibration drive (1: speed calibrated). After a successful calibration drive, all speeds displayed with "1" under <b>Enabled</b> must also be displayed with "1" under <b>Calibrated</b> ! The parameters should only be manually changed in exceptional cases. This is only possible if hidden menus are displayed.	00000000 ... 11111111
Drive Speeds Calib(top)  	After a successful calibration drive, approach speed <b>Ve</b> must be displayed with bit pattern 00000001.	00000000 ... 11111111
Motor Monitoring 	Monitoring of the motor temperature on FST X1.22. If the terminal is activated (+24 V), the installation is shut down with <b>DRM-MOTOR FAILURE</b> (see „8.1 Error messages“ page 161).	YES NO
Drive Monitoring 	Activation of drive monitoring on terminal X1.21 of the FST. For evaluating a fault alarm contact from the drive, e.g., inverter. If 24VDC is not applied at the terminal, the <b>DRM DRIVE ERROR</b> error message is output.	YES NO
Motor Run-on	Run-on time of the drive after the level position has been reached. Only required for improving the performance of unregulated drives.	0 ... 2 s
Re-levelling 	Relevelling with open shaft and car doors.	YES NO
Relevelling Delay	Delay between recognising that the car is not levelled and the start of relevelling. This parameter ensures smooth relevelling for swaying cars.	0 ... 9999 ms
Relevelling Mon.	10 re-levellings must be performed in the maximum allowed time, otherwise the car is brought to a standstill on the highest floor with the error message <b>DRM Re-levelling monitoring</b>	0...255

Menu item	Description	Setting range
Drive Optimisation 	If the drive is equipped with a drive optimisation function, this parameter can be activated to optimise floor-to-floor drives (see „5.4.1 Drive optimisation“ page 91).	YES NO
Emerg.Stop:CarCall 	Handling of pending car calls after a safety circuit interruption in the emergency-stop area (before FST X14.6 / .7) while the car is moving.	KEEP CAR CALLS CLEAR CAR CALLS
Emerg.Stop:Hold	Handling of landing call enabling after a safety circuit interruption in the emergency-stop area (before FST X14.6 / .7) while the car is moving. › YES: landing calls are blocked; car can only be put back into operation by means of a car call › NO: pending landing calls are cleared and re-enabled after the safety circuit is closed Only if emergency stop: car calls = CLEAR car calls	YES NO
Homing Time	Period of time without a drive command before a hydraulic lift automatically moves to the bottom floor.	0 ... 15 min
Contactor Monitor	Monitoring of the main contactors on FST X1.23 via auxiliary contacts (NC contacts). When stopping, input FST X1.23 must be deactivated within the contactor monitoring time (+ 24 V). If this fails, the installation is shut down with DRM CONTACTOR MONIT. (see „8.1 Error messages“ page 161)).	YES NO
Contactor Mon.Time	Time between stopping and triggering of contactor monitoring.	0 ... 9999 ms
Start method	Hydraulic start methods	STAR/DELTA SOFT-START
Valve-Time	Is displayed if Soft-Start was selected as start method. Duration of the soft-start	0 - 5.0 s
Star / Delta	Is displayed if Star/Delta was selected as the start method. Length of time between star and delta application	0 - 5.0 s
Anti-Creep Enable	Function Anti-Creep OFF/ON Programming of I/O Output <b>00006F84</b> and input <b>000043F2</b> are required	YES NO
Anti-Creep on releveiling	Activation of the Anti-Creep output during releveiling	YES NO
Anti-Creep Max.wait time	The monitoring time during „activation“ and „deactivation“ of magnet. Error type-1: the pre-start test, input in the standby state is incorrect. Error type-2: during activation, input signal did not switch in the required time. Error type-3: during deactivation, input signal did not switch in the required time.	0000 - 4000 ms  YES NO
Anti-Creep Off Delay	Off Delay of the Anti-Creep magnet	0000 - 4000 ms
End-Sw.Speed Mon. 	Monitoring of the deceleration in the end floors.	YES NO
Down-Valve Shutoff	Only for hydraulic drives: Delay between anti creep protection and drive start.	0 - 2999 ms
Pre-start weighing	Only for hydraulic systems. Parameter changes the time between the opening of the shut-off valve and the start of the drive to measure the load of the car. In the event of an overload, the status is held until the light curtain is interrupted.	0-4999 ms
Change Time	Minimum lag time when changing the main contactors (fast to slow) of unregulated cable lifts.	0 ... 0.5 s

Menu item	Description	Setting range
Stop Max	Maximum permitted number of door contact or blocking agent interruptions (FST X14.5, .4, .3, .2) during a drive before all calls are cleared (see „8.1 Error messages“ page 161)(OPEN DOOR LOCK). The installation is not shut down; it only waits for new drive calls.	0 ... 10
Pawl-control Function	Switches on the activation of a pawl-control for hydraulic freight lifts. Activation of the pawl-control requires additional modules (see System description – Pawl-control). Optimised: lift passes the target floor before it lowers onto the pawls.	OFF / ON / OPTIMISED
Pawl-control HydrUnit	Hydraulic unit (see System description – Pawl-control)	GIEHL BER.ELRV OILDYNAM LEISTRITZ
Pawl-control Raise Distance	Raise distance for retracting/extending the pawl-control (see System description – Pawl-control)	0 ... 255 mm
Pawl-control Raise Time Max	Maximum permitted raise time (see System description – Pawl-control)	0 ... 255 s
Pawl-control Seating-Zone	Position range in which the lift must be located in order to be detected as "seated". (in addition to the "seated" hardware signal)	0 ... 30 mm (0 no function)
Pawl-control Solenoid-Pawl	Switch on the electrical pawl-control with YES (pawl-control is always active in the extended state), switch on the hydraulic pawl-control with NO (the motor switches off as soon as the end position is reached).	YES NO
Pawl-control Pawl Time Max	Maximum length of time for retracting or extending the pawl.	0 - 15 s
Pawl-control Door-lock	Lock the car doors as long as no "seated" signal is output. (see System description – Pawl-control)	YES NO
Pawl-control Fine Pump-UP	Additional pump for activating raising (see System description – Pawl-control)	YES NO
Pawl-control Fine Pump-DN	Additional valve for activating lowering (see System description – Pawl-control)	YES NO
Pawl-control Low Press.Ctrl	Re-pressurise to prevent slack rope while car is seated.	YES NO
Pawl-control Overload Ctrl.	Activate overload measurement by briefly raising the car.	0 ... 255 s
Pawl-control Re-levelling	Option for activating of re-levelling during active pawl-control for all hydraulic drive types (available for drive type 4-valve hydr. + ASV). Note: the main setting \Drive\Re-levelling continues to be observed independent of it and must be additionally activated, if ASV re-levelling is necessary.	YES NO
Hydraulic clamping	Activation of monitoring- and drive-specific processes (DCP03 and Beringer ELRV only) when using an anti creep device.	YES NO
Warm-up Drive	Automatically triggered warm-up drive to the top floor. The function prevents cooling of the hydraulic oil. The timer starts after the homing drive is completed.	0 ... 9999 min 0=no function
Quick Start	With activated Quick Start, the drive is energised upon closing of the car door, allowing start up to take place more quickly. Additional switches and signals are required. Currently only for DCP drive.	YES NO
Quick Start Time	This function simulates the quick start switch on the car should it not be possible to mount the switch mechanically. The measured time corresponds to the time after leaving the open holding position.	0000 ... 5000 ms
Special Params - Time-1 ... Time-7	Special parameters for drive-specific programming. Only change this value after consulting NEW LIFT!	0 ... 65535 ms

Menu item	Description	Setting range
Special Params - Switch-1  ... Switch-6 	Special parameters for drive-specific programming. Only change this value after consulting NEW LIFT!	ON OFF

### 5.4.1 Drive optimisation

After a successful calibration drive, the FST controller knows the acceleration and deceleration characteristics for each drive speed of the drive. It is thereby able to select the optimum drive speed for the distance that is to be covered prior to each drive.

The Drive Optimisation parameter can be used to define whether the maximum selected drive speed must be reached during each drive (drive distance > acceleration distance + braking distance + crawl distance) or whether the drive is equipped with a drive optimisation function that optimises the drive curve without reaching the maximum speed (drive distance > deceleration distance + crawl distance).

#### Example: drive from floor A to floor B (floor distance = 2.6m)

- › Nominal speed V2: braking distance = 2 m, acceleration distance = 2m
- › Intermediate speed. V1: braking distance = 1 m, acceleration distance = 1m
- › Crawl distance = 0.05m
- › Safety clearance = 0.1m

#### Drive from A to B without drive optimisation:

Speed V2 is selected because  $2.6\text{m} > 1\text{m} + 1\text{m} + 0.05\text{m} + 0.1\text{m}$

#### Drive from A to B with drive optimisation:

Speed V3 is selected because  $2.6\text{m} > 2\text{m} + 0.05\text{m} + 0.1\text{m}$

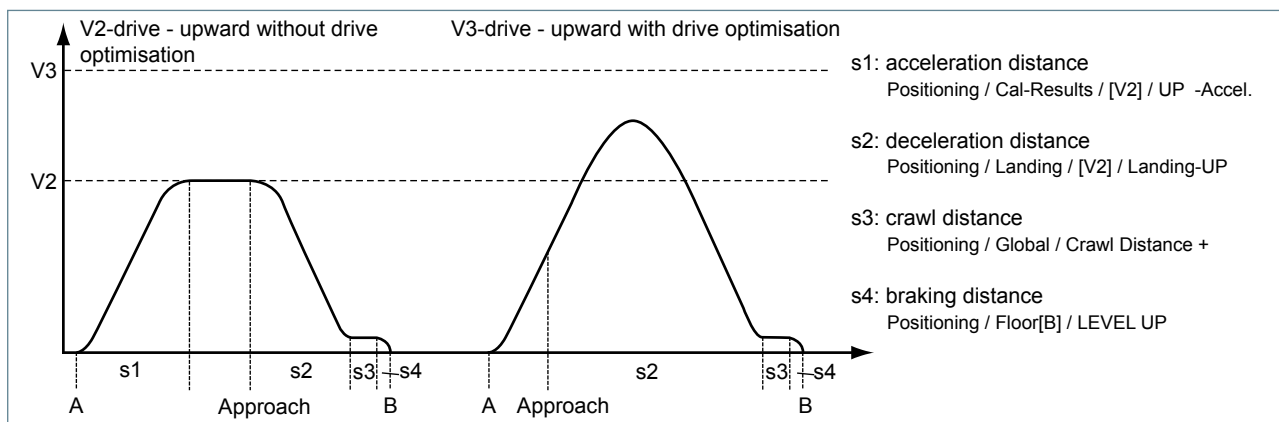


Fig. 5.1: Drive from A to B without and with drive optimisation

## 5.5 MAIN MENU - Config

Menu item	Description	Setting range
Installation - Calibration Drive	Carrying out calibration drive. During the calibration drive, four measurement drives are performed per drive speed to automatically determine the exact acceleration and braking behaviour of the respective speed. The controller uses this information to select the optimum drive speed and the exact braking point during each drive.	YES NO
Installation - Learn Drive	Carrying out learn drive. During the learn drive, the car automatically travels once through the entire shaft (from bottom to top) at inspection speed. During this process, the controller determines the exact position of the magnets for the "Zone B", "Corr.Bottom" and "Corr.Top" magnet switches. The level positions of the floors are automatically centred in the door zones after the learn drive! The learn drive is only required when using incremental positioning.	YES NO
Installation - Set Floor [n] ⬇	The current position of the car is entered as reference point for the entire shaft. The level positions of the remaining floors are adjusted to the current position of the car.	from 0 to the top floor
Installation - Correct-Levels-COP	Correction of the level position in the car directly via the car operating panel. With this type of level adjustment, the measured value is entered with the help of the buttons on the car operating panel and a NEW LIFT position indicator. For detailed instructions, see <i>FST Installation and Commissioning manual</i> .	ON OFF
Installation - Correct-levelling	Correction of the level position on the floor on which the car is currently located. The measured value must be entered (car is too high: + sign; car is too low: - sign).	-250 ... 250 mm
Installation - Cal. V-tolerance ⬇	Measuring tolerance during the speed measurement of the calibration drive. The set value should only be changed after consulting NEW LIFT since the calibration results are influenced by the measuring tolerance. Standard: 2%	1 ... 100 %
Installation - Cal. Shaft Type ✧	Shaft size for automatic calibration drive: 0 = automatic selection by FST (standard setting) 1 = large shaft size (no positioning drive) 2 = medium shaft size (several positioning drives) 3 = small shaft size (many positioning drives) 4 = x-small shaft size (quick calibration) Menu item is not normally visible; enable with the "Hidden Menus = YES" menu item	0 ... 4
Installation - Clear Calibration ✧	The state calibrated is canceled. If miscel 16 xxxxx1xxx is set, no normal drives are possible until a new calibration has been carried out.	YES NO
Installation - Safety Gear Floor	Position-dependent arrest triggering with corresponding I/O port relay circuit. Define a floor in which arresting is to be triggered.	0 ... 63
Installation - Safety Gear Offset	Because a stop delay can be expected during the arrest test, this parameter can be used to specify an offset in mm to compensate for the stop delay and ensure uncomplicated removal of the test weights.	0 ... 9999 mm
Installation - Installation Mode	Suppresses error messages that would prevent installation drives with a controller that has not yet been fully commissioned. Enables installation drives using the inspection and auxiliary mode controls without connected encoder and car top control module.	ON OFF
Prio-Landing / Car - Landing Prio. Type	Activation type "landing priority". -Hard: all car and landing calls are cleared -Soft: car calls remain, landing calls are cleared	Hard Soft
Prio-Landing / Car - Landing Prio. Time	Delay for switching off "landing priority" after reaching the target floor	0 ... 999 sec



Menu item	Description	Setting range
Prio-Landing / Car - Landing Prio. Prog	Variations of "landing priority": › Auto 1: after reaching the target floor, the "landing priority" state remains active until the next car call › Auto 2: after reaching the target floor, "car priority" is activated automatically › Standard: after reaching the target floor and after the landing priority time has elapsed, the installation switches to normal operation	Auto 1 Auto 2 Standard
Prio-Landing / Car - Car Prio. Typ	Activation type "car priority". › Hard: all car and landing calls are cleared › Soft: car calls remain, landing calls are cleared if <code>Keep landing calls = NO</code> is set	Hard Soft
Prio-Landing / Car - Keep landing calls	After activating "soft" car priority, the landing calls are also retained	YES NO
Prio-Landing / Car - Car-Prio Auto-Hold	Car is available for further drives with the car priority mode during the specified time.	
Prio-Landing / Car - Car-Prio Call-Max	Maximum calls during Prio-Landing/Car	
Prio-Landing / Car - Bed-Lift Time	Landing Prio. Prog / Auto 2 needs to be activated If a car call is triggered, the doors remain open until the Bed-Lift Time has expired or by actuating the door closing button. Pressing the door opening button the Bed-Lift Time will start again.	0 ... 255 sec  Landing Prio. Prog
Prio-Landing / Car - SuperPrio-Control	Display location and display of the SuperPrio-Text with EAZ-256: Bit0 (00000001): display scrolling text on landing EAZ-256 Bit1 (00000010): reduce scrolling text to half of the display height Bit2 (00000100): display scrolling text on EAZ-256 in the car	00000000 ... 00000111
Prio-Landing / Car - SuperPrio-Text	Scrolling text to be displayed with SuperPrio in EAZ-256. The scrolling text may contain up to 20 ASCII characters.	20 ASCII characters
Prio-Landing / Car - SuperPrio-Text	Scrolling text to be displayed with SuperPrio in EAZ-256. The scrolling text may contain up to 20 ASCII characters.	20 ASCII characters
Park Drives - Enable	Enable park drive programs.	YES NO
Park Drives - Program	Park drive characteristics of the lift system (see „5.5.1 Park drive programs“ page 109).	
Auto Test Drive - Mode	Automatic call generation for testing purposes. Drive characteristics of the auto test drive: › Sequence: floors are approached sequentially (0,1,2,3,2,1,0,1,...) › Shuttle: car shuttles between "Lo-Limit" and "Hi-Limit" › Random: floors are approached in a random sequence	Sequence Shuttle Random
Auto Test Drive - Car-Calls	Automatically generated car calls during the auto test drive	YES NO
Auto Test Drive - Landing-Cal	Automatically generated landing calls during the auto test drive	YES NO
Auto Test Drive - Doors	Enable the car doors during the auto test drive; the set value corresponds to the following bit mask:  <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px;"> 0 C B A </div> <div> <p>Door: "1" = enabled</p> <p>Digit: bit 0-3</p> </div> <div style="margin-left: 20px;"> <p>0 = no door enabled 1 = door A enabled 2 = door B enabled 3 = doors A and B enabled 4 = door C enabled 5 = doors A and C enabled 6 = doors B and C enabled 7 = all doors enabled</p> </div> </div>	0 ... 7
Auto Test Drive - Floor-Limit	When activated, only floors between Lo-Limit and Hi-Limit are approached. Note: Lo-Limit < Hi-Limit	YES NO
Auto Test Drive - Lo-Limit	Bottom floor of the auto test drive	0 ... next to last floor (top)

Menu item	Description	Setting range
Auto Test Drive - Hi-Limit	Top floor of the auto test drive	1 ... top floor
Auto Test Drive - Time-Limit	Auto test drive is automatically deactivated after two hours.	YES NO
Auto Test Drive - Interval	Time between two calls of the auto test drive.	0 ... 255 s
LON Configuration Search LON Modules	Perform a bus scan to determine which modules are connected to the bus. All LON modules connected to the bus are entered in a table (Show LON Modules).	YES NO
LON Configuration Show LON Modules	Display all LON modules connected to the bus. The list of LON modules is generated or updated with the <i>Search LON Modules</i> menu item. (see „5.5.2 Show LON modules“ page 110).	Read only with LON Edit Enable = NO
LON Configuration LON Edit Enable	Enable editing mode for the LON modules. In editing mode, the properties of certain LON modules can be changed by changing the number codes in "Show LON Modules" (see <i>System description - LON Byte Editor</i> )	YES NO
LON Configuration CMM-generate list	Generate the list of LON modules with critical input functions (CMM modules).	YES NO
LON Configuration CMM-activate	Activates CMM	YES NO
Modem / Fax / LMS LMS floor-locking	Permit external floor locking via remote data transmission (LMS lift monitoring system). See Installation and Commissioning manual - fax modem!	YES NO
Modem / Fax / LMS FST FAX Enable	Enable all fax functions.	OFF ON
Modem / Fax / LMS Tel. Number FST	Telephone number of the FST modem.	ASCII
Modem / Fax / LMS Modem Number 1	First telephone number for a modem connection	ASCII
Modem / Fax / LMS Modem Number 2	Second telephone number for a modem connection.	ASCII
Modem / Fax / LMS Fax Number 1	First telephone number for a fax connection.	ASCII
Modem / Fax / LMS FAX Number 2	Second telephone number for a fax connection.	ASCII
Modem / Fax / LMS Dial Prefix	Type of telephone network	Tone-dial Pulse-dial ISDN
Modem / Fax / LMS Modem InitString 1	Initialisation of the first modem, ASCII string according to modem documentation.	ASCII
Modem / Fax / LMS Modem InitString 2	Initialisation of the second modem, ASCII string according to modem documentation.	ASCII
Modem / Fax / LMS Fax InitString 1	Initialisation of the first fax, ASCII string according to modem documentation.	ASCII
Modem / Fax / LMS Fax InitString 2	Initialisation of the second fax, ASCII string according to modem documentation.	ASCII
Modem / Fax / LMS Dial Attempts FAX	Dial attempts for establishing a fax connection.	0 ... 10
Modem / Fax / LMS Pause between Dial	Pause between dial attempts.	0 ... 1000 s
Modem / Fax / LMS Fax Numbers Used	Enable fax numbers.	0 ... 2
Modem / Fax / LMS FaX Auto Send	Time between two automatic fax reports.	OFF EVERY HOUR EVERY DAY EVERY WEEK EVERY MONTH

Menu item	Description	Setting range
Modem / Fax / LMS FaX Control	<ul style="list-style-type: none"> <li>› 00000000 00000001 - fax type (in modem) 0:CLASS-2 1=CLASS-2.0</li> <li>› 00000000 00100000 - GSM fax device</li> <li>› 00000000 01000000 - send SMS instead of fax</li> <li>› 00000000 10000000 - diagnostics mode</li> <li>› 00000nnn 00000000 - fax-modem type 000: standard, 001: US-Robotics, 010...111: reserved</li> <li>› 00000000 00010000 (groups only) 1: send own fax, 0: send fax via GST</li> </ul>	00000000000000 ... 111111111111
Modem / Fax / LMS Send Test Fax	A test fax is sent.	YES NO
I/O Configuration - I/O Ports - RAW Value	Configure programmable I/O ports (see „6 Programmable I/O ports“ page 137)	00000000 ... 11111111
I/O Configuration - I/O Ports - Debounce	Delay of the I/O ports	0,0s ... 25,5s
I/O Configuration - I/O Flags - Delay	Delay of the I/O ports. Depending on bit 1 of the CTRL. menu item, seconds or switching operations are to be set in the settings area.	00000000 ... FFFFFFF
I/O Configuration - I/O Flags - Mask	System conditions in which an I/O port switches to active.	00000000 ... FFFFFFF
I/O Configuration - I/O Flags - Ctrl.	Flag check	00 ... FF
I/O Configuration - I/O Error - ID	Error type for activating the error output	No error....A3 actuator test
I/O Configuration - I/O Error - Info	Additional filter for I/O error	000...255
I/O Configuration - I/O Error - Ctrl.	Configuration of the error output	00 ... FF
IP Configuration - IP Enable	Activation of the onboard PAM function; activation only after consulting with NEW LIFT	
IP Configuration - IP Address	Network address (IP) of the FST controller	192.168.6.230
IP Configuration - Subnet mask	Network mask of FST controller	255.255.255.0.
IP Configuration - Default gateway	Network address of the transfer point, e.g., router, etc.	
IP Configuration - Server IP Address	Network address (IP) of the LMS-Elevation Server	
IP Configuration - Port Number	Port number of the LMS-Elevation Server	8001
IP Configuration - VNC Setting	Device ID of the FST controller in BACnet	1000
IP Configuration - IP CarCalls Lock Enabled	<p>This parameter activates a serial connection to a security system PC to give access to a car button commandos, for example via admission card.</p> <p>The connection is possible only via Ethernet in XML format. Standard setting is NO. Before activating this function consult NEW LIFT Service line.</p>	YES NO
IP Configuration - IP CarCalls Lock Enable Time	<p>During release time a car button commando could be released, until the locking is active again.</p> <p>Standard setting is 4 sec.</p> <p>For floors 0-7 [0]</p>	2-120 sec

Menu item	Description	Setting range
IP Configuration - IP CarCalls Lock Non-Locked Fils	For floors 8-15 [1] For floors 16-23 [2] For floors 24-31 [3] For floors 32-39 [4] For floors 40-47 [5] For floors 48-55 [6]	0-7
IP Configuration - IP CarCalls Lock Non-Locked Fils Side A	For floors 56-63 [7] Definition of the door side A (binary) that is not locked  1 = door side is not locked	00000000
IP Configuration - IP CarCalls Lock Non-Locked Fils Side B	Definition of the door side B (binary) that is not locked  1 = door side is not locked	00000000
EAZ Configuration - Use Text	Enable user-defined floor names. › YES: under EAZ Text, a two-digit floor name can be entered for each floor that appears in the FST display and in all LON position indicators › NO: floor names 0,1,2 .. are displayed in the FST display and all LON position indicators	YES NO
EAZ Configuration - EAZ Text Text	Two-digit designation for each floor (see Use Text.)	2 ASCII characters
EAZ Configuration - Bottom Flr. Car	Initial value for the position indicator code output on the FPM. 0: code starts at bottom floor with "00000000" 1: code starts at bottom floor with "00000001" The type of position indicator code can be set under EAZ type (see „FST-2XT and FST-2XTs terminal strip X13“ page 56).	0 ... 1
EAZ Configuration - Bottom Flr. Hall	Initial value for the position indicator code output on the ADM X3. › 0: code starts at bottom floor with "00000" › 1: code starts at bottom floor with "00001" The type of position indicator code can be set under ADM-EAZ type.	0 ... 1
EAZ Configuration - Target-Floor Car	Activation of the position indicators at the braking point when approaching a floor. › Show Target Floor: the target floor is already displayed at the braking point. This may lead to floor texts being skipped if the deceleration distances cover multiple floors. › Show Physical Floor: the target floor is displayed after reaching the level range.	Show Target Floor Show Physical Floor
EAZ Configuration - LON-EAZ type	Type of the connected LON position indicators. Depending on the type, the options set under LON EAZ Config have different meanings (see description of the respective position indicator).	EAZ-256/40, /64 EAZ-VFD/LCD EAZ-TFT
EAZ Configuration - LON-EAZ Number	For configuring selected LON position indicators. Each connected LON position indicator has a unique number (0 ... 255). If 255 is set here, the settings apply for all connected LON indicators.	0 ... 255
EAZ Configuration - LON-EAZ Config.	Options for the connected LON position indicators. Depending on the LON-EAZ type, the set options have different meaning (see description of the respective position indicator).	00000000 .... 11111111
EAZ Configuration - LON-EAZ Download	Transfer of a configuration file from the plugged-in PC card to the LON indicators selected under LON-EAZ Number	YES NO
EAZ Configuration - IRT-code	Access code for the remote function. With indicator types EAZ-VFD and EAZ-LCD, the FST controller can be configured via the indicator using the FST-IRT infrared remote control. To use this function, it is necessary to enter the access code set here (see short instructions - FST-IRT Infrared Remote Control).	00000 ... 99999

Menu item	Description	Setting range
EAZ Configuration - Display Dimming	Dim the EAZ-256 and EAZ-TFT LON display while the car lighting is switched off (energy conservation). The dimming function can be switched on separately for car and landing indicators. › 00000000: dimming function off › 00000001: only car indicators are dimmed › 00000010: only landing indicators are dimmed › 00000011: all indicators are dimmed	00000000 ... 00000111
EAZ Configuration- Free EAZ-256 Text	Freely programmable scrolling text for EAZ-256 position indicator. The scrolling text may contain up to 20 ASCII characters and is activated via the "freier EAZ-256 Text anzeigen" input function. (see „6 Programmable I/O ports“ page 137)	20 ASCII characters
Chime Functions - Chimes Enabled	Activate chime function.	YES NO
Chime Functions - Chime Duration	Pulse length of the chime trigger signal	0 ... 5 sec
Chime Functions - Chime Trigger	Distance of the car to the level position of the target floor at which the chime trigger signal is output.	0 ... 9999 mm
Chime Functions - Chime when in flr	The chime also sounds with closed car doors if the car is already at the target floor when the lift is called with a landing call	YES NO
Chime Functions - Car Chime	Selection of chime control, if it could logically take place with a possible selective door opening.	Doors-Selective not Doors-Selective
Chime Functions - Landing Chimes	Chime sounds for landing and/or car calls.	Landing calls Car+Landing calls
ID's - Lift ID-Number	Identification of the FST controller in group mode. The setting must correspond to the jumper setting (JK1, JK2 and JK3) on the FSM car top control module (see „Jumper JT: assignment of the car doors“ page 63) and FPM car operating panel module! If this fails, the installation is shut down with DRM-CAR COMMS FAIL (see „8.1 Error messages“ page 161)(DRM-CAR COMMS FAIL). Single lifts are always set to lift A.	A ... H
ID's - Lift ID-Name	Installation location, identification of the FST controller for modem, remote data transmission and PAM (LMS)	20 ASCII characters
ID's - NEW-Factory No.	NEW LIFT factory number of the FST controller	20 ASCII characters
ID's - Lift Manufac. No.	Factory number of the installation assigned by the lift manufacturer.	20 ASCII characters
ID's - Project-Code	Code number of a project-specific software version (is only issued with special projects; do not change!)	000000 .... 999999
Group Settings - GST-Menu	See GST manual	
Group Settings - Lift ID-Number	See ID's / Lift ID-Number.	A ... H
Group Settings - Group Member	Integrate FST controller in a GST group controller (see GST manual).	YES NO
Group Settings - Group Floor Offset	Floor offset with respect to bottom floor of the entire group (see GST manual).	0 ... 15
Group Settings - Flr Offset-Car	The value set under Group Floor Offset is defined as the bottom floor for the position indicator in the car (if not set, the value "0" is used, see GST manual).	YES NO
Group Settings - Flr Offset-Landing	The value set under Group Floor Offset is defined as the bottom floor for the landing position indicators (if not set, the value "0" is used, see GST manual).	YES NO
Group Settings - ADM-Bus Mask-1	Assignment of the FST to the individual bus lines of the group in normal operation (see „5.5.3 ADM bus masks“ page 111).	00 ... FF

Menu item	Description	Setting range
Group Settings - ADM-Bus Mask-2	This bus mask is used for group separation if the FST is separated from the group. Assignment of the FST to the individual bus lines of the group in simplex mode ("separated group mode", see <i>GST manual</i> ).	00 ... FF
Anti Nuisance - Maximum Car Calls	Maximum permitted number of simultaneously acknowledged car calls. This parameter is intended to prevent unnecessary drives caused by car calls. A reasonable setting is the number of persons specified under load capacity.	0 ... 63
Anti Nuisance - Stops w/o Exit	All car calls are cleared if there is no photocell interruption after the set number of stops. This parameter is intended to prevent unnecessary drives caused by car calls.	0 ... 63
Anti Nuisance - Empty Car Sense	If the "car empty" input is activated (see „4.3 Car top control module FSM-2“ page 61), no car calls are accepted. This parameter is intended to prevent unnecessary drives caused by car calls. Only activate if the weight sensor is equipped with an empty load contact and this contact is connected to the FSM!	YES NO
Anti Nuisance - Weight / Car-Calls	Activates the weight control on each car call. The first car call is always accepted. Every other call is acknowledged if an additional weight of 75kg is also detected.	
Anti Nuisance - Call Direction	All car calls against the current direction of travel are cleared when the direction changes (e.g., upon reaching an end floor). This parameter is intended to "educate" passengers on how to use the two-button controller correctly. Only activate if using a two-button controller!	YES NO
Anti Nuisance - Always clear Up/Dn	When approaching the target floor, both landing calls (up and down) are always cleared. This parameter prevents unnecessary drives caused by "double calls" from one passenger when using the two-button controller. Only activate if using a two-button controller!	YES NO
Anti Nuisance Emergency-Call	Activation of the emergency-call anti- nuisance protection <ul style="list-style-type: none"> <li>› No Filter: emergency-call filter not active, emergency calls are always forwarded.</li> <li>› Ignore door-status: emergency calls from the car are only suppressed during the drive.</li> <li>› Observe door-status: emergency calls from the car are suppressed during the drive and while the car door is open while on the floor.</li> </ul>	No Filter Ignore door-status Observe door-status
Car Ventilator - Control Mode	Controller programs of the car ventilator (see „5.5.4 Car ventilation“ page 111).	Switched off Manual On/Off Manual + Off-Delay Automatic + Off-Delay
Car Ventilator - Vent. Off Delay	Run-on time of the car ventilator in modes Manual+Off-Delay and Automatic+Off-Delay.	0 ... 3600 s
Car Ventilator - Output Inverted	Invert the ventilator output on the FSM.	YES NO
Car Light - Light Off Delay	Automatic, time-delayed shutdown of the car lighting after every drive.	0 ... 9999 s
Car Light Light Monitoring	Monitoring of the car lighting by means of voltage sensor on the FSM. If the parameter is activated, the car lighting function is monitored and the installation is shut down if the car lighting fails with CAR LIGHT FAILURE (see „8.1 Error messages“ page 161).	YES NO
Car Light Evac. -Light Off	Switch off the car lighting after an evacuation drive.	YES NO



Menu item	Description	Setting range
Car-Operate-Panel EAZ type	Position indicator code output by the FPM. <ul style="list-style-type: none"> <li>› HEX: binary code</li> <li>› HEX+n: binary code with offset from parameter "HEX+n Offset"</li> <li>› 1-of-N: there is a separate signal for each floor (only possible with installations with up to eight floors)</li> <li>› GRAY: Gray code</li> </ul> The initial value of the bottom floor can be set under <b>Bottom Flr. Car</b> (see „EAZ Configuration - Bottom Flr. Car“ page 96).	HEX HEX+n 1-of-N GRAY
Car-Operate-Panel Lamp type	Type of car acknowledgement lamps (important for avoiding flickering). If car call clearing is to be used by twice actuating acknowledged car calls, "LED" must be set.	LED Filamt
Car-Operate-Panel Display-0	Function of the FPM-1 X4.39 / FPM-2 X3.4. (see „5.5.5 Display 0 ... 2“ page 111).	00000000 .... 11111111
Car-Operate-Panel Display-1	Function of the FPM-1 X4.38 / FPM-2 X3.2. (see „5.5.5 Display 0 ... 2“ page 111).	00000000 .... 11111111
Car-Operate-Panel Display-2	Function of the FPM-1 X4.5 / FPM-2 X3.3. (see „5.5.5 Display 0 ... 2“ page 111).	00000000 .... 11111111
Car-Operate-Panel OPEN = A+B	The door open button signal (FPM-1 X4.35, .36 / FPM-2 X1.11, X2.11) is active for all present car doors	YES NO
Car-Operate-Panel CLOSE = A+B	The door close button signal (FPM-1 X4.2, .3 / FPM-2 X1.12, X2.12) is active for all present car doors	YES NO
Car-Operate-Panel OPEN=last	The door open button signal (FPM-1 X4.35, .36 / FPM-2 X1.11, X2.11) is only active for the last-opened car door	YES NO
Car-Operate-Panel Card Reader	Control of a card reader for enabling car calls in the car. Only activate after consulting NEW LIFT as it is necessary to modify the order-specific wiring diagrams! If this parameter is activated, car calls can only be placed with a card reader!	YES NO
Car-Operate-Panel -“- ClearOpt	Clear pending car calls after activating the card reader again.	YES NO
Car-Operate-Panel Chime-Roof	Separate landing chime for upward travel present on the car roof. The chime signal is output on FPM output "Display 1" (FPM-1 X4.38 / FPM-2 X3.2) if parameter <code>Display1=00000000</code> is set (see „5.5.5 Display 0 ... 2“ page 111).	YES NO
Car-Operate-Panel Chime-Floor	Separate landing chime for downward travel present on the car floor. The chime signal is output on FPM output "Display 2" (FPM-1 X4.5 / FPM-2 X3.3) if parameter <code>Display2=00000000</code> is set (see „5.5.5 Display 0 ... 2“ page 111).	YES NO
Car-Operate-Panel DoorOpen NC	Evaluate the door open button signal (FPM-1 X4.35, .36 / FPM-2 X1.11, X2.11) as NC normally closed.	YES NO
Car-Operate-Panel O-Load Blink	Activate flashing mode of the overload display (FPM-1 X4.6).	YES NO
Car-Operate-Panel Pin-34 Functn	Function of the FPM-1 X4.34 / FPM-2 X2.14 input (see „5.5.6 Pin 34 function“ page 112).	0 .. 99
Car-Operate-Panel Xtra-Inputs	Activate the additional inputs for special functions on the FPM.	YES NO
Car-Operate-Panel Click Off	Switch off the acoustic car call acknowledgement (button clicks). This function only has an effect if the FPM-2 is used.	YES NO
Car-Operate-Panel Chk ack. lamps		
Car-Operate-Panel 2xCall=Clear	An already acknowledged car call can be cleared by placing the call another two times. This function is only available if <code>Lamp type = LED</code> is set.	YES NO
Car-Operate-Panel HEX+n Offset	Initial value of the binary code for the floor output on the FPM. This value only has an effect if <code>EAZ type = HEX+n</code> is set.	0 ... 15

Menu item	Description	Setting range
Fireman Options Fire Standards	The fire standards observed during fireman service (see <i>Fireman Service manual</i> ).	EN 81-72 (2015) EN 81-72 (old-2003) AS-1735 (Australia) TRA-266 SIA Hong Kong Daimler Typ-C Fireman transport drive ASME PUBEL (Russia) EL AMA 98 (Sweden) Duesseldorf Frankfurt-Main
Fireman Options Fire->Fireman(ADM)	A fire signal generated by an ADM landing button module automatically activates fireman service after reaching the fire main floor (see <i>System description - Fireman mode control</i> ).	YES NO
Fireman Options Fire->Fireman(I/O)	A fire signal generated by a programmable I/O port automatically activates fireman service after reaching the fire main floor (see <i>System description - Fire recall control</i> ).	YES NO
Fireman Options Only ADM ->Fireman	Fireman mode can only be started if an ADM signal triggered the fire signal.	YES NO
Fireman Options Off only in M-Flr	Fireman service can only be switched off on the main floor (see <i>Fireman Service manual</i> ).	YES NO
Fireman Options Door Open in M-Flr	Default position of the car doors on the main floor during a fire signal (see <i>Fireman Service manual</i> ).	YES NO
Fireman Options Fire Main Floor	Target floor of the evacuation drive during a fire signal (see <i>System description - Fire recall control</i> ).	0 ... 63
Fireman Options Fire MainFlr Doors	Activation of the car doors after reaching the fire main floor (see <i>System description - Fire recall control</i> ).	All doors door A only door B only door C only
Fireman Options Smoke Evac. Plan	The fire input is evaluated as a smoke detector signal (see <i>System description - Fire recall control</i> ).	Goto Alarm Floor Goto Alarm Floor + 1 Goto Alarm Floor - 1 MainFlr/ MainFlr+1
Fireman Options Smoke alarm-Prio	Emergency landing can also be changed after the start of the fireman drive (by changing the smoke detector situation, see <i>System description - Fire recall control</i> ).	YES NO
Fireman Options Smoke drive Thru	The fire input is evaluated as a pulse and must also be reset again (see <i>System description - Fire recall control</i> ).	YES NO
Fireman Options Fire sig. Pulsed	The fire input is evaluated as a pulse and must be reset again (see <i>System description - Fire recall control</i> ).	YES NO
Fireman Options DeadMan-DoorClose	If, in the event of smoke development without a pending fire message, the photocell is interrupted, the doors can be closed by holding down the door close button. All calls are cleared and the lift moves to the desired floor.	0 ... 20 s
Fireman Options DO allowed	If the lift moves away from the fire main floor in the event of a fire, a stop to change direction is initiated on the next floor. This occurs by default with closed doors.  This option allows the doors to be opened during a stop to change direction by pressing the door open button.	YES NO




Menu item	Description	Setting range
Fireman Options Safety-Curtain	Reset the fireman service procedure completely. Should be performed after every change in the FIREMAN SERVICE menu (see <i>Fireman Service manual</i> ).	YES NO
Fireman Options Fireman Mode Reset	Reset the fireman service procedure completely. Should be performed after every change in the FIREMAN SERVICE menu (see <i>Fireman Service manual</i> ).	YES NO
Weight Sensor Sensor-Type	Operating principle of the weight sensor. › ANALOGUE: an analogue weight sensor with a separate bus connection makes available the load of the car as a percentage. The switching levels for empty load, full load and overload must be set under Level-Empty, Level-Full and Level-OverL. › DIGITAL: a digital weight sensor with separate outputs for empty load, full load and overload is connected to the terminals of the FSM (see „FSM-2 terminal strip X5“ page 64). The switching levels are set directly on the weight sensor. › LCS Load-Control-Sys.: the LCS is used as the weight sensor (see <i>LCS manual</i> ).	ANALOGUE  DIGITAL LCS Load-Control-Sys
Weight Sensor LCS Settings Threshold-Empty	Setting of the load threshold up to which the car is still considered to be empty (see <i>LCS manual</i> ).	0 ... 1000 kg
Weight Sensor LCS Settings Threshold Full	Setting of the load threshold above which the car is considered to be full.	
Weight Sensor LCS Settings Lift max. capacity	Rated lift capacity of the car (see <i>LCS manual</i> ).	0 ... 30000 kg
Weight Sensor LCS Settings Ref. weight (L2)	Specification of the reference load with which calibration of the LCS is performed (see <i>LCS manual</i> ).	0 ... 30000 kg
Weight Sensor LCS Settings Cal. Empty (L1)	Calibration of the empty load. With this function, the empty car weight is measured and used as the basis for detecting the empty load threshold (see <i>LCS manual</i> ).	YES NO
Weight Sensor LCS Settings Cal. Ref-weight (L2)	Calibration of the reference load. With this function, the car weight is measured with the set reference load and forms the basis for detecting a full load and overloading (see <i>LCS manual</i> ).	YES NO
Weight Sensor LCS Settings Correct Offset	Recalibration of the weight sensor with LCS after a completed arrest test. With this function, any distortions in the load measurement curve as a result of the arrest test are eliminated.	YES NO
Weight Sensor LCS Settings Cal.L1/L2 from COP	Calibration of the LCS in the car directly via the car operating panel. With this type of LCS calibration, the load threshold to be calibrated is entered and the calibration activated with the help of the door open button as well as the car call button for the bottom floor in combination with a NEW LIFT position indicator. (see <i>LCS manual</i> ).	YES NO
Weight Sensor LCS Settings Auto Adjustment Chain Compensation	Various methods for compensating for static load differences that are measured between floors. These differences may arise when using compensation chains. Compensation may, however, also be required in the event of mechanical tension, e.g., due to irregular dimensions in the rails or uneven tension in the suspension cables.	OFF Using floor table Dynamic - per drive

Menu item	Description	Setting range
Weight Sensor LCS Settings Auto Adjustment Flr-0:offset->0	Is only displayed if Auto Adjust - Chain Compensation = Dynamic - Per drive. The Dynamic - Per drive compensation mode compensates for differences in the load measurement that occur shortly after leaving the floor and shortly before arriving at the target floor. In this way, it is possible to compensate for differences that occur on account of the chain length below the car. Upon reaching the bottom floor, all compensation values in this option are reset.	ON OFF
Weight Sensor LCS Settings Auto Adjustment Floor values Offset (kg)	Is only displayed if Auto Adjust - Chain Compensation = Using floor table. Enables a check and manual adjustment of the automatically generated compensation floor values. One compensation value is available per floor.	-30000 ... 30000 kg
Weight Sensor LCS Settings Auto Adjustment Generate Table	Is only displayed if Auto Adjust - Chain Compensation = Using floor table. Automatically generates the compensation floor table. The measurement can be started from any floor. The car should be empty for this purpose. The car moves to the bottom floor in drive mode and then moves upward to each floor with closed doors. After each floor, the compensation value is measured and recorded.	YES NO
Weight Sensor LCS Settings Auto Adjustment Drift Compensation	To permanently compensate for empty load deviations with the load control system, the car weight is reset to 0 kg if the lift stands for longer than 2 hours without a drive request and without a change in load. Important: This function must not be activated in freight lifts or in lifts in which there is a high probability that heavy objects will be stored in the lifts for a longer period of time.	YES NO
Weight Sensor LCS Settings Auto Adjustment Auto Zero <30kg	If the lift is stopped for longer than 10 sec with closed car door, a car load of less than 30 kg is automatically corrected to 0 kg. Larger car loads cannot be corrected.	ON OFF
Weight Sensor LCS Settings Auto Adjust LCS-Reset	All dynamic weight offsets of the LCS are cleared. Restart of the LCS module. Parameters are not lost.	YES NO
Weight Sensor LCS Settings Options	>00000001: Display measurement during the drive >00000010: If Auto Adjust/Dynamic - Per drive is set, an offset is automatically cleared on floor 0.	00000000
Weight sensor Digital Settings OverLd-FST Input	Overload input on the FST X1.17. LO: NO function HI: NC function	NO NC
Weight sensor Digital Settings FullLd-FST Input	Full load input on the FST X1.18. LO: NO function HI: NC function	NO NC
Weight sensor Digital Settings OverLd-FSM Input	Overload input on the FSM-2 X5.4. LO: NO function HI: NC function	NO NC
Weight sensor Digital Settings FullLd-FSM Input	Full load input on the FSM-2 X5.3. Active LO: NO function Active HI: NC function	Active: NO Active: NC
Weight sensor Digital Settings EmptyL-FSM Input	Empty load input on the FSM-2 X5.2. Active LO: NO function Active HI: NC function	Active: NO Active: NC

Menu item	Description	Setting range
Weight sensor Analog Settings Level-Empty	Level for the empty load state when using an analogue weight sensor	000 ... 200 %
Weight sensor Analog Settings Level-Full	Level for the full load state when using an analogue weight sensor	000 ... 200 %
Weight sensor Analog Settings Level-OverL	Level for the overload state when using an analogue weight sensor	000 ... 200 %
Speech Output Activated	Activates the control of a speech computer using an additional SPK module (see „5.5.7 Speech output codes“ page 112)..	ON OFF
Speech Output Speech Module Type	Type selection of the speech output. SPK-Module: the SPK LON module forms the interface to the speech computer SAM-Module: speech output and any background music take place via the SAM (see SAM manual)	SPK-Module SAM-Module
Speech Output SPK-Module Output-type	Encoding of the SPK module output. › HEX: binary code › 1-of-N: there is a separate signal for each output › GRAY: Gray code (see „5.5.7 Speech output codes“ page 112).	HEX 1-of-N GRAY
Speech Output SPK-Module Speech-Codes	Assignment of the speech output code (see „5.5.7 Speech output codes“ page 112)..	0 ...255
Speech Output SAM-Module Volume Chan. 1	Volume of the speech output. This setting changes the volume of both channels as a percentage, i.e., 100% corresponds to the volume set via potentiometers 1 and 2.	0 ... 100 %
Speech Output SAM-Module Volume Chan. 2	Volume of the background music. This setting changes the volume of channel 1 as a percentage, i.e., 100% corresponds to the volume set via potentiometer 1.	0 ... 100 %
Speech Output SAM-Module Backgrnd Music	Activate playing of the stored background music.	ON OFF
Speech Output SAM-Module Debug-Mode	Activate debug mode. In debug mode, the message ID and the associated text are announced.	ON OFF
Speech Output SAM-Module Only Disabled		ON OFF
Speech Output SAM-Module Message repeat	Repeat mode for fire/evacuation: 0 = only one announcement is read 1 = announcement is repeated 1x after 10 s 2 = announcement is repeated 2x after 10 s 3 = announcement is repeated every 10 s	0 ... 3
Speech Output SAM-Module "floor-X" doorA	Activate floor announcement for door side A.	ON OFF
Speech Output SAM-Module "floor-X" doorB	Activate floor announcement for door side B.	ON OFF
Speech Output SAM-Module "door open/cls"	Activate announcement of door movements.	ON OFF
Speech Output SAM-Module "door nudging"	Activate announcement of door nudging.	ON OFF

Menu item	Description	Setting range
Speech Output SAM-Module "up/down"-early	Activate announcement of the next direction of travel between door opening and subsequent closing of the door.	ON OFF
Speech Output SAM-Module "up/down"-late	Activate announcement of the next direction of travel after door closing and start of lift movement.	ON OFF
Speech Output SAM-Module "overloaded"	Activate announcement of overloading.	ON OFF
Speech Output SAM-Module "full load"	Announcement of full load activated.	ON OFF
Speech Output SAM-Module "out-of-Order"	Activate announcement of out-of-order conditions.	ON OFF
Speech Output SAM-Module "special-drive"	Activate announcement of special drives.	ON OFF
Speech Output SAM-Module "evacuation"	Activate announcement of evacuation drives.	ON OFF
Speech Output SAM-Module "fire-recall"	Activate announcement of fireman drives.	ON OFF
Speech Output SAM-Module "fireman srvc"	Activate announcement of fireman service.	ON OFF
Speech Output SAM-Module "lift-off"	Active announcement of remote shutdowns.	ON OFF
Speech Output SAM-Module "service mode"	Activate announcement of service mode.	ON OFF
Speech Output SAM-Module arrival gong	Activate arrival gong.	ON OFF
Speech Output SAM-Module as UP/DOWN	Activate direction-dependent arrival gong	ON OFF
Speech Output SAM-Module "emerg. call"	Activate announcement of emergency calls. If the emergency call button was actuated, the following announcement is played <i>"Your emergency call has been forwarded. Please be patient."</i>	ON OFF
Speech Output SAM Module "Floor Locked"	Activates the "Floor blocked" announcement if this floor was blocked via the I/O port.	ON OFF
Project-Config Basis Basis [0...9]	Project-specific settings. Further information is available from NEW LIFT. This menu item is only visible if a value > 0 is displayed under Config / ID's / Project-Code.	0 ... 9999
Project-Config LON-Modules LON-Modules [0...29]	Project-specific settings for the LON bus of the CUS modules. Further information is available from NEW LIFT. This menu item is only visible if a value > 0 is displayed under Config / ID's / Project-Code.	0 ... 255
Hall Stations Landing Call Enabl	Lag time when switching back on the landing call release after special drives. Prevents immediate start-up of the car, e.g., after switching off the inspection control.	0 ... 30 s

Menu item	Description	Setting range
Hall Stations ADM-EAZ Coding	Position indicator code output on the ADM X3. <ul style="list-style-type: none"> <li>› HEX: binary code</li> <li>› 1-of-N: there is a separate signal for each floor (only possible with installations with up to five floors)</li> <li>› GRAY: Gray code</li> </ul> The initial value of the bottom floor can be set under <b>Bottom Flr. Hall.</b> (see „ <i>Bottom Flr. Hall</i> “ page 96).	HEX 1-of-N GRAY
Hall Stations Special Display 0	Function of terminal 14 of the ADM-S (the function of terminal 14 must be set to "soft-0" in the FST editor!). <ul style="list-style-type: none"> <li>› 0: no function</li> <li>› 1: "door open" display for manual doors</li> <li>› 2: fireman service active</li> <li>› 3: car priority or landing active</li> <li>› 4: fireman service or fireman mode active</li> <li>› 5: out-of-operation display (only if installation has actually been shut down)</li> <li>› 6: car priority active</li> </ul>	0 .. 255
Hall Stations Special Display 1	Currently no function	0 .. 255
Lift-Off Lift-Off Program	The remote shutdown input may be present multiple times: <ul style="list-style-type: none"> <li>› FST X7.14</li> <li>› ADM X3</li> <li>› RIO module</li> <li>› GST (see <i>GST manual</i>)</li> </ul> After activating one of the inputs, the controller performs a "hard" or "soft" remote shutdown drive to the remote shutdown floor. Afterwards, the car lighting is switched off and the installation is shut down. The door open button in the car operating panel remains functional! <ul style="list-style-type: none"> <li>› HARD: all car and landing calls are cleared</li> <li>› SOFT: car calls remain, landing calls are cleared</li> </ul>	HARD SOFT
Lift-Off Lift-Off Floor	Target floor of the remote shutdown drive	0 ... 63
Lift-Off Lift-Off Doors	After the remote shutdown drive, the door set here is opened and closed again before the car lighting is switched off.	All doors door A only door B only door C only
Lift-Off Pseudo-Flr. Park 	Lift-off floor = pseudo floor 0	YES NO
Special Functions Loading Function Program Nr.	Program number of the loading controller (see „5.5.8 Loading function“ page 112).	0 - 3
Special Functions Loading Function Options	Only if program number = 3. For detailed description, (see „5.5.8 Loading function“ page 112).	
Special Functions Loading Function Load Time-max	Maximum loading time. After this time elapses, the loading function is ended and the car door closes.	0 ... 9999 s
Special Functions Loading Function Load-Sw.Disp	Setting of the Load-Sw.Disp function (see „5.5.8 Loading function“ page 112).	0 ... 15
Special Functions Loading Function LPrio-Prec.	Landing priority has priority over the loading function.	YES NO
Special Functions Lobby-Stop Enable	Activation of the Lobby Stop function	YES NO

Menu item	Description	Setting range
Special Functions Lobby-Stop Floor	Defines the lobby floor	0 ... 63
Special Functions Lobby-Stop Doors	Defines which door side opens on the lobby floor	Door A only door B only door C only all doors
Special Functions Lobby-Stop Control	Defines in which direction of travel the lift stops on the lobby floor. » 00000001: only stops if the car is moving upward » 00000010: only stops if the car is moving downward » 00000011: always stops on the lobby floor	00000001 00000010 00000011
Special Functions Remote Entry Activated	Settings for the "Remote Entry" special function ( <i>see System description - Remote Entry</i> ).	YES NO
Special Functions Remote Entry Automatic-Call	With setting = YES; passenger does not need to activate target floor on the collection floor himself.	YES NO
Special Functions Remote Entry Maximum Wait	Duration of the wait time in which the lift is reserved on the collection floor.	5..255 s
Special Functions Remote Entry Must be Empty	The car must be empty before the remote entry drive begins.	YES NO
Special Functions Remote Entry ADM ack. lamp	If a destination call is placed via I/O port, acknowledgement takes place via the ADM acknowledgement lamp.	YES NO
Special Functions Remote Entry Immedt.collect	Collection does not wait until the car is empty.	YES NO
Special Functions Remote Entry Immedt.target	Upon reaching the collection floor, the destination call is placed automatically.	YES NO
Special Functions Remote Entry No Enable-2	Remote call takes place without secondary release.	YES NO
Special Functions Remote Entry Targ.Locking	Block the destination call via I/O port. YES = bypass block	YES NO
Special Functions Bank-Control Enabled	Activation of bank control mode.	
Special Functions Bank-Control Use Empty Car Mon.	A bit pattern is used to decide how the car with an empty load sensor behaves. Bit 0 (right bit) 0 = no empty load sensor; 1 = parties are changed on closed doors and empty load. Bit 1; 0 = door closes as in normal operation; 1 = door remains open until the car is empty Bit 2...7 = no function at present	00000000



Menu item	Description	Setting range
Special Functions Bank-Control Bank Control	A bit pattern is used to decide how the landing calls are evaluated. Bit 0; 1 (right bit 00 = landing calls in push-button mode (during operation, the landing control illuminates); 01 = landing calls are collected but not executed; 10 landing calls in party mode (the same party is collected and executed). Bit 2; 0 = car button push-button mode, only one car call possible; 1 = car button actuations collected, multiple car calls are possible. Bit 3; 0 = car priority within the parties; 1 = car priority for all parties. Bit 4; 1 = all pending landing calls are cleared after 5 min. Bit 5; 0 = forced pause between change of user groups of 1s; 1 = 10s Bit 6; 1 = remote shutdown always allowed Bit 7; 1 = upon landing on the target floor, bank control mode automatically uses user group 0.	00000000
Special Functions Bank-Control User-Group Masks	Floor door sides A/B for user group assignment matrix. It is recommended that the access masks be configured via the FST editor since this interface is more user friendly.	[0]...[31] A 0.....0 B 0.....0
Special Functions Bank-Control Busy-Disp.Mask	Defines which busy displays are active with respect to the user groups. It is recommended that the busy display mask be configured via the FST editor since this interface is more user friendly.	0.....0
Special Functions Ramp-Drive StartFloor	Floor on which the ramp drive begins. Settings for the "Ramp Drive" special function (see <i>System description - Ramp drive</i> ).	0..63
Special Functions Ramp-Drive Control	Bit 0(00000001) = enable ramp drive Bit 1/2(00000110) = speed (00=Vn,01=Ve,10=V1) Bit 3(00001000) = open door B, otherwise door A Bit 4(00010000) = control retiring cam Bit 5(00100000) = ramp drive can only be switched off in door zone Bit 6(01000000) = no out-of-operation display on position indicator (EAZ) Bit 7(10000001) = no function	Bit7-->00000000
Special Functions Ramp-Drive Hi-Limit	Upper limit of the ramp zone relative to the level position of the ramp floor; ramp drive not possible above this value. This value can be determined by moving the lift with auxiliary mode to the maximum height above level and then reading out the Pd value.	0...9999 mm
Special Functions Ramp-Drive Lo-Limit	Lower limit of the ramp zone relative to the level position of the ramp floor; ramp drive not possible below this value. This value can be determined by moving the lift with auxiliary mode to the minimum height below level and then reading out the Pd value.	-300...0 mm
Special Functions Ramp-Drive Pre-Limit	Forced early shutdown of the ramp drive before the ramp zone is exited. This value must be determined on-site at the installation and must be selected somewhat larger than the inertia path mechanically travelled by the car after the ramp drive is electrically switched off.	0...255 mm
Special Functions Sel.Door-Security Enable	Activation of the Sel.Door function. Calls can be secured according to type and door side, i.e., in order to open the door, a separate door release button from the CUS-66 LON module is required.	YES NO
Special Functions Sel.Door-Security Max.Wait Car	Maximum wait time for door release with pending car call. After this time elapses, the lift returns to normal operation.	2...255 s

Menu item	Description	Setting range
Special Functions Sel.Door-Security Max.Wait Landing	Maximum wait time for door release with pending landing call. After this time elapses, the lift returns to normal operation.	2...255 s
Special Functions Sel.Door-Security Floor-Masks Mask	Mask [0..63] Bit mask for call security and door side: Bit 0 = call security for door side A Bit 1 = call security for door side B Bit 2 = car call security is active Bit 3 = landing call security is active valid masks: 05 ... 07, 09 ... 11, 13 ... 15.	00
Inspection Door Test	In inspection mode, enable the door open/door close button for door movement in dead man control. Door open/door close buttons can be installed on the car roof and wired parallel to the buttons of the car operating panel.	YES NO
Inspection I/P Inverted	Inversion of the "Inspection ON" input on the FSM-2 X22.2 (NC function)	YES NO
Inspection Start Delay UP	Lag time before the UP inspection drive is started. Can be used in combination with a pre-warning signal via I/O port.	0..30 s
Inspection Start Delay DN	Lag time before the DOWN inspection drive is started Can be used in combination with a pre-warning signal via I/O port.	0..30 s
Evacuation Autom.Unpowered Zone	The levelling zone for the evacuation stop on the evacuation floor	0 ... 250
Evacuation Autom.Unpowered Speed Max.	Max. evacuation speed until a holding brake is applied - intermittent brake	000 ... 500
Evacuation Autom.Unpowered Speed Limit	Evacuation Speed Limit. The evacuation drive is cancelled if this speed is exceeded.	000 ... 700
Evacuation Autom.Unpowered Time Limit	Max. allowed time for the autom. unpowered evacuation to complete.	000 ... 999
Evacuation Start Delay	Start Delay starting from release of the evacuation signal	000 ... 255 s
Evacuation Ext.Evac.Floor ◇	Specifies the evacuation floor for GST activation	0 ... 63
Temperature Levels Lev-1: Turn Fan On	Setting range for the temperature level 1. When it has been reached, an external fan via a relay can be controlled via I/O port with the setting 00007584.	0..99 °C; 0 = deactivated
Temperature Levels Lev-2: Stop Lift	Setting range for the temperature level 2. When it has been reached, the system with a display message „MOTOR-ROOM OVERHEAT„ is switched off, identical to the function of the terminal X1.16 on the FST.	0..99 °C; 0 = deactivated
ESM-Settings Enable	Activates ESM mode	YES NO
ESM-Settings Mo-Fr Start	Start time for ESM mode on weekdays: 15 min increments	HH:MM
ESM-Settings Mo-Fr End	Stop time for ESM mode on weekdays: 15 min increments	HH:MM
ESM-Settings Sa-Su Start	Start time for ESM mode on weekends: 15 min increments	HH:MM
ESM-Settings Sa-Su End	Stop time for ESM mode on weekends: 15 min increments	HH:MM
ESM-Settings Sleep delay	Wait time that elapses after the last call before ESM mode is activated.	0 ... 255 min



Menu item	Description	Setting range
ESM-Settings Warmup time	Warm-up time of the components before the next drive	0 ... 255 s
ESM-Settings Warmup Text	EAZ display "Please wait" during ESM warm-up phase	YES NO
ESM-Settings w. open doors	Sleep mode with open door. When selecting this parameter, note the door release through door spring/door coupler!	YES NO
ESM-Settings Buffer-Park	Hydraulic installations only: Park the lift on the buffers during the sleep time.	YES NO
ESM-Settings B-Park Pump	Hydraulic installations only: Ensures minimum pressure in the pistons while the lift is in the buffer park position.	YES NO
ESM-Settings B-Park Run-on	Run-on time of the motor after B-Park Pump	0 ... 10 s
Blinking Approach	Acknowledgement lamps of the landing and car calls flash while approaching the target floor.	YES NO
Car Call Priority	Length of time that the current direction of travel has priority before changing direction. Important parameter for collective controls: the time must be set at least large enough that a passenger who called the lift via a landing command has sufficient time to enter the car and place a car call in the current direction of travel (5 ... 15 sec depending on the size of the car). If set too small, the car may be "snatched away" by a landing command in the opposite direction before the desired car call could be placed.	0 ... 30 s
Departure Arrows	Mode of the direction of travel outputs on the ADM X3.8, X3.9: › "YES": direction indicator as departure arrow › "NO": direction indicator as direction of travel arrow › "only when door open": direction indicator as departure arrow only when car door is open	YES NO only when door is open
Depart.Arrows Max	Maximum on-time of the departure arrows while the car is stopped.	0 ... 9999 s
DoorC=Emerg-EndSw.	With hydraulic lifts, DoorC input on pre-control module FST X14. 6 is evaluated and stored as a top emergency end switch according to EN81.	YES NO
Fold-Skirt.Runoff	Runoff that the car continues to travel downward after activating the apron contact.	0 ... 255 mm

### 5.5.1 Park drive programs

The FST controller has a scheduler (calendar) for realising time- and day-dependent park drive programs. Each day of the week (SU - SA) can be divided into up to three time zones. For each of these time zones, different parking programs consisting of parking floor & wait time can be set.


Code	Description	Setting range
Day	Day of the week	SU ... SA
FrM	Start time of the time zone	0:00 ... 23:45
To	End time of the time zone	0:00 ... 23:45
Prog	Program 1 ... 3 (corresponds to time zone 1 ... 3)	0 ... 2
Floor	Park floor	0 ... top floor
W-Time	Wait time until the start of the park drive	0 ... 60 min





### 5.5.2 Show LON modules

After the "Search LON Modules" menu item has been performed, the FST makes available a list of all LON modules connected to the LON bus.

This list is structured as follows:

```
LON-Modules [001/005]
Prg:FSM00117 010/002
ID:01 00 30 49 69 00
[00] [00] [00] [00]
```



A	The first of five connected LON modules is displayed
B	Module type "FSM-" with software version "00117" and appendix "010/002"
C	LON ID of the module: "010030496900"
D	First four configuration bytes of the module; use  to scroll to the next bytes

	Switch to configuration bytes 5 ... 41
	To next LON module
	To previous LON module
	Toggle line C with ADM modules


Display after pressing the  $\phi$  button three times:

```
ID:01 00 30 49 69 00
[00] [00] [00] [00]
[00] [00] [00] [00]
[00] [00] [00] [00]
```

A	LON ID of the module: "010030496900"
B	Configuration bytes 1 ... 4 of the module
C	Configuration bytes 5 ... 8 of the module
D	Configuration bytes 9 ... 12 of the module

Display when paging through the module types (S+ $\phi$ , ) and toggling with ADM modules ()

```
LON-Modules [004/005]
Prg:ADR21012 010/002
Floor=02 Door=A BS=0
[00] [00] [00] [00]
```

A	The fourth of five connected LON modules is displayed
B	Module type "ADR" with software version "21012" and appendix "010/002"
C	Landing call module on floor 02, door side A and bus line 0
D	First four configuration bytes of the module; use  to scroll to the next bytes

### 5.5.3 ADM bus masks

The bus masks are two-digit hexadecimal values according to the following pattern.

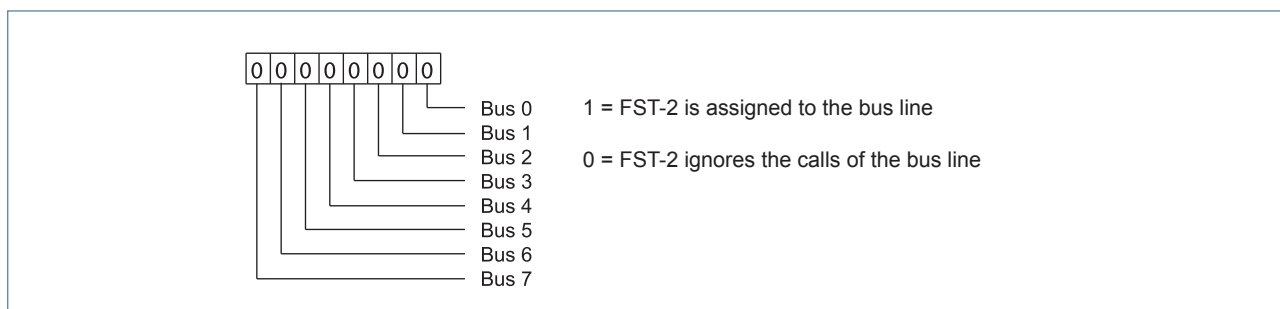


Fig. 5.2: Bit function - ADM bus masks

### 5.5.4 Car ventilation

Setting	Description
Switched Off	Car ventilator is switched off
Manual On/Off	Car ventilator is switched on and off via a button in the car operating panel (FPM-1 X4.1 / FPM-2 X1.14)
Manual+Off-Delay	Car ventilator is switched on via a button in the car operating panel (FPM-1 X4.1 / FPM-2 X1.14); shutdown occurs after an adjustable delay (see <i>Vent. Off Delay</i> )
Automatic+Off-Delay	Car ventilator is switched on automatically on each drive; shutdown occurs after an adjustable delay (see <i>Vent. Off Delay</i> )

### 5.5.5 Display 0 ... 2

The FPM outputs “Display 0 ... 2” can display various operating states of the installation. The operating states to be displayed are set to “1” in the corresponding control register according to the following diagram.

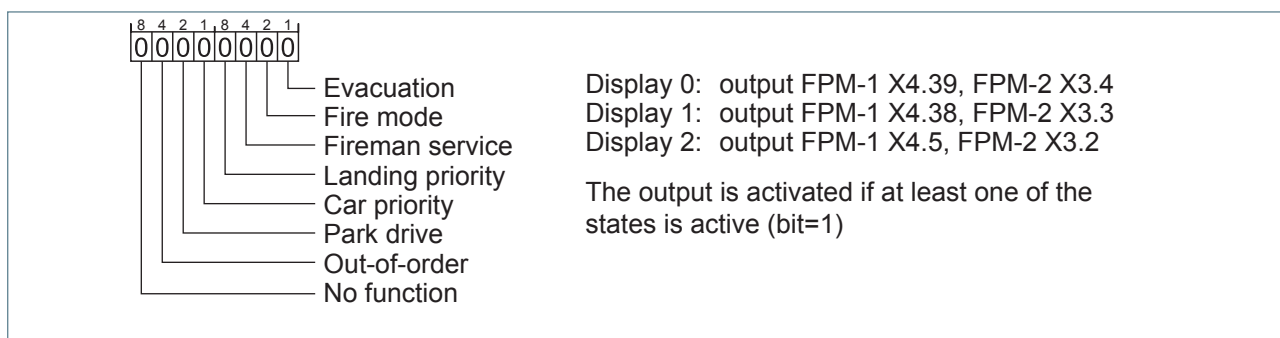


Fig. 5.3: Bit functions of displays 0 ... 2

If no operating states are selected in the control register (“00000000”), outputs “Display 1” and “Display 2” can perform the following functions:

#### Display 1

- › Output of the “chime-roof” signal if Chime-Roof=YES is set (see page 99)
- › Load display for the Loading Function (see page 105)
- › Attendant operation buzzer (see page 124)

#### Display 2

- › Output of the “chime-floor” signal if Chime-Floor=YES is set (see page 99)

### 5.5.6 Pin 34 function

The input "loading button" (FPM-1 X4.34 / FPM-2 X2.14) can have the following functions:

Setting	Function
0	Loading button (see „5.5.7 Speech output codes“ page 112).)
1	Landing control OFF
2	Attendant operation ON (see „5.7.2 Attendant operation“ page 124).
3	VIP mode with "multiple call" ON
4	VIP mode with "single call" ON
5	Start button for fireman mode in Australia
6	Bank-Control OFF

### 5.5.7 Speech output codes

Speech code [1] specifies the initial value for the floor output. The floor outputs are added to the initial value, encrypted as set under output type and output by the SPK module on the speech computer.

Speech codes [2..20] correspond to the controller states in the following table. The numerical value set in the respective language code is encrypted as set under output type if the corresponding controller state occurs and is output by the SPK module on the speech computer.

Speech code	Controller state
Speech code[1]	Initial value for the floor output
Speech code[2]	Starting
Speech code[3]	Door opening
Speech code[4]	Door closing
Speech code[5]	Door nudging
Speech code[6]	Car priority switched on
Speech code[7]	Car priority switched off
Speech code[8]	Landing priority switched on
Speech code[9]	Landing priority switched off
Speech code[10]	Priority (car or landing) switched on
Speech code[11]	Priority (car or landing) switched off
Speech code[12]	Fireman service
Speech code[13]	Fire mode
Speech code[14]	Evacuation
Speech code[15]	Forced stop
Speech code[16]	Out-of-order
Speech code[17]	Overload
Speech code[18]	Full load
Speech code[19]	Direction of travel UP
Speech code[20]	Direction of travel DOWN

### 5.5.8 Loading function

The loading button is built into the car operating panel and can be used to stop the lift with open doors while it is being loaded. The displays SPECIAL DRIVE in the car and OUT-OF-ORDER on the landing call panels illuminate while the loading function is active.

#### Requirements

- FST hardware: FST or FST-2XT/s
- FST software: FST V1.100-0395 or higher
- FPM software: FPM (5 22 1.1): FPM V51 or higher  
FPM-2 (5 25 1.2): FPM-2 V08 or higher

## Loading programs

There are various programs for the loading function which can be selected via the FST menu. A loading display can optionally be connected to the FPM that is displayed as soon as the loading function is active.

Setting	Function
0	<ul style="list-style-type: none"> <li>› Acts on open and closed doors. Closed doors are opened.</li> <li>› On floors with selective door program, only acts on the respective door side</li> <li>› For floors with the "through loading" door program, always acts on both doors</li> <li>› Incoming car calls are registered while the loading function is active, but are not executed</li> <li>› At the end of the loading time, the loading function is automatically deactivated and the affected doors return to their default position.</li> <li>› An active loading function can be deactivated simultaneously for both doors. <ul style="list-style-type: none"> <li>»by pressing respective loading button again or</li> <li>»by pressing the door close button</li> </ul> </li> </ul>
1	<ul style="list-style-type: none"> <li>› Only acts on open doors. Closed doors remain closed</li> <li>› For floors with the "through loading" door program, always acts on both doors</li> <li>› If the loading button is pressed again while the loading function is active, the loading time is restarted.</li> <li>› After the loading time has elapsed, the loading function is automatically deactivated. The doors return to their default position</li> <li>› An active loading function can be deactivated simultaneously for both doors <ul style="list-style-type: none"> <li>»by entering a car command or</li> <li>»by pressing a door close button</li> </ul> </li> </ul>
2	<ul style="list-style-type: none"> <li>› Only acts on open doors. Closed doors remain closed</li> <li>› For floors with the "through loading" door program, always acts on both doors</li> <li>› Incoming car calls are registered while the loading function is active, but are not executed</li> <li>› At the end of the loading time, the loading function is automatically deactivated and the affected doors return to their default position.</li> <li>› An active loading function can be deactivated simultaneously for both doors <ul style="list-style-type: none"> <li>»by pressing the loading button again or</li> <li>»by pressing a door close button</li> </ul> </li> </ul>
3	<ul style="list-style-type: none"> <li>› On floors with selective door program, only acts on the respective door side</li> <li>› On floors with the "through loading" door program, always acts on both doors</li> <li>› The sequence can be freely programmed via the "Options" bit register</li> <li>› Functionality of the loading process with loading program 3: Config/Special Functions/Loading Function/Options = xVFSTLIO <ul style="list-style-type: none"> <li>»O = 0: loading function also acts on closed doors = 1: loading function only acts on open doors; closed doors are not opened</li> <li>»I = 0: car calls end the loading function and are processed = 1: car calls have no effect; they are collected but are not processed</li> <li>»L = 0: pressing the loading button again ends the loading function = 1: pressing the loading button again restarts the loading time</li> <li>»T = 0: door open button has no effect on the loading function = 1: door open button starts the loading function</li> <li>»S = 0: photocell interruption on the FSM has no effect on the loading function = 1: photocell interruption on the FSM starts the loading function</li> <li>»F = 0: photocell loading function also acts on closed doors = 1: photocell loading function only acts on already open doors</li> <li>»V = 0: photocell interruption always starts and extends the loading function = 1: photocell interruption only extends the loading function if it is already active</li> <li>»x = not currently used</li> </ul> </li> </ul>

## Procedure

- › Selecting the desired loading program:  
Config / Special Functions / Loading Function / Program No. = 0 ... 3
- › Setting the maximum loading time:  
Config / Special Functions / Loading Function / Load Time-max. = 0-9999 (s)
- › Setting the display mode of the loading display on the FPM-1 X4.38 / FPM-2 X3.2:  
Config / Special Functions / Loading Function / Load-Sw.Disp = 0/1/3/(+8)

Display	Controller state
0	Loading display inactive
1	Loading display active, illuminates upon activation and flashes 20 sec before the end of the maximum loading time
3	Loading display active, does not illuminate until the last 20 sec before the end of the maximum loading time
+8	If 8 is added to the set value, position indicators EAZ-256, EAZ-LCD and EAZ-VFD also display the text "Loading activity".

- › Setting the loading function on FPM-1 X4.34 / FPM-2 X2.14:  
Config / Car-Operate-Panel / Pin-34 Functn =0
- › Setting the loading display function on FPM-1 X4.38 / FPM-2 X3.2:  
Config / Car-Operate-Panel / Display-1 = 00000000
- › The loading button is connected to FPM-1 X4.34 / FPM-2 X2.14
- › The loading display is connected to FPM-1 X4.38 / FPM-2 X3.2
- › In loading program 0, always open both doors and hold them open:
- › System / Factory Menu / Setting / Miscel-8= 00000010



**ATTENTION!** Both car doors are always opened, even if no shaft door is located behind them. Only use this option with lifts with brick or concrete shafts. If the distance of the car to the shaft wall is greater than 150 mm, there is a danger of falling! Risk analysis necessary.

## 5.5.9 Lobby Stop

The "Lobby-Stop" function prevents the car from moving past a selectable "lobby" floor. The lift always makes an intermediate stop at the lobby to give the lobby personnel opportunity to look into the car.

The function has the following options:

### Enable

The Lobby-Stop function is activated under Enable.

### Floor

The "lobby" floor is set under Floor.

### Doors

The car doors that are to be opened on the "lobby" floor are set under Doors.

## 5.5.10 Sel.Door-Security

With the "Sel.Door-Security" function (SDS: selective door security), it is possible to keep certain destination doors closed after the arrival of the lift and thereby restrict access to these floors by passengers. A separate button in the landing call panel indicates by illuminating the acknowledgement that the lift has arrived and is waiting for door release. Pressing this illuminated button allows the doors to be opened by the passengers waiting in front of the lift. The additional button for door release is controlled via a separate LON module (CUS-66).

### Max. Wartezeit IDR

Duration of the wait time that the lift waits on the floor for the door release: 3 ... 255 s

If the car door was not confirmed by the release button in the set time, the call is cleared and the lift returns to normal operation.

### Max. Wartezeit ADR

Duration of the wait time that the lift waits on the floor for the door release: 3 ... 255 s

If the car door was not confirmed by the release button in the set time, the call is cleared and the lift returns to normal operation.

### Floor-Masks

Setting of the floor masks for configuring the areas that are to be secured: 0 ... 15

Value	Landing call security	Car call security	Door side B	Door side A
05	-	x	-	x
06	-	x	x	-
07	-	x	x	x
09	x	-	-	x
10	x	-	x	-
11	x	-	x	x
13	x	x	-	x
14	x	x	x	-
15	x	x	x	x

## 5.5.11 VIP mode

VIP mode is used to reserve a car for "very important people" (VIPs). You can select between two VIP modes:

- › VIP mode 1: is triggered by the LMS or a programmable I/O port and switches all command buttons to the "dead man mode"
- › VIP mode 2: is triggered by the FPM-1 X4.34 / FPM-2 X2.14 (key switch in the car) and has the functions described in the following











### VIP mode 2

- › Is activated by a pulse on the FPM-1 X4.34 / FPM-2 X2.14 (key switch or card reader)
- › All pending landing calls are cleared and the landing control is locked
- › With group lifts, the lift is removed from the group and returns all landing calls assigned to it back to the group controller
- › No later than 10 seconds after activation, a car call must be placed, otherwise the lift switches back to the normal mode
- › All car calls already acknowledged at the time of activation are performed as usual
- › In "multiple call" mode (see „5.5.6 Pin 34 function“ page 112), an unlimited number of car calls can be placed and the VIP mode thereby extended accordingly
- › In "single call" mode (see „5.5.6 Pin 34 function“ page 112), only one car call can be placed. Additional car calls can only be placed by reactivating the FPM-1 FPM-1 X4.34 / FPM-2 X2.14













## 5.6 MAIN MENU - Positioning

Menu item	Description	Setting range
Floor Position ABS	Absolute level position of a floor. Value must not be changed (see <i>Installation and Commissioning manual</i> ).	0 ... 9999999 mm
Floor Position REL	Level position of a floor relative to the bottom floor. Value is entered for each floor according to the installation drawing or automatically determined with the aid of the learn drive (see <i>Installation and Commissioning manual</i> ).	-2500 ... 250000 mm
Floor Level UP	Switch-on point for the internally generated level signal below the actual level position when moving up. Value corresponds to the braking distance of the crawling speed in the upward direction and is determined automatically during the calibration drive (see <i>Installation and Commissioning manual</i> ).	0 ... 5000 mm
Floor Level DOWN	Switch-on point for the internally generated level signal above the actual level position when moving down. Value corresponds to the braking distance of the crawling speed in the downward direction and is determined automatically during the calibration drive (see <i>Installation and Commissioning manual</i> ).	0 ... 5000 mm
Floor Zone Sw. UP	Switch-on point for the internally generated door zone signal below the actual level position. Absolute positioning: set value to 200 mm! Incremental positioning: do not change value; is determined automatically during the learn drive! (see <i>Installation &amp; Commissioning Manual</i> ).	0 ... 2500 mm
Floor Zone Sw.DOWN	Switch-on point of the internally generated door zone signal above the actual level position. Absolute positioning: set value to 200 mm! Incremental positioning: do not change value; is determined automatically during the learn drive! (see <i>Installation &amp; Commissioning Manual</i> ).	0 ... 2500 mm
Landing Landing UP	Approach distance for the individual drive speeds V1 ... V8 when moving up. Values correspond to the braking distances of the corresponding drive speeds when moving up. The values are determined automatically during the calibration drive. (see <i>Installation &amp; Commissioning Manual</i> ).	0 ... 99999 mm
Landing Landing DOWN	Approach distance for the individual drive speeds V1 ... V8 when moving down. Values correspond to the braking distances of the corresponding drive speeds when moving down. The values are determined automatically during the calibration drive. (see <i>Installation &amp; Commissioning Manual</i> ).	0 ... 99999 mm
Global Resolutr.	Resolution of the absolute encoder. Value indicates how many bits are sent by the encoder for each 0.5mm of car movement. If this value is set incorrectly, the entered floor spacings will no longer match the actual spacings and the car may hit the end switch at full speed during the calibration drive (see <i>Installation and Commissioning manual</i> )!	0 ... 999.9999 bit/0.5mm
Global Direction	Direction of rotation of the incremental and absolute encoders in the upward direction	Left Right
Global Encoder	Type of shaft positioning	Absolute Incremt.
Global Max. Floor	Number of floors in the lift system starting with zero (e.g., 8 floors -> setting = 7)	0 ... 63
Global Crawl Distance	Length of the desired crawl distance. The set value is added to the approach distance of all drive speeds V1 ... V8 determined during the calibration drive (set value = 0 -> direct approach)	-500 ... 500 mm
Global Enc.Belt Mon.	Only for absolute encoder: Uses the door zone B input signal on the bottom floor as reference position to ensure that the toothed belt does not slide.	ON OFF



Menu item	Description	Setting range
Global Enc.B. Ref 	Only for absolute encoder: Displays the reference value of the belt monitor in mm.	
Global Inspectn.-Fast 	Measured deceleration distance of the fast inspection speed. The set value specifies the deceleration points of the fast inspection drive before the level position of the end floors. If the value is set too small, the car can run into the end switch! Value is always reset to 1000mm after the calibration drive and can subsequently be changed!	0 ... 5000 mm
Global Inspection-Up 	Measured deceleration distance of the slow inspection speed when moving up. The set value specifies the switch-off point of the inspection drive before the level position of the top floor. If the value is set too small, the car can run into the end switch! Value should always be checked after a calibration drive and extended if necessary!	-5000 ... 5000 mm
Global Inspection Dn 	Measured deceleration distance of the slow inspection speed when moving down. The set value specifies the switch-off point of the inspection drive before the level position of the bottom floor. If the value is set too small, the car can run into the end switch! Value should always be checked after a calibration drive and extended if necessary!	-5000 ... 5000 mm
Global Lock Position	Enables precise, automatic stopping during an upward drive in inspection operation before the top floor. 0 = function is switched off. Greater than 0 is the distance to the top floor (position in mm).	0 ... 5000 mm
Global ZoneB Output 	Output of the internally generated encoder B signal (see „FST-2XT and FST-2XTs terminal strip X13“ page 56). 24 V is output if the car is located in the door zone.	YES NO
Global ZoneB Out.Inv. 	Inversion of the internally generated encoder B signal (see „FST-2XT and FST-2XTs terminal strip X30“ page 59). YES: 24 V is output if the car is not located in the door zone NO: 24 V is output if the car is located in the door zone	YES NO
Global Virt.Zone	Indicates whether the values set under Positioning - Floor - Zone Sw.UP/Down are virtual or real zone signals. With absolute positioning, this parameter should always be set to YES; with incremental positioning, it should always be set to NO! If the value is set incorrectly, problems with the door control and levelling may occur following level adjustment!	YES NO
Global UCM-A3 Zone	Comparison of the zones under Positioning - Floor - Zone Sw.UP/DOWN. If the zone length is greater than the UCM-A3 zone, error message “*** WARNING *** One or more door zones.....A3 Zone” is output. The length of the UCM-A3 zone is dependent on the UCM-A3 calculation of the A3 actuator manufacturer, e.g., of the holding brake, etc. See also the UCM-A3 manual.	0...250 mm
Global Encoder 	Special values of the absolute encoder Bit 0: 24 bit SSI (default = 25 bit) Bit 1: single reading (default = double reading) Bit 2: bypass the encoder plausibility filter Bit 3: reserved Bit 4: extension of the shaft range for the encoder value Bit 5: reserved Bit 6: reserved Bit 7: reserved	
Global Miscel-D1 	Special settings for the drive. Changes only by NEW LIFT!	
Global Miscel-D2 	Special settings for the drive. Changes only by NEW LIFT!	
Relevelling Limits Limit UP ON 	Relevelling when moving up starts at the set distance between car and level position (see „5.6.2 Relevelling limits“ page 122).	0 ... 2500 mm

Menu item	Description	Setting range
Relevelling Limits Limit UP OFF	Relevelling when moving up stops at the set distance between car and level position (see „5.6.2 Relevelling limits“ page 122).	0 ... 2500 mm
Relevelling Limits Limit DN ON	Relevelling when moving down starts at the set distance between car and level position (see „5.6.2 Relevelling limits“ page 122).	0 ... 2500 mm
Relevelling Limits Limit DN OFF	Relevelling when moving down stops at the set distance between car and level position (see „5.6.2 Relevelling limits“ page 122).	0 ... 2500 mm
Relevelling Limits Limit DEEP	Increase the relevelling range with switched-off car lighting. This function reduces the number of relevelling operations for a longer service life.	0 ... 5000 mm
Cal-Results UP-Speed	Speed when moving up for all drive speeds V1 ... V8, VE, VI measured during the calibration drive	-10000...10000 mm/s
Cal-Results UP-Accel.	Acceleration distances measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for upward travel	0 ... 50000 mm
Cal-Results UP-Decel.	Deceleration distances measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for upward travel	0 ... 50000 mm
Cal-Results UP-t_Accel.	Acceleration times measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for upward travel	0 ... 32767 ms
Cal-Results UP-t_Decel.	Deceleration times measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for upward travel	0 ... 32767 ms
Cal-Results DOWN-Speed	Speeds measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for downward travel	-1000 ... 10000 mm/s
Cal-Results DOWN-Accel.	Acceleration distances measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for downward travel	0 ... 50000 mm
Cal-Results DOWN-Decel.	Deceleration distances measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for downward travel	0 ... 50000 mm
Cal-Results DOWN-t_Accel.	Acceleration times measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for downward travel	0 ... 32767 ms
Cal-Results DOWN-t_Decel.	Deceleration times measured during the calibration drive for all drive speeds V1 ... V8, VE, VI for downward travel	0 ... 32767 ms
Cal-Results V80%-SpeedMon	Speeds measured during the calibration drive at the result measurement point before the level positions for deceleration monitoring.	0 ... 10000mm/s
Cal-Results V80%-Distance	Speed measurement point before the level positions of the end floors for deceleration monitoring.	0 ... 49999 mm
Pseudo Floors Pos. (Rel.)	Additional stops without shaft doors. The "pseudo floors" are additional floors without calls and doors. They can only be reached via signals of the programmable I/O port and are used, e.g., as locking positions for cable lifts without machine rooms or parking floors between the regular floors (see „6.4.10 Function "special drive"“ page 150).	0 ... 49999 mm
Shaft Markers Pos. (Rel.)		
Increm. Positioning Control	<p>Control register for incremental positioning:</p> <p>The default setting of the parameter is: 00000000. This should only be changed after consulting NEW LIFT.</p>	00000000 ...11111111

Menu item	Description	Setting range
Increm. Positioning Auto-Orien. 	With incremental positioning, an orientation drive to one of the end floors is always required after switching the controller off and on (including after a power failure). The orientation drive is started automatically after switching on the FST.	YES NO
Increm. Positioning Orien delay 	Delay of the orientation drive after switching on the FST.	0 ... 9999 ms
Increm. Positioning Corr.Bottom 	Position of the BC switch in mm. The value is an absolute value, i.e., to determine the distance to the bottom floor, the absolute value of the bottom floor must be subtracted from the value entered here (see page 116). The value is determined automatically during the learn drive and must not be changed.	0 ... 9999999 mm
Increm. Positioning Corr.Top 	Position of the switch for top correction in mm. The value is an absolute value, i.e., to determine the distance to the top floor, the absolute value of the top floor must be subtracted from the value entered here (see page 116). The value is determined automatically during the learn drive and should not be changed.	0 ... 9999999 mm
Increm. Positioning ZoneB-Length 	Length of the zone signal during relevelling with the BO (level at top)/BU (level at bottom) switch. The value is determined automatically during the learn drive.	0 ... 250 mm
Increm. Positioning ZoneB-Hysters 	Length of the hysteresis of zone switch B. Value is determined automatically during the learn drive and is limited to 10 mm by the software. If problems occur during the level adjustment, the levelling for upward travel can be adjusted as described in the Installation and Commissioning manual and the levelling for downward travel can be corrected by changing the hysteresis value.	-100 ... 100 mm
Increm. Positioning ZoneB Input 	Level of zone switch B if the car is in the door zone. NO: 0 V (open) NC: +24 V (closed, standard).	NO NC
Increm. Positioning ZoneB-Debnce 	Debounce time of zone switch B. Standard value. 5ms	0 ... 40 ms
Increm. Positioning BOBU-Runoff 	Debounce time of zone switch B. Standard value. 5ms	0 ... 40 ms
Increm. Positioning KO/KU Input 	Level of the KO/KU switch if the car is on an end floor. NO: 0 V (open, standard) NC: +24 V (closed).	NO NC
Increm. Positioning Gray LO-floor 	Only for incremental positioning. To ensure that end floor detection is available for long shafts with a fast car, function is only possible with a LEK module.	0..63
Increm. Positioning Gray HI-floor 	Only for incremental positioning. To ensure that end floor detection is available for long shafts with a fast car, function is only possible with a LEK module.	0..63

### 5.6.1 Positioning parameters

For a better understanding of the parameters for absolute and incremental positioning, the most important settings are shown graphically in the following two figures.

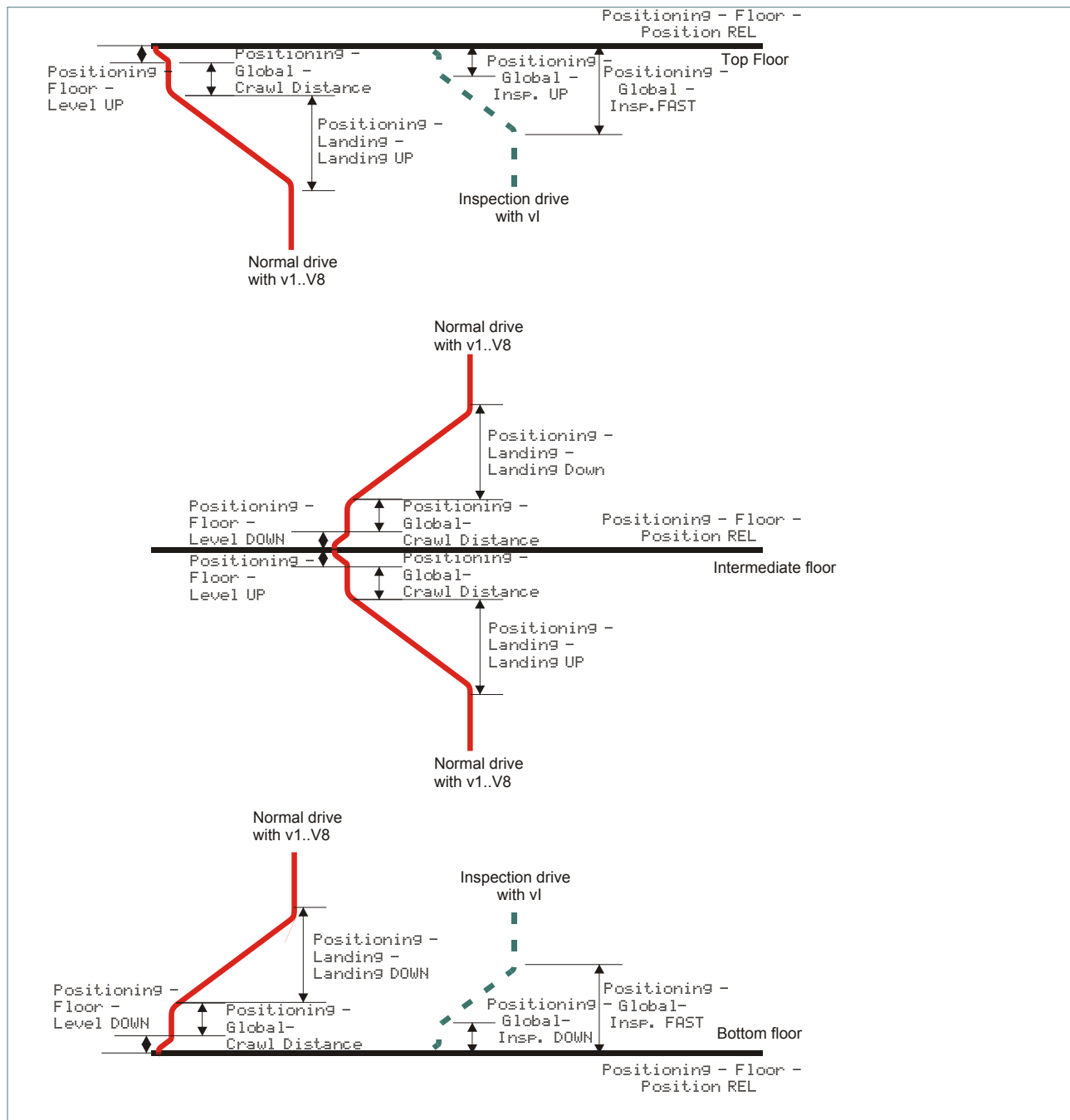
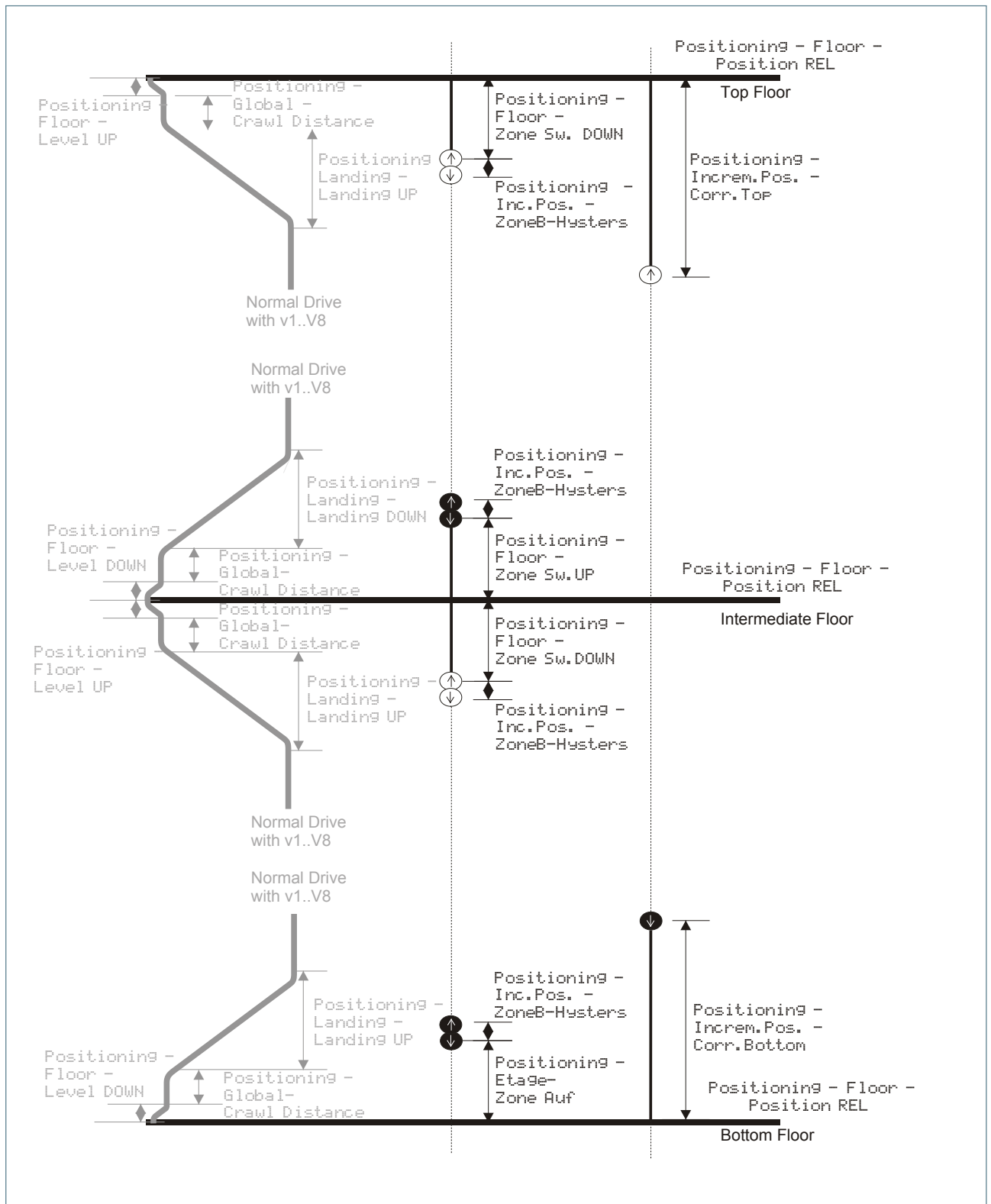


Fig. 5.4: Parameters for absolute positioning



## 5.6.2 Relevelling limits

Relevelling procedure during unloading:

- › During unloading, the car moves upward
- › If the car moves more than **Limit DN ON** from the level position, the relevelling procedure in the downward direction starts at relevelling speed  $V_n$
- › If the car is less than **Limit DN OFF** from the level position, the relevelling speed is switched off and the car brakes so that it comes to a standstill exactly at the level position
- › **Parameter Limit DN ON can be set as desired. It determines the point at which the relevelling procedure is switched on. Parameter Limit DN OFF is determined according to the braking distance of the relevelling speed. It must be optimised until the car relevells exactly.**
- › **Parameter Limit DN ON must always be equal to or greater than parameter Limit DN OFF**

This also applies to the relevelling procedure in the upward direction!

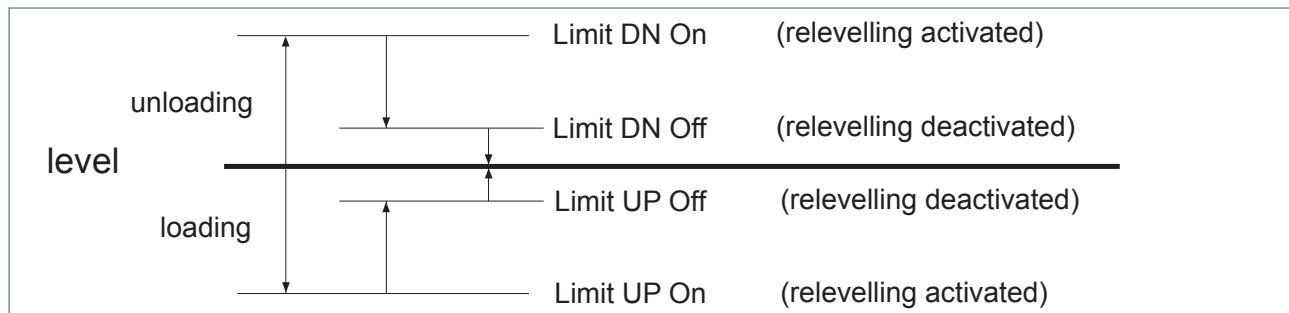





Fig. 5.6: Setting relevelling

## 5.7 MAIN MENU - Calls

Menu item	Description	Setting range
Call Floor - Config 	Landing call program for each floor: No Button: no landing button available DOWNcollect: one button for downward calls available UP-collect: one button for upward calls available UP/DOWN: buttons for upward and downward calls available STOPcollect: upward and downward calls use the same button	No Button STOPcollect
Call Floor - Program 	Door program for each floor: Single: only one door side available Selective: doors are handled selectively Order: mutually interlocked car doors are handled in the specified order Sequence: mutually interlocked car doors are handled in the order in which the calls were placed Through loading: all car doors are handled simultaneously	Single through-loading
Call Floor - Door 	Door program for each car door: X: door deactivated >A<: door A activated with default position closed <A>: door A activated with default position open The same settings also apply to car doors B and C. If an X is entered, the landing and cars for that side of the door on that floor are locked.	>A< ... X
Special Call Mode	Call program for the landing and car calls (see „5.7.1 Special call mode“ page 123)	Standard Non-Collective Single-Call Mode 2-Floors, 1-Button Non-Collect (Landing) (car-collect, landing button)
Lift-Boy Mode	Activate attendant operation (see „5.7.2 Attendant operation“ page 124)	YES NO
Power Fail Restore	Time in which the set calls/commands are stored following a power failure ; default OFF = 0; recommended 50 sec	0...255 sec

### 5.7.1 Special call mode

The pending calls can be processed in three different ways:

Setting	Method
Standard	Landing and car calls are collected.
Non-Collective	Only one call is accepted at a time. The car is reserved as long as it is moving or a door is open. With a reserved car, the landing control is blocked.
Single-Call Mode	Only one command is accepted at a time. The car is reserved as long as it is moving or a door is open. With a reserved car, the landing calls are collected but not processed. When the car again becomes available, the oldest call is processed first.
2-Floors, 1-Button	In the car, only one button is present for both floors.
Non-Collect(Landing)	Combination of car-collect and landing button control

### 5.7.2 Attendant operation

Attendant operation (lift-boy mode) requires a lift operator to be present at all times and functions as follows:

- › Attendant operation can be switched on either permanently with the Lift-Boy Mode parameter or temporarily via the FPM-1 X4.34 / FPM-2 X2.14 (see „5.5.6 Pin 34 function“ page 112).
- › The landing calls are acknowledged but not processed automatically
- › Each acknowledged landing call is signalled on the car operating panel by flashing of the corresponding car call and the short sound of the buzzer (FPM-1 X4.38 / FPM-2 X3.3 “Display-2”)
- › The lift operator processes the landing calls in sequence by pressing the flashing car calls

**Settings:**

- › Pin-34 function = 2 (see „5.5.6 Pin 34 function“ page 112), if attendant operation is only to be temporarily activated via a key switch
- › Lift-Boy Mode = ON, if attendant operation is to be active permanently
- › Display 1 = 00000000 (see „5.5.5 Display 0 ... 2“ page 111)
- › Load-Sw.Disp = NO (see „5.5.8 Loading function“ page 112)



## 5.8 MAIN MENU - System

Menu item	Description	Setting range
Time-Date Clock Setting	Time of the FST controller. Must absolutely be checked for correctness whenever maintenance is performed.	14:34:12
Time-Date Date Setting	Date of the FST controller. Must absolutely be checked for correctness whenever maintenance is performed.	23:01:01
Time-Date Daylight Saving	Rule for automatic adjustment of daylight saving time.	Off No switching European USA
Password Setting Level: high	Password for the commissioning security level: Unlimited access and editing rights. Must absolutely be checked for correctness whenever maintenance is performed.	0000 ... 9999
Password Setting Level: middle	Password for the customer service security level: Limited access and editing rights (see „5.2 MAIN MENU - Lock Menu“ page 85).	0000 ... 9999
Password Setting Level: low	Password for the maintenance security level: Limited access and no editing rights (see „5.2 MAIN MENU - Lock Menu“ page 85).	0000 ... 9999
Language	Language of the LCD-Display and the FST menu.	German English French Polish Swedish Portuguese
Recorder Recorder RESTART	Start recording. Depending on the activated event channel, certain control-internal events are recorded with date and time. If a PC card is inserted, the recording is stored on the card. Shorter recordings (a few minutes) can also be performed without a plugged-in card (see „5.8.1 Recording filter of FST controller“ page 129).	YES NO
Recorder Recorder STOP	Stop recording.	YES NO
Recorder Recorder CONTINUE	Continue stopped recording.	YES NO
Recorder Filter Setting Detail	Enable the "Detail" recording filter for the recording (see „5.8.1 Recording filter of FST controller“ page 129).	ON OFF
Recorder Filter Setting Weight Measures	Enable the "Weight Measures" recording filter for the recording (see „5.8.1 Recording filter of FST controller“ page 129).	
Recorder Filter Setting Statistics	Enable the "Statistics" recording filter for the recording (see „5.8.1 Recording filter of FST controller“ page 129).	ON OFF
Recorder Filter Setting Group Statistic	Enable the "Group Statistic" recording filter for the recording. (see „5.8.1 Recording filter of FST controller“ page 129).	ON OFF
Recorder Filter Setting Drive Curve	Enable the "Drive Curve" recording filter for the recording (see „5.8.1 Recording filter of FST controller“ page 129).	ON OFF
Recorder Filter Setting RIO traffic	Enable the "RIO traffic" recording filter for the recording (see „5.8.1 Recording filter of FST controller“ page 129).	
Recorder Filter Setting Remote Activity	Enable the "Remote Activity" recording filter for the recording. (see „5.8.1 Recording filter of FST controller“ page 129).	ON OFF
Recorder - Stop-when-full	Stop recording on the PC card when the PC card is full. The card is otherwise overwritten from the beginning (endless loop). Only relevant with the predecessor FST-2/s controllers.	YES NO

Menu item	Description	Setting range
Update FST Upd. f. USBStick	Update the FST software with a USB stick.	YES NO
Update LON-Modules Upd. f. USBStick Upd. f. Intern	Update of all connected LON modules if a more recent software version is available on a USB stick.	YES NO
Update EAZ-Program ↕	Update of VFD and LCD displays	YES NO
Config --> Backup	Create a backup of the current FST configuration in an internal buffer	YES NO
Config <-- Backup	Load the FST configuration from the buffer as current FST configuration. All currently set parameters are thereby overwritten! Only activate this parameter after consulting NEW LIFT!	YES NO
Copy MicroSD Qwn SerNo.		
Copy to Config -> USBStick	Copy the FST configuration to a USB storage medium.	YES NO
Copy to Record -> USBStick	Copy an FST recording to a USB storage medium. Copying is performed block-wise per day.	DD.MM.YYYY YES NO
Copy to S/W -> USBStick	Currently no function!	--
Copy to Error List -> USB	Copies a text file (.txt) to a USB storage medium. The text file contains the error list of the FST.	YES NO
Copy From USBStick -> Config	Copies a configuration file from a plugged-in USB storage medium to the FST config. Attention! The existing configuration is overwritten!	YES NO
Format Clear USBStick	Currently no function!	--
Factory Menu Hidden Menus	Display hidden menus. After resetting or switching the FST off and back on again, the parameter is reset to NO.	YES NO
Factory Menus DCC: Allow Ctr/Set ↕	With the "YES" setting, an interval can be set under Service/Service-Counters/Direction Change/Interval with Service-Counters/Set Interval. The set value is thereby taken over permanently under Interval. By default, this value should be set to "NO" unless an interval change was made intentionally.	YES NO
Factory Menu Srcv Counter Reset ↕	Reset long-term drive counter. Only reset after consulting NEW LIFT.	YES NO
Factory Menu Cfg-Strings Reset ↕	Shortcut option for resetting the following text parameters: INSTALLATION-ID ORDER-ID NEW-FACTORY-NO. MODEM/FAX-STRINGS FLOOR-TEXTS	YES NO
Factory Menu I/O-Config Reset ↕	Shortcut option for resetting all I/O port RAW functions	YES NO
Factory Menu Settings ASAUS Protect ↕	Activates a 2 s delay after exiting the menus for the LANDING CALLS OFF function (☐)	YES NO
Factory Menu Settings Targ-Retry Inh ↕	Activates automatic target retry if a floor is passed. The lift stops and moves to the passed floor again.	

Menu item	Description	Setting range
Factory Menu Settings DRM-Reset ✧	Automatic reset for the following DRM fault: Bit 0: approach monitoring Bit 1: runtime monitoring Bit 2: encoder error Bit 3: zone error Bit 4: speed monitoring Bit 5: forced stop Bit 6: brake error Bit 7: reserved Only reset after consulting NEW LIFT.	
Factory Menu Settings FSTAT2-Delta ✧	Repeat frequency of LON messages with position information. Value is 000 by default. Only change after consulting NEW LIFT.	
Factory Menu Settings Miscel-1 ... Miscel-16 ✧	All miscel. values (1-16) can be read with the FST editor	
Factory Menu Settings EmergStop-Time ✧	Debounce time for detecting an emergency-stop error. Only change the default value (10ms) after consulting NEW LIFT!	0 ... 200ms
Factory Menu Settings DRM-Period ⚙ ✧	Minimum time required by the lift to travel the DRM distance during the drive. Only activate after consulting NEW LIFT.	0 ... 30.0s
Factory Menu Settings DRM-Distance ⚙ ✧	Minimum distance that the lift travels during the drive within the DRM period. Only activate after consulting NEW LIFT.	0 ... 2000mm
Factory Menu Settings V-Bypass Max ⚙ ✧	Maximum speed for bypassing the safety circuit bypass	0 ... 2000mm/s
Factory Menu Settings V-Inspect. Max ⚙ ✧	Maximum permissible inspection speed	0 ... 2000mm/s
Factory Menu Settings V-AuxiliaryMax. ⚙ ✧	Maximum permissible auxiliary speed	0 ... 2000mm/s
Factory Menu Settings LightMon.Delay ✧	Delay between activation of the car lighting (car lighting ON) and car lighting monitoring. Increase value for time-delayed switching-on of lighting	0 ... 255s
Factory Menu Settings Spec.Door Zone ✧	Virtual, additionally reduced door zone. Set value applies for Zone Sw.UP and Zone Sw.DOWN. Settings to be made only by NEW LIFT!	0 ... 255mm
Factory Menu Settings Deenergize Time ✧	Time after which the car door is de-energized as soon as it is closed.	0 ... 255s
Factory Menu Settings Photocell Max ✧	Detection of a blockage of the photocell after the set time. This detection is used for further processing for group controllers as well as building management systems.	0...999 sec
Factory Menu Settings Ser. X9 Baud ✧	Baud rate of the RS232 for the service interface (PC). This parameter is only relevant for FST-2 controllers.	38400 bps
Factory Menu Settings Prod.Test Mode ✧	Settings to be made only by NEW LIFT!	0
Factory Menu Settings Time Sync. Master ✧		
Factory Menu EN 81 Options UCM A3 ✧ Enabled ✧	Switch off detection A3	YES NO

Menu item	Description	Setting range
Factory Menu EN 81 Options UCM A3 ✧ A3-Drive ✧		YES NO
Factory Menu EN 81 Options UCM A3 ✧ Err-Hydraulic ✧	UCM A3 error triggering leads to returning in hydraulic systems.	YES NO
Factory Menu EN 81 Options UCM A3 ✧ Err=No Inspect ✧	During UCM A3 error triggering auxiliary mode and inspection drive are possible.	YES NO
Factory Menu EN 81 Options UCM A3 ✧ Test with Spd. ✧		YES NO
Factory Menu EN 81 Options UCM A3 ✧ Test w/o Ass ✧	UCM A3 test, activate the anti creep device. During UCM A3 test the anti creep device is activated, to be able to test service brakes.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ Insp-Fast Ctrl ✧	The inspection fast funktion is inactive during the drive from reduced shaft head of an end floor.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ No Rem. Access ✧	The setting <b>YES</b> puts all landing calls and the keypad out of service. The car buttons function remains active.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ Bypass FSM-K4 ✧	The setting <b>YES</b> activates the relay <b>K4</b> on the FSM-2 for the control of an optical-acoustic signal under the car.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ Test Photocell ✧	The setting <b>YES</b> activates the function sequence for the continuous signal status testing of the light curtain during the door opening.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ PC PowerFSM-K5 ✧	The setting <b>YES</b> activates the shutdown of the power supply via relay K5 (FSM-2) of the light curtain.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ Hydr. Turn-stop ✧	Turn-stop behaviour in case of overtemperature of hydraulic systems.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ Test Door Scct ✧	The setting <b>YES</b> activates the monitoring function of door contact circle.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ Glass Door Mon ✧	The setting <b>YES</b> allows to deactivate the signal OPEN DOOR when during opening the door the reversing input is active.	YES NO
Factory Menu ✧ EN 81 Optionen EN 81-20 ✧ Insp.Reset ADM ✧	This parameter allows to deactivate ADM-Reset key code.	YES NO
Factory Menu DRM-Program1:Texts ✧	User-defined 20-character DRM text	
Factory Menu DRM-Program2:Texts ✧	User-defined 20-character DRM text	

Menu item	Description	Setting range
Factory Menu DRM-Program3:Texts ⇨	User-defined 20-character DRM text	
Factory Menu Clone FST-2 LON ⇨	Config parameter transfer via LON BUS. With this parameter, the process is started via a LON-bus cable (cloning).	YES NO
Factory Menu Clone FST-2 SERIAL ⇨	Config parameter transfer via RS232 (X9). With this parameter, the process is started via a serial null modem cable (cloning).	YES NO
Factory Menu Keypad auto-lock ⇨	Used to lock the keypad of the FST to protect against accidental actuation. Unlock with the S button.	OFF ON
Panel Test	Special function for testing landing call panels and car operating panels ( <i>see System description – Panel test</i> ).	YES NO
Guide Settings Help waittime	Lag time before the guide help text appears	0-30 sec
Guide Settings NBM Display	Selection of the standard display of the guide as informative "emergency mode monitor". Function in the event of power failure only possible with UPS.	YES NO
FST Reset!	Perform RESET of the FST controller	YES NO

### 5.8.1 Recording filter of FST controller

Recording filter	Meaning	Detailed software states	LON bus messages	Drive messages	Door states	Car position	Drive states	Calls	Safety circuit	Shaft positioning	Load measurement	Group statistics messages	Drive curve	PAM messages	Messages for external I/O modules	Max. data recording quantity (Mbyte card)
Detail	Detailed error diagnosis	x	x	x	x	x	x	x	x	x						High
Load measurement	Diagnostics for load measurement										x					Low
Statistics	Creation of call and drive statistics				x	x	x	x								Low
Group statistics	Creation of group statistics				x	x	x	x				x				Medium
Drive curve	Evaluation of the ride quality												x			Very high
RIO-traffic	Diagnostics of the external I/O traffic														x	High
Remote control	Diagnostics of external controllers (remote data transmission)													x		Low

### 5.8.2 Copy from / to USB

This menu item is used to copy to a USB stick or from memory media to the FST controller. For this function, only USB sticks with "FAT32" formatting and a maximum memory size of 8GB are to be used.

Copy to:

Config -> USBStick	Copies a configuration file located on a USB stick to the FST. Attention! The existing configuration is thereby overwritten!
Record -> USB Stick	Copies a daily recording file for a single day (select up to 31 days) to the USB stick. Using the NEW <i>LIFT</i> Elevison Light Software, this file enables a detailed view of the processes of the FST.
SW -> USB Stick	Currently no function

Copy from:

Config -> USBStick	Copies the FST configuration file to a USB stick. For unique identification, beginning with version V2.000-0102, the file is given a unique file name that is made up of the NEW <i>LIFT</i> factory number, installation ID and the lift factory number, provided this information has been recorded.
--------------------	--

### 5.8.3 Update via USB


Update FST	This function enables an FST-2XT/s update by means of a USB stick. The update procedure must absolutely be observed. Only USB sticks with "FAT32" formatting and a maximum memory size of 8GB are to be used. Download the current file from the NEW <i>LIFT</i> website <a href="http://www.newlift.de/en/service/download/update-controller-software/">http://www.newlift.de/en/service/download/update-controller-software/</a> . On the USB stick, create a folder named "update" (case sensitive!). Copy the <b>original</b> file (name and type unchanged) to this folder. Before starting the update, backup the current configuration under <i>System/Config--&gt;Backup</i> . Use <b>[S]+[E]</b> to view the current software SW Ver. : V2. 000-XXX. The controller is now to be switched OFF and back ON again. Wait until the FST-2XT/s has completely booted and then plug the USB stick into USB port X41. The USBstick OK message appears. Switch the auxiliary mode switch to ON and start the update under <i>Main Menu/System/Update FST</i> . With the reboot time, the update takes about 4 minutes. Use <b>[S]+[E]</b> to check whether the update was successfully completed by checking the software version SW Ver. : V2. 000-XXXX and the drive version DRV VER. : XXXX . Now use auxiliary mode control to check whether the direction of travel and the position P= XXXXXXXX change according to the direction. Now remove the USB stick; the USB Stick REMOVED message appears. The FST-2XT/s update is thereby completed.
Update LON-Modules	Enables the updating of the modules connected to the LON bus. Upd. v. USBstick : update of the module(s) via USB stick Upd. v. Intern : update function via the onboard microSD card. The microSD card is used for remote data transmission in combination with the NEW <i>LIFT</i> "Elevison" program as an update buffer. Attention! The update may take up to 30 minutes due to the number of LON modules.

## 5.9 MAIN MENU - Doors

For all menu items with adjustable numerical values, the value "0" corresponds to deactivation of the respective function.

Menu item	Description	Setting
Doors-Basic Number Doors	Number of car doors	0 ... 3
Doors-Basic Apply-ALL	The settings for the Doors-Selective menu item automatically apply to all car doors.	YES NO
Doors-Basic Cam Delay	Delay between reaching the level position or the zone area and release of the retiring cam (locking solenoid for unlocking the shaft doors, FSM-2 X6.5).	0 ... 4 s
Doors-Basic Cam Time Max	Maximum allowed activation time of the locking solenoid. Prevents damage to the solenoid in the event of faults. After this time has elapsed, the locking solenoid output FSM-2 K4, K5 switches off in any case (independent of the operating state of the controller).	0010 ... 9999 sec



Menu item	Description	Setting
Doors-Basic Lock Delay	Maximum wait time between closing of the car door contact and the shaft-door or bolt contact when closing the doors. If the wait time is exceeded, the DOOR LOCK TIMEOUT error is displayed. The car door opens for the Retry Time and then closes again.	0 ... 65s
Doors-Basic Lock Fail Max	Maximum number of consecutive lock errors (DOOR LOCK TIMEOUT). Afterwards, all car and landing calls are cleared and the DOOR LOCK RETRY CNT error is displayed.	0 ... 10
Doors-Basic Lock Fail Open	Door assignment after lock error: "One": only the last opened car door opens again after a lock error (DOOR LOCK TIMEOUT) "All": all present car doors open after a lock error (DOOR LOCK TIMEOUT)	ONE ALL
Doors-Basic SCCT Debounce	Delay between closing of the safety circuit and activation of the drive contactors when starting (prevents contactor bouncing)	0 ... 2.5s
Doors-Basic Retry Time	Opening time of the car door when attempting to close again after a lock error (DOOR LOCK TIMEOUT).	0 ... 4s
Doors-Basic Open Delay	Delay before opening the doors after reaching the level position (see „5.9.2 Door times diagram“ page 134).	0 ... 4s
Doors-Basic PreClose Delay	Delay before doors actually close. During the delay, the door status displays "Closing". To activate, either signal outputs on the FSM-2 K1/K6 relay or I/O ports are available.	
Doors-Basic PreClos. O/P	The "Closing" status activates the K1/K6 relay on the FSM	YES NO
Doors-Basic PreClos.DC=OFF	Shortens the door times if the CLOSE door button is actuated.	YES NO
Doors-Basic Bypass t-OFF	Delay when switching off the K20 safety circuit bypass relay.	0 ... 2s
Doors-Basic Bypass t_ON	Delay when switching on the K20 safety circuit bypass relay.	0.1 ... 2s
Doors-Basic Pre-Opening	Activate approach with open shaft and car doors. If the built-in safety circuit bypass control is to be deactivated, the following steps are necessary: › Set Pre-Opening = NO › Set Re-levelling = NO	YES NO
Doors-Basic Fast-Closure	After an interruption of the photocell, the car wait time is shortened so that the car door closes more quickly than without photocell interruption.	YES NO
Doors-Basic Prio-DC	With car priority activated, the car door does not close until after the door close button on the car operating panel has been pressed. This function prevents drives by unauthorised people with the priority key switch activated. In the motor room, the door close signal can be simulated by pressing the  button.	YES NO
Doors-Basic Nudging Output	FSM-2 K1 ("door-A") and FSM-2 K6 ("door B") are used as nudging outputs for door A and B. If the photocell is interrupted for longer than the Doors-Selective - nudging time while the car door is open, the door is closed with activated nudging output.	YES NO
Doors-Basic Nudge-Warnonly	Dependent on the "Doors-Selective Nudge Time" parameter. Door does not perform nudging (forced closure); instead, a message is output via SAM or I/O port for a visual or acoustic signal.	YES NO
Doors-Basic I/P Photocell	Active level of the FSM-2 X6.8, X10.8 photocell inputs NO: closed function (photocell interrupted: 24 V on input, photocell free: 0 V on input) NC: open function (photocell interrupted: 0 V on input, photocell free: 24 V on input)	NO NC
Doors-Basic I/P Reverse. Sw	Active level of the FSM-2 X6.6, X10.6 reversing contact inputs. NO: closed function (reversing contact interrupted: 24 V on input, reversing contact free: 0 V on input) NC: open function (reversing contact interrupted: 0 V on input, reversing contact free: 24 V on input)	NO NC

Menu item	Description	Setting
Doors-Basic Allow DRM-Door	Enable runtime monitoring <b>DRM DOOR ERROR</b> (shut down the installation) after the number of door faults set here have occurred consecutively (setting 0 ... 7). If the value +8 is added to the set value, a single photocell error will also result in runtime monitoring. Prevents burning out of unregulated door drives (see „8.1 Error messages“ page 161) <b>DRM-DOOR FAILURE</b> .	0 ... 15
Doors-Basic SS-Curtain	Activation of a self-monitoring safety curtain as car door replacement. Here, the self-monitoring is performed by the door relay of the FSM and the safety circuit monitoring function of the controller.	YES NO
Doors-Basic SS-CurtainWait	Duration of the light curtain test pulse that is output by the door relay of the FSM before each drive.	0 ... 10s
Doors-Basic SS-Curtain A+B	For performing two separate light curtain test runs for two door sides	YES NO
Doors-Basic WheelchairTime	Extended open hold time of the car door after a disabled call on the landing call panel.	0 ... 255s
Doors-Basic Selective-Cams	Is there a separate locking solenoid present for each door side that must be controlled separately (selectively)? YES: each door side has a separate locking solenoid that is controlled selectively via FSM-2 X8 NO: The locking solenoids of all door sides are controlled in parallel via FSM-2 X8	YES NO
Doors-Basic Door-Lock Type	Method of controlling the locking solenoid for the case of automatic car doors and manual shaft doors (see „5.9.1 Door-Lock Types“ page 133).	0 1 2
Doors-Basic Door-Lock Del.	Delay between door closing and door lock.	0.0 - 5.0s
Doors-Selective Type	Car door type: all common car doors are supported.	
Doors-Selective Opening Time	Opening time of the car door without end switch. The opening time of car doors without end switches should be measured as exactly as possible and entered here.	0 ... 20s
Doors-Selective Decoupling	Car doors where the door leaves can be decoupled. If this parameter is activated, the controller uses the door end switches and safety circuit to detect whether the door leaves are decoupled and tries to recouple the door leaves by repeatedly opening the door. Parameter can only be activated with connected door end switches.	YES NO
Doors-Selective Decouple Max.	Maximum number of re-coupling attempts for decoupled door leaves before all calls are cleared (only relevant if <b>Decoupling=YES</b> )	0 ... 10
Doors-Selective Manual Door	Shaft doors are manual doors. The door-C input of the safety circuit is used for querying the manual door contacts (display: <b>MANUAL DOOR OPEN</b> )	YES NO
Doors-Selective -/- debounce	Debounce time of the manual door contacts. Parameter prevents "fluttering" of the locking solenoid output when starting due to bouncing manual door contacts.	0 ... 5 sec
Doors-Selective Endswitches	Car door has end switches. › YES: connect car door end switches to FSM-2 X6 and X10. Set <b>Opening time</b> to 20 s › NO: the end switch inputs on the FSM-2 X6 and X10 are not needed, opening time = actually required opening time of the car door (see „5.5.10 Sel.Door-Security“ page 114) (see „5.9.2 Door times diagram“ page 134). Note jumpers J21, J31, J71, J81 on the FSM-2 (see „4.3.2 Jumpers“ page 62).	YES NO
Doors-Selective Open Hold Tim	Open hold time of the doors without car calls or landing calls. Parameter is only effective if there no further calls are pending. The open hold time of the car doors with pending calls is determined with <b>Min. wait car / landing</b> (see „5.9.2 Door times diagram“ page 134)	2 ... 250 sec
Doors-Selective Reversing Tim	Open hold time of the car door after a reversing cycle.	0.0 ... 20.0 sec



Menu item	Description	Setting
Doors-Selective Deenergize	Car door is not powered in the OPEN end position (no OPEN signal).	YES NO
Doors-Selective Change Delay	Delay when switching the door relay (from door open to door closed and vice versa). Parameter prevents short circuits due to excessively fast switching when using AC doors.	0.1 ... 2.0 sec
Doors-Selective Nudge Time ⇧	Time before the start of nudging (forced closure) with permanently interrupted photocell. Nudging ignores the photocell signal and can take place in two ways: › with activated nudging output (that reduces the closing speed at the door controller) if <code>Nudging Output=YES</code> is set › pulse-shaped if <code>Nudging Output=NO</code> and the pulse duration is set under nudging	0 ... 300 sec
Doors-Selective Min.Wait Land ⇧	Minimum wait time of the car on a floor after arrival following a landing call (see „5.9.2 Door times diagram“ page 134).	0 ... 60 sec
Doors-Selective Min.Wait Car ⇧	Minimum wait time of the car on a floor after arrival following a car call (see „5.9.2 Door times diagram“ page 134).	0 ... 60 sec

### 5.9.1 Door-Lock Types

Setting	Control method
0	Standard method: › When approaching the floor, the locking solenoid releases immediately after reaching the level position and after the cam delay elapses. The manual shaft door can be opened even as the car door opens. › The locking solenoid does not re-activate until the car door is completely closed. The manual shaft door can be opened while the car door closes, causing the car door to reverse.
1	"Austria" method: › When approaching the floor, the locking solenoid does not release until the car door is completely open. The manual shaft door cannot be opened as the car door opens. › The locking solenoid activates as soon as the car door begins to close. The manual shaft door can no longer be opened while the car door closes.
2	"Inverted" method › Doors are always locked. › The locking solenoid is activated on the floor to unlock the doors and releases again when the doors close.

## 5.9.2 Door times diagram

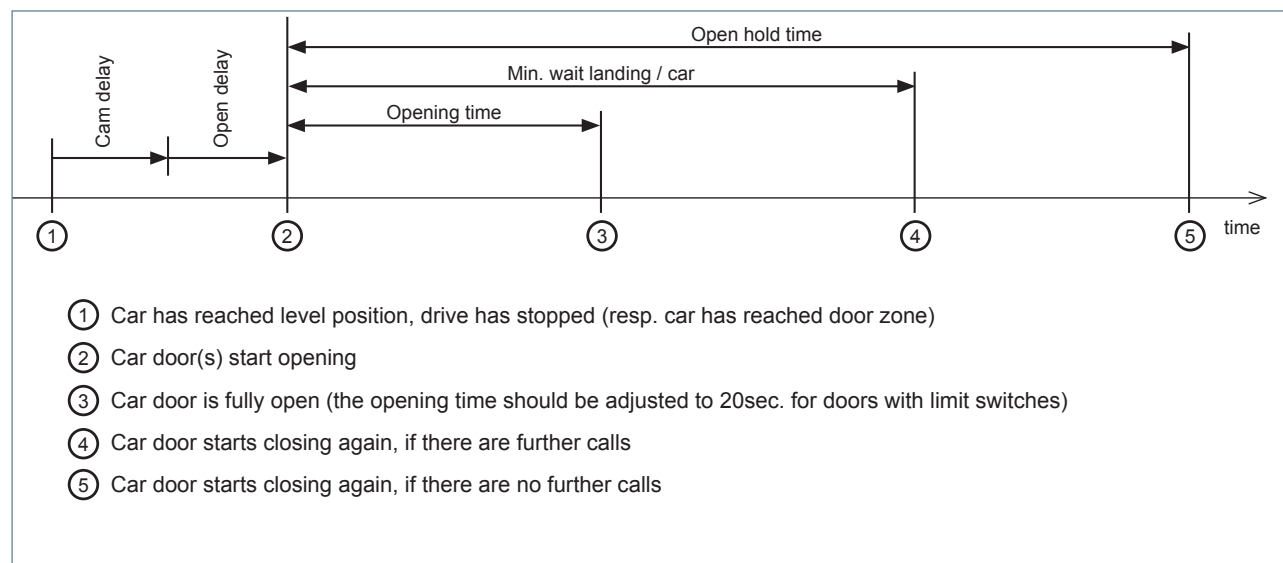





Fig. 5.7: Door times of the FST controller

## 5.10 TEST MENU

Menu item	Description	Setting range
Fault Reset	Reset runtime errors that caused the system to stop. All error messages that begin with <b>DRM-</b> shut down the installation (error LED illuminates permanently). The shutdown can be reset by performing a fault reset.	YES NO
Doors-LOCK	Lock or unlock car doors (during maintenance work). Locked car doors are marked with an X after the door letter on line C of the FST display (see „3.2.4 Line C – Status messages“ page 27). The door lock is retained even after switching the controller off and on.	Lock Unlock
Test drive ON	Place calls using the FST keypad. While the test drive is switched on, <b>Target= . . .</b> appears on line C of the display; use the <b>↑/↓</b> buttons to select a target floor. Execute the call with <b>☐</b> .	ON OFF
Auto Test Drv ON/OFF	Trigger automatically generated car calls ( <b>MAIN MENU</b> / <b>Config</b> / <b>Auto Test Drive</b> ). The activated test drive is acknowledged with a <b>T</b> on line C of the FST display.	ON OFF
Service Mode ON/OFF	In service mode, external error messages are suppressed (e.g., collective error message). The service mode is acknowledged with <b>SERVICE MODE</b> on line B of the FST display.	ON OFF
Endswitch Test Top	Slow travel to the top emergency end switch. This test cannot be started from the top floor!	YES NO
Endswitch Test Bot	Slow travel to the bottom emergency end switch. This test cannot be started from the bottom floor!	YES NO
V-Mon. Test Top	Test deceleration monitoring at top. This test only functions if deceleration monitoring is activated! This test cannot be started from the top floor!	YES NO
V-Mon. Test Bot.	Test deceleration monitoring at bottom. This test only functions if deceleration monitoring is activated! This test cannot be started from the bottom floor!	YES NO
DRM Test	Test of runtime monitoring. 2 sec after starting the drive, an encoder error is simulated by stopping position detection. This test can be started from the top or bottom floor.	YES NO
Buffer Test Up	Drive with the nominal speed to the counterweight buffer. This test can cause damages to the car. This test cannot be started from the top floor! After starting the test with YES, the <b>☐</b> button must remain pressed down until the buffer is reached (dead man operation).	YES NO
Buffer Test Down	Drive with the nominal speed to the car buffer. This test can cause damage to the car and should only be performed after consulting <b>NEW LIFT</b> . This test cannot be started from the bottom floor! After starting the test with YES, the <b>☐</b> button must remain pressed down until the buffer is reached (dead man operation).	YES NO
UCM-A3 Test Up	UCM-A3 test drive in upward direction. Simulation of a UCM situation (open door) by relay K90.1 and movement of the car by controlling the nominal speed.	
UCM-A3 test Down	UCM-A3 test drive in downward direction. Simulation of a UCM situation (open door) by relay K90.1 and movement of the car by controlling the nominal speed.	
UCM-A3 Test Act.	Ten test drives are performed for the function check of self-monitoring with A3 actuators (e.g., holding brake or valves). After a successful test, the message <b>A3 ACTUATOR TEST OK!</b> appears. See " <b>UCM-A3</b> " manual	

Menu item	Description	Setting range
UCM-A3 Fault Reset	Reset of the UMC-A3 errors. Error 66 "DRM UCM-A3 ERROR" and 67 "DRM A3 DRIVE ERROR" can only be reset using this menu item. The regular "fault reset" as well as switching the controller OFF/ON has no effect on the UCM-A3 errors. See "UCM-A3" manual.	
Brake Measurmt. ON/OFF	See System description - Braking distance counters	
Safety Gear Autom.	Activation of the automatic arrest test. Arrest floor and offset are to be set under Main Menu/Config/Installation/. After activation, keep "  " pressed down. Activation of the speed-limiter remote triggering solenoids takes place on the preset floor.	
Safety Gear Manual	Immediate activation of the arrest test by pressing the  button.	
Safety Gear Reset	Immediate reset of the speed-limiter remote triggering solenoids or reset solenoids by pressing the  button.	

## 6 Programmable I/O ports

The FST controller has 80 programmable I/O ports. Eight I/O ports are located directly on the FST circuit boards (X1.4 .. X1.11) and are always available. Seven other I/O ports are located on the FSM-2 (72 ... 78). The remaining 65 I/O ports are located at arbitrary positions on the LON bus on so-called "Remote I/O Modules" (RIO-ADM or RIO-FPM).

### 6.1 General

Characteristics of a programmable input/output:

- › Assigned function: each I/O port can be assigned a function directly on-site via the FST menu.
- › Signal direction: The signal direction of the I/O ports is subdivided into input and output functions.
- › Active level (GND): all ports can be inverted via programming.

#### Input functions

The input function is triggered as soon as the state on the I/O port changes from the inactive level to the active level.

#### Output functions

As soon as the condition of the output function is satisfied, the state on the I/O port changes from the inactive level to the active level.

#### Flags

The "Flag" function holds a special position. Various control states can be linked in a flag with "OR". The I/O port becomes active as soon as at least one of the required conditions is met.

#### Signals

Like the Flag function, the "Signals" function can link and output control states. Here, however, door car states are "AND" linked. The I/O port becomes active as soon as all required conditions are met.

#### User-defined error messages

The FST controller permits the output of freely selectable error messages/event messages. Any given error message that is made available by the FST software can thereby be assigned to a programmable I/O port. This allows user-defined error states to be communicated to the outside.

#### Programming

The I/O ports are programmed in the FST menu under MAIN MENU / CONFIG / I/O Configuration.

The following submenus are available:

Submenu	Meaning
I/O Ports	Assign the program function to the I/O port via the RAW register. Ports Port[0] .. Port[79] are programmable
I/O Flags	Programming of up to eight flags that represent an "OR" link of various pieces of control functions.
I/O Error	Selection of up to three error messages from the entire error list. The selected error messages are stored as USER_ERROR[0] .. USER_ERROR[2].

### Setting the RAW register

The RAW register is an eight-digit hexadecimal value that encodes a 32-bit register. Via the setting of the RAW register, the corresponding terminal can be assigned a function from the function table (see „6.4 I/O functions“ page 140). Furthermore, the active level, the signal direction and the function parameters are set in the RAW register.

Select the MAIN MENU/ CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured ( $\boxed{S}+\boxed{1}$ ).

## 6.2 Bit calculation

All ports of the FST can be programmed with the help of the bits. The register can include 8, 16 or 32 bits. The settings are entered in the controller as hexadecimal value.

The 32-bit registers are structured as follows:

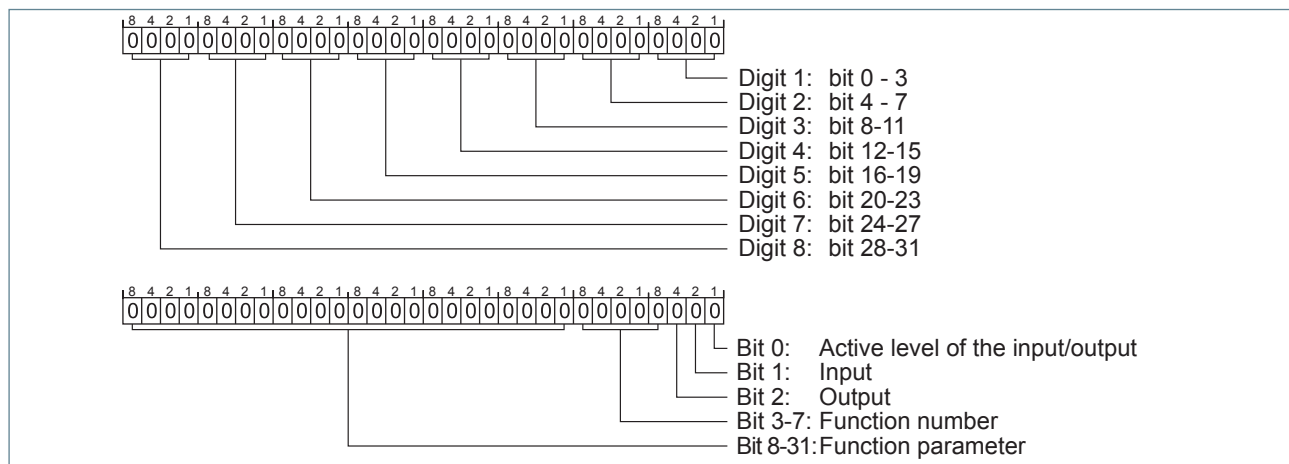


Fig. 6.1: Structure of the 32-bit register

A hexadecimal-encoded byte is decoded digit by digit. Each digit has a separate decimal value that is calculated as follows:

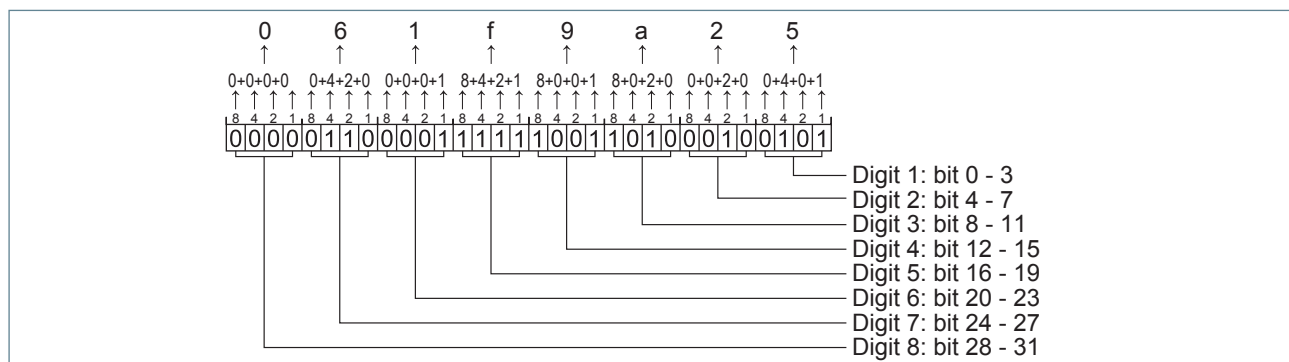


Fig. 6.2: Conversion of binary values to hexadecimal values.

The following table contains all values relevant to the FST in hex, decimal, binary and Gray code.

Hexadecimal value	Decimal value	Binary value	Gray Code
0	0	0000	0000
1	1	0001	0001
2	2	0010	0011
3	3	0011	0010
4	4	0100	0110
5	5	0101	0111
6	6	0110	0101
7	7	0111	0100
8	8	1000	1100
9	9	1001	1101
a	10	1010	1111
b	11	1011	1110
c	12	1100	1010
d	13	1101	1011
e	14	1110	1001
f	15	1111	1000

## 6.3 Programmable I/O ports

Input/Output	Terminal
RAW [0]	FST: X1.4
RAW [1]	FST: X1.5
RAW [2]	FST: X1.6
RAW [3]	FST: X1.7
RAW [4]	FST: X1.8
RAW [5]	FST: X1.9
RAW [6]	FST: X1.10
RAW [7]	FST: X1.11
RAW [8]...[72]	I/O ports of external RIO modules at an arbitrary location on the LON bus.
RAW [73]	FSM-2 X24.2
RAW [74]	FSM-2 X24.3
RAW [75]	FSM-2 X24.4
RAW [76]	FSM-2 X24.5
RAW [77]	FSM-2 X24.6
RAW [78]	FSM-2 X24.7
RAW [79]	FSM-2 X24.8

### Active level

Bit 0	Description
1	+ 24 V (only possible with inputs)
0	GND

The active level of an output is always to be selected with GND since the open-collector output can only switch the required currents in this state.

### Input/Output

Bit 1 & 2	Description
00	No function
01	Input
10	Output
11	Input/Output

## 6.4 I/O functions

The following table contains all functions that can be assigned to a RAW register with their function number. Under the "RAW Value" column, you will find the last two digits of the RAW values from the **Config / I/O-Configuration / I/O-Ports** menu item.

RAW value	RAW value inverted	Input/Output	Description
xxxxxx0A	xxxxxx0B	Input	Landing call (see page 141)
xxxxxx12	xxxxxx13	Input	Fire signal (see page 142)
xxxxxx1A	xxxxxx1B	Input	Remote shutdown
xxxxxx22	xxxxxx23	Input	Landing priority (see page 142)
xxxxxx2A	xxxxxx2B	Input	Drive inhibit
xxxxxx34	xxxxxx35	Output	Position indicator (see page 143)
xxxxxx3A	xxxxxx3B	Input	Door open button (see page 144)
xxxxxx42	xxxxxx43	Input	Door close button (see page 144)
xxxxxx6A	xxxxxx6B	Input	Overload
xxxxxx72	xxxxxx73	Input	Full load
xxxxxx7C	xxxxxx7D	Output	Flag (see page 144)
xxxxxx84	xxxxxx85	Output	Signal (see page 148)
xxxxxx8A	xxxxxx8B	Input	Landing control OFF
xxxxxx92	xxxxxx93	Input	Service
xxxxxx9A	xxxxxx9B	Input	Evacuation (see page 150)
xxxxxxA2	xxxxxxA3	Input	Forced stop
xxxxxxAA	xxxxxxAB	Input	Special drive (see page 150)
xxxxxxB4	xxxxxxB5	Output	Emergency call misuse (see page 151)
xxxxxxBC	xxxxxxBD	Output	Speed threshold (see page 152)
xxxxxxC2	xxxxxxC3	Input	DRM I/O Port (see page 152)
xxxxxxCA	xxxxxxCB	Input	Destination call (see page 153)
xxxxxxD2	xxxxxxD3	Input	Ramp drive (see page 153)
xxxxxxDA	xxxxxxDB	Input	Emergency end switch
xxxxxxE2	xxxxxxE3	Input	Activate VIP mode
xxxxxxEA	xxxxxxEB	Input	Bypass floor blocking (see page 153)
xxxxxxF2	xxxxxxF3	Input	Special (in-plant special functions)
xxxxxxFA	xxxxxxFB	Input	Block floor (see page 154)



## Functions without additional parameters

The following table shows the values to be set in the RAW register for all functions without function parameters.

Function	Input/Output	Raw register
Remote shutdown	Input	0000001A
Overload	Input	0000006A
Full load	Input	00000072
Landing control OFF	Input	0000008A
Service	Input	00000092
Forced stop	Input	000000A2
Emergency call misuse	Output	000000B4
Drive inhibit	Input	0000002A

### 6.4.1 Function "landing call"

The "landing call" function allows a landing call to be set via the terminal of a programmable input/output.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS menu item and set the I/O port that is to be configured.

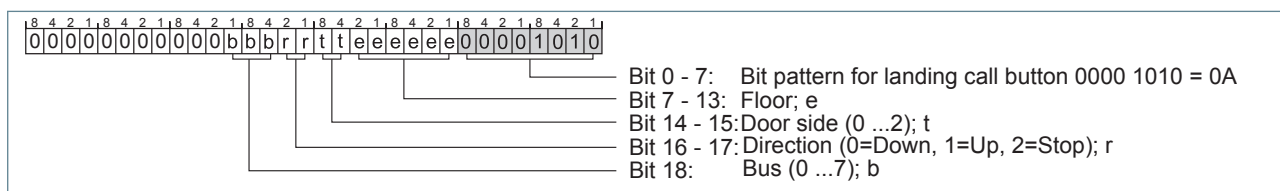


Fig. 6.3: Landing call function

#### Examples

Function	Raw register
Floor 0, door side A, up direction, bus 0	0001000A
Floor 1, door side A, down direction, bus 0	0000010A
Floor 2, door side A, up direction, bus 0	0001020A
Floor 5, door side B, down direction, bus 1	0005450A
Floor 15, door side A, stop direction, bus 2	000A0F0A

## 6.4.2 Function “fire signal”

The “fire signal” function enables the triggering of a fireman mode evacuation drive using the terminal of a programmable input/output.

Select the MAIN MENU/ CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu time and set the I/O port that is to be configured (**S**+**I**).

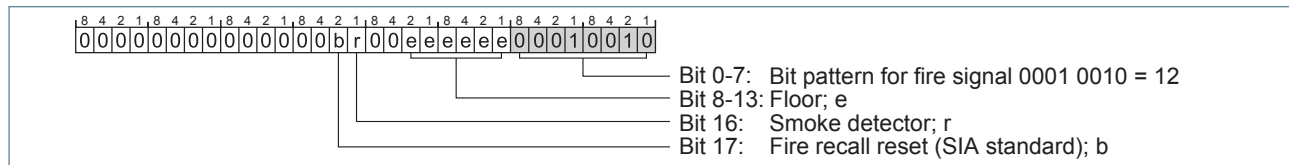


Fig. 6.4: Fire signal function

### Examples

Function	Raw register
Floor 0, smoke detector - no	00000012
Floor 1, smoke detector - yes	00010112
Floor 5, smoke detector - no	00000512
Floor 15, smoke detector - yes	00010F12
Floor 20, smoke detector - no	00001412

## 6.4.3 Function “landing priority”

The “landing priority” function enables the triggering of a priority landing drive via the terminal of a programmable input/output.

Select the MAIN MENU/ CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (**S**+**I**).

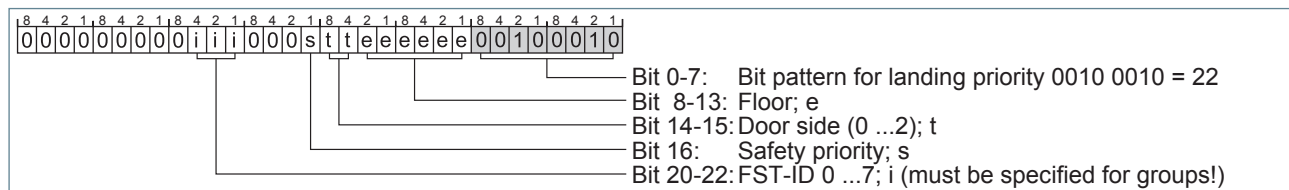


Fig. 6.5: Landing priority function

### Examples

Function	Raw register
Floor 0, door side A	00000022
Floor 1, door side B	00004122
Floor 5, door side C	00008522
Floor 15, door side A	00000F22
Floor 22, door side B	00005622

#### 6.4.4 Function “position indicator”

The “position indicator” function enables the output of a bit of the encoded position indicator signal at a terminal of a programmable input/output.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured ( $\boxed{S} + \boxed{1}$ ).

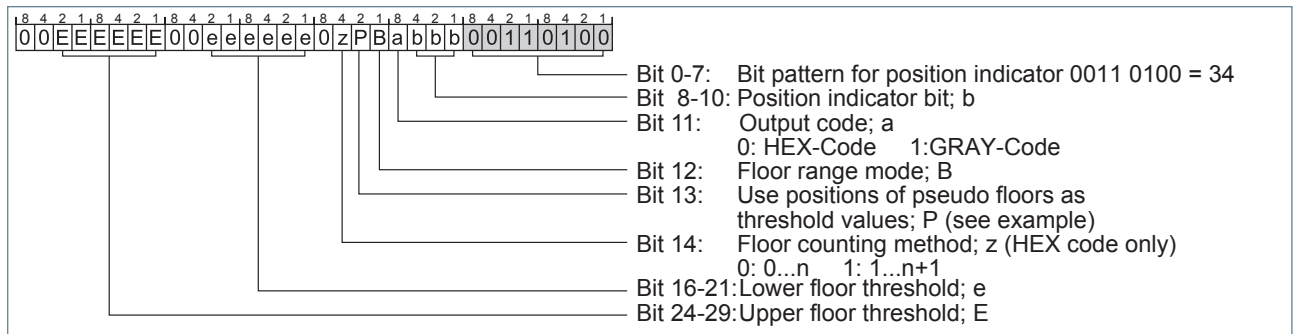


Fig. 6.6: Position indicator function

##### Floor range mode

Function with which the output is switched between the bottom and top threshold floor. To activate the mode, set bit 12 to “1”.

When using multiple outputs with position indicator in floor range mode, the position indicator bit of the outputs must be different in order to ensure correct function.

##### Pseudo floor

Instead of the actual floors, height values can also be specified as threshold value. The height values must be defined as pseudo floors (Positioning / Pseudo Floors). Up to eight pseudo floors can be set in the FST. To use pseudo floors as threshold value, set bit 13 to “1” and then enter the corresponding pseudo floors as floor threshold value for bits 16-21 and 24-29.

##### Examples

Function	Raw register
Position indicator bit 0, GRAY code	00000834
Position indicator bit 1, GRAY code	00000934
Position indicator bit 2, GRAY code	00000A34
Position indicator bit 2, HEX code	00000334
Floor range mode switches the output between floor 3 and 8	08031034
Pseudo floors: output switches between 3400mm (pseudo floor 3) and 9800mm (pseudo floor 4)	04033034
Floor counting method HEX code 1...n+1 instead of 0...n	00004

### 6.4.5 Function "door open button"

Has the same function as the door open button on the car operating panel. Application examples include, e.g., door open buttons on the car roof or in the control cabinet for setting and manually moving doors.

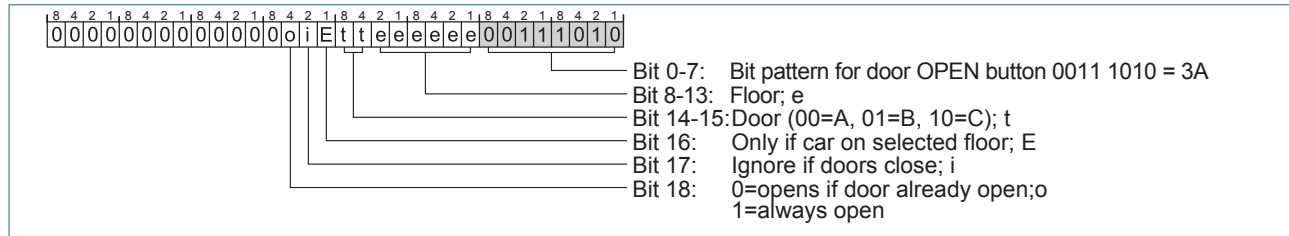


Fig. 6.7: Door open button function

### 6.4.6 Function "door close button"

Has the same function as the door close button on the car operating panel. Application examples include, e.g., door close buttons on the car roof for setting and manually moving doors.

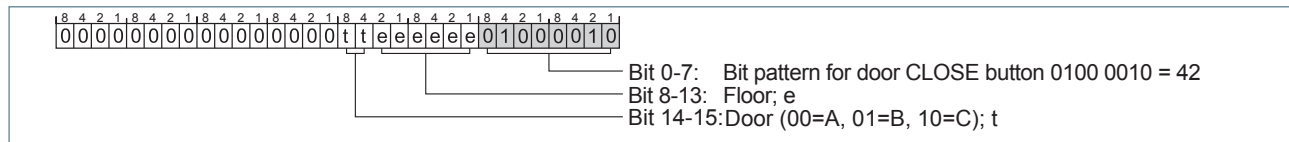


Fig. 6.8: Door close button function

### 6.4.7 Function "flag"

The "flag" function enables the activation of a terminal of a programmable input/output in the event of a certain condition. The condition is an "OR" link of various controller states. The condition can be debounced or output with a time delay via a control parameter.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (**S**+**F**).

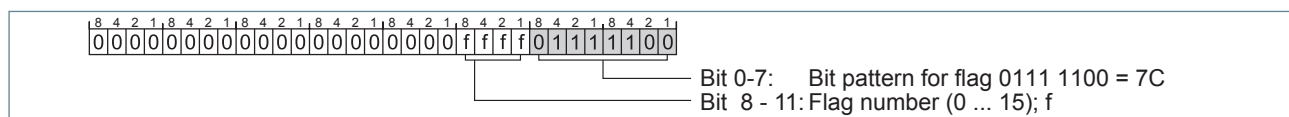


Fig. 6.9: Flag function

### RAW values of the flag functions

Function	Raw register
Flag 0	0000007C
Flag 1	0000017C
Flag 2	0000027C
Flag 3	0000037C
Flag 4	0000047C
Flag 5	0000057C
Flag 6	0000067C
Flag 7	0000077C
Flag 8	0000087C
Flag 9	0000097C
Flag 10	00000A7C
Flag 11	00000B7C
Flag 12	00000C7C
Flag 13	00000D7C
Flag 14•	00000E7C
Flag 15•	00000F7C

•Flags 14 and 15 are occupied internally by NEW LIFT for modem and fax.

### Setting flags

Available in the FST menu are 16 flags that correspond to an “OR” link of any given controller states in the following table.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O FLAGS / MASK menu item and set the flag[0..15] that is to be configured ( $\overline{S} + \overline{T}$ ).

The MASK parameter is an eight-digit hexadecimal value that encodes a 32-bit register.

The sum of the selected flag functions yields the MASK parameter value. The hexadecimal values of the table are added to the definition of the flag parameter digit-by-digit.

To enable the configured flag, it is absolutely necessary that bit 0 be set to “1” in the MAIN MENU / CONFIG / I/O Configuration / I/O Flags / CTRL parameter, (see „Setting flag control“ page 147).

Flag function	Description	Value (hexadecimal)
Normal operation	Controller runs in normal operation	00000001
Controller stopped	Shut down by FST menu	00000002
Emergency stop	Emergency stop was triggered	00000004
Inspection mode	Controller is in inspection mode	00000008
Auxiliary mode control	Auxiliary mode control active	00000010
Runtime monitoring	Motor monitoring triggered and shut down the FST controller	00000020
Fire mode	Fire signal was reported	00000040
Fireman mode	Controller is in fireman mode	00000080
Overload	Overload was reported	00000100
Full load	Full load was reported	00000200
Remote shutdown	The controller has been remotely switched off	00000400
Car priority	Controller is in car priority mode	00000800
Landing priority	Controller is in landing priority mode	00001000
Landing control OFF	Landing control OFF is activated	00002000
Calibration / learn drive	Calibration or learn drive is being performed	00004000
Evacuation	The controller is in evacuation mode	00008000
Orientation mode	Controller is in orientation mode	00010000
VIP mode	The controller is in VIP mode	00020000
Installation mode	Controller is in installation mode	00040000
Apron extended	Apron is extended	00080000
Maintenance necessary	A service counter (motor hours, drives and doors) has counted down to the minimum value	00100000
Power supply insufficient	The minimum supply voltage of +17 V is not met	00200000
Return	Park drive to the bottom floor (with hydraulic lifts)	00400000
Park Drive	Park drive according to the set program parameters	00800000
Service	The lift system is being serviced, the function of the error list is suppressed	01000000
Self-test	The FST performs a self-test	02000000
End switch test	A test drive to the top or bottom end limit was triggered	04000000
User error 0	First user-defined error has occurred (see „Function “user error”“ page 147)	08000000
User error 1	Second user-defined error has occurred	10000000
User error 2	Third user-defined error has occurred	20000000
Send fax report	A fax report is currently being sent	40000000
NEW LIFT internal		80000000

### Examples

Flag functions	MASK
"Emergency stop" OR "runtime monitoring" (error message output)	00000024
"Inspection" or "auxiliary mode"	00000018
"Fire signal" OR "fireman service" OR "remote shutdown" OR "car priority" OR "landing priority"	00001CC0
"Maintenance necessary"	00100000
"Return" OR "park drive"	00C00000

### Setting lag time or debounce value

The output of the controller states set under Flag can be performed with a time delay or debounced. Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O FLAGS / DELAY menu item and set the flag[0...15] that is to be configured (**S**+**1**).

According to the debounce type selected in the MAIN MENU / CONFIG / I/O Configuration / I/O Flags / CTRL. menu item, bit 1, set seconds or switching operations.

### Setting flag control

With the flag control register, the corresponding flag can be enabled or blocked. Also defined here is whether the flag output is to occur with a time delay or debounced.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O FLAGS / CTRL menu item and set the flag[0...15] that is to be configured (**S**+**1**).

The flag control is a two-digit hexadecimal value that encodes an 8-bit register.

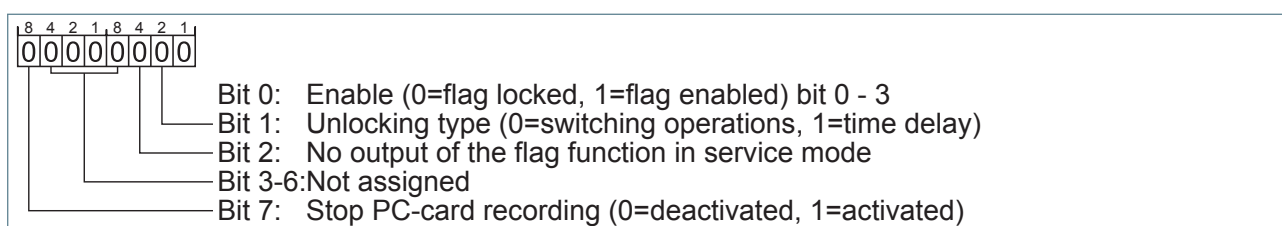


Fig. 6.10: Control function

### Examples

Function	DELAY	CTRL
Flag enabled, output 3x debounced	03	01
Flag enabled, output delayed by 20 seconds	20	03

### Function “user error”

The “user error” function enables the output of an error message from the error list at a terminal of a programmable input/output. If the selected error message occurs, the second part of the FST display displays USER ERROR [0...2]. Via the “user error” flag function, the state can be output on a terminal.

Three user errors are available in the MAIN MENU / CONFIG / I/O Configuration / I/O Error menu item (ERROR[0] .. ERROR[2]).

### Setting the ID

With the **S**+**1** button combination, set the user error ERROR[0...2] that is to be configured and select an error message from the error list under ID:.

### Setting Ctrl

The value to be entered is a hexadecimal value that decodes a byte. The first bit enables the error, the last five bits determine the output duration (DDDDxxF). The duration of the output signal can be set in 5 s increments (max. 160 s).

Value to be entered	Function
01	User error enabled
09	User error enabled; display duration: 5 s
11	User error enabled; display duration: 10 s
19	User error enabled; display duration: 15 s

## 6.4.8 Function "signal"

The "signal" function enables the output of an "AND" link of various controller-internal signals at a terminal of a programmable input/output. A maximum of 16 ports can be occupied with signals.

Select the MAIN MENU/ CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (S+I).

### Examples

Function	Raw register
"Floor 5" AND "Level" AND "Door A open"	00244584
"Door A closed" AND "Door B closed"	00018084
"Car call pressed (pulse)"	02000084
"Floor 15" AND "Landing call pressed (pulse)"	04004F84
"Post-Emergency stop" AND "Car calls blocked"	18000084
"Safety circuit error"	20000084
"Evacuation ended"	40000084
"Floor 1" AND "Flag 0 active"	80004184

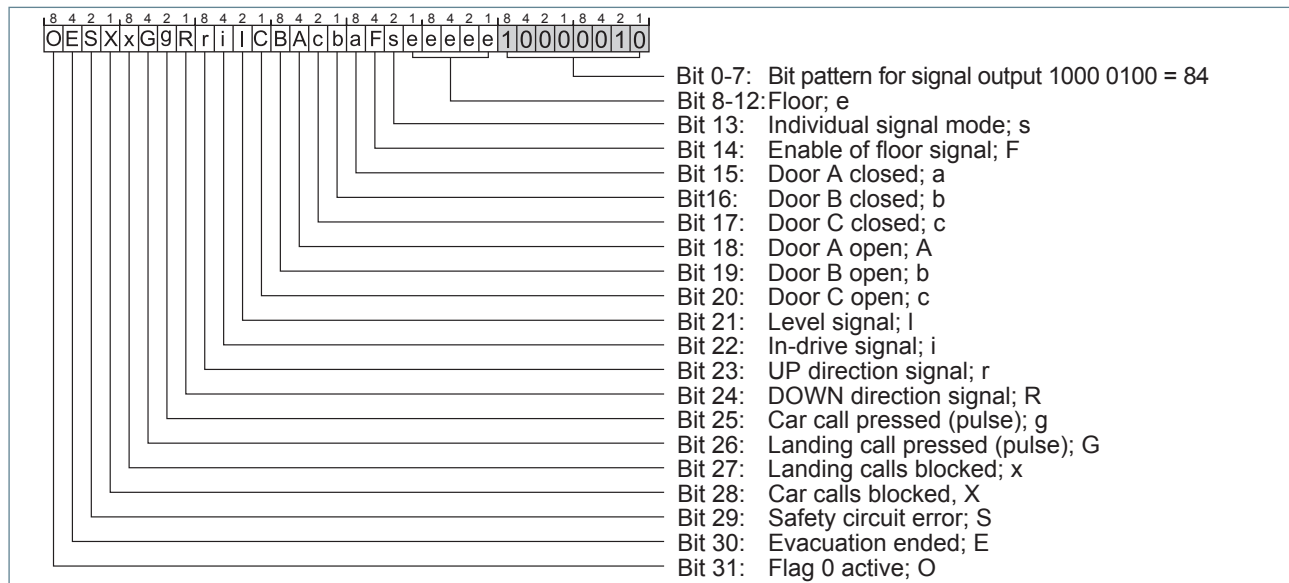


Fig. 6.11: Signal function

All signals activated with "1" are linked with "AND" and output at the selected output. If the floor signal is enabled (bit 14 = 1), then all activated signals refer exclusively to the set floor (bit 8 ... 13).

### Individual signals

A number of additional individual signals are available. These can only be applied to all floors simultaneously. To activate the individual signal mode, set bit 13=1 and bit 14=0. The function numbers of the individual signals are then encoded with bits 8... 12.

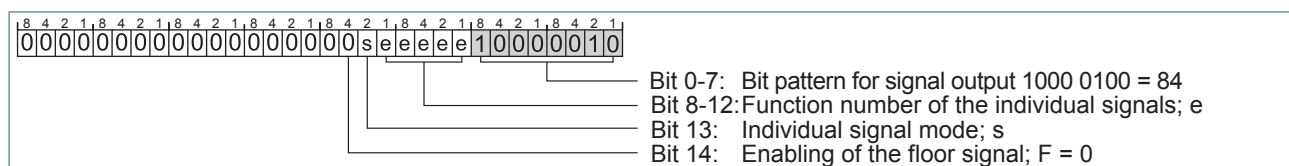


Fig. 6.12: Functions of the bits with individual signals



Individual signal	Function number	Description
Ramp drive	0000 2184	Output during ramp drive
Fireman mode evacuation drive completed	0000 2284	Output if evacuation drive is completed
Car door A closing	0000 2384	Output while door A is closing
Car door B closing	0000 2484	Output while door B is closing
Car door C closing	0000 2584	Output while door C is closing
Fire signal or fireman mode (SIA)	0000 2684	Output during fire signal or fireman mode
Fire siren active (EN-81-72)	0000 2784	Output if siren active
Nudging	0000 2884	Output during nudging
Anti creep device solenoid	0000 2984	Output while the anti creep device solenoid activates
SuperPrio mode active	0000 2A84	Output while SuperPrio mode is active
Car occupied	0000 2B84	Output if calls are pending or manual door is open
Emerg.-call pressed	0000 2C84	Output while emergency call is output
Car free	0000 2D84	Output if no departure direction, no calls, doors closed, door times elapsed
Remote I/O function	00nn 2E84 nn=port number	Output if corresponding input is active
DRM selective	00nn 2F84 nn=DRM-ID	To be able to obtain individual error messages, DRM errors can be selected individually
Light curtain interrupted	0000 3084	Output if light curtain is interrupted
Doors open	0000 3184	Output if one of the doors is open
Remote shutdown ended	0000 3284	Output if remote shutdown was ended
Ventilator	0000 3384	Output while car ventilator is active
Chime	0000 3484	Output during arrival chime signal
ADMSS	0000 3584	Remote output that is controlled by the ADM or EAZ-256
Loading mode 20s	0000 3684	Output if loading mode will end in less than 20s
Car empty	00003784	Output if there is an empty load
Prog. timer	SSss 3884 SS=end time ss=start time	Programmable timer output. Additional information in the FST history (from V1. 100-0422, 29.02.08)
ESM mode active	0000 3984	Output during ESM mode
Door A opening	0000 3A84	Output while door A is opening
Door B opening	0000 3B84	Output while door B is opening
Door C opening	0000 3C84	Output while door C is opening
Loading mode	0000 3D84	Output as long as loading mode is active
Pulse mode	0000 3E84	NEW LIFT internal
Manual door open	0000 3F84	Output as long as manual door is open
Photocell/reversing switch blocked >= 20s	0000 6084	Output if photocell or reversing switch are blocked for more than 20s.
Fireman mode, doors closing	0000 6184	Output while doors closing in event of fire

### 6.4.9 Function "evacuation"

The "evacuation" function enables the triggering of an evacuation drive via the terminal of a programmable input/output.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (**S**+**I**).

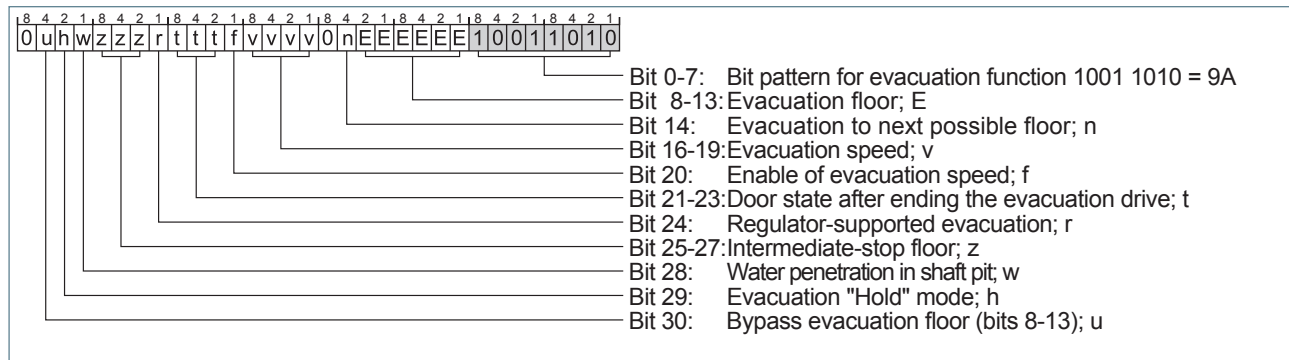


Fig. 6.13: Evacuation function

#### Evacuation speed (bits 16-19)

0 = V1	4 = V5	9 = Vi
1 = V2	5 = V6	10 = Vr
2 = V3	6 = V7	11 = Vn
3 = V4	7 = V8	12 = drive decides independently

#### Door state (bits 21-23)

0 = open all doors and leave open	4 = only open and leave open door B
1 = leave all doors closed	5 = only open and then close door B
2 = only open and leave open door A	7 = open door A & B, then close
3 = only open door A, then close	

#### Examples

Function	Raw register
Evacuation floor 0, evacuation speed = automatic, open all doors following evacuation	0000009A
Closest evacuation floor, evacuation speed = automatic, open all doors following evacuation	0000409A
Closes evacuation floor, evacuation speed = V1, do not open doors following evacuation	0020409A

### 6.4.10 Function "special drive"

The "special drive" function enables the triggering of a special drive via the terminal of a programmable input/output. Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (**S**+**I**).

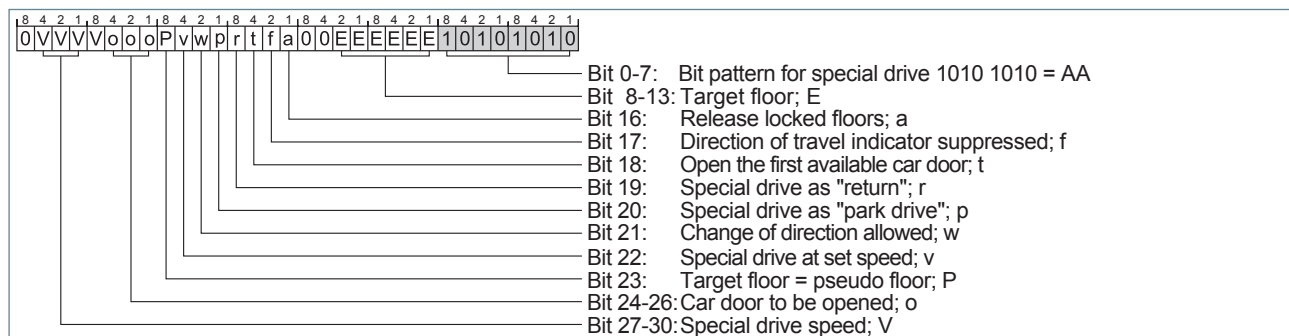


Fig. 6.14: Special drive function

Car door (bits 24-26)

0 = door A                      2 = door C  
1 = door B                      4 = none

**Door state (bits 21-23)**

0 = V1                      4 = V5                      9 = Vi  
1 = V2                      5 = V6                      10 = Vr  
2 = V3                      6 = V7                      12 = Vn  
3 = V4                      7 = V8

**Examples**

Function	Raw register
Target floor 1, open first available door	002401AA
Target floor 0, park drive, suppress direction of travel indicator, do not open any doors	041200AA

### 6.4.11 Function "emergency call misuse"

The "emergency call misuse" function enables the control of a relay which can be connected in series with the emergency call button (or emergency call forwarding) in order suppress unjustified emergency calls.

The relay always activates if:

- › the car is moving (without fault)
- › the car is level on a floor with open car door
- › the emergency call button was pressed for less than the adjustable delay

Emergency calls cannot be placed until the relay has released!

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (**S**+**1**).

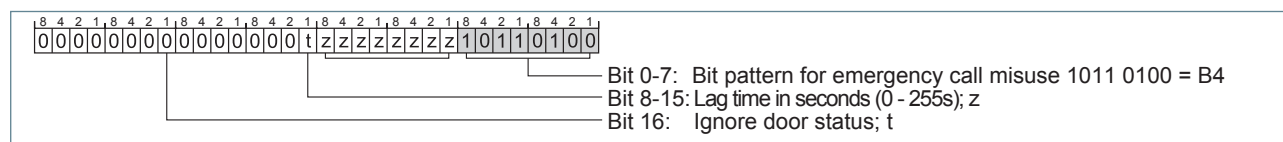


Fig. 6.15: Emergency call misuse

**Examples**

Function	Raw register
Emergency call misuse, delay 10 sec	00000AB4
Emergency call misuse, delay 20 sec	000014B4

### 6.4.12 Function "speed threshold"

The "speed threshold" function enables the output of a signal indicating a speed that is below the minimum limit at a terminal of a programmable input/output.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (**S**+**1**).

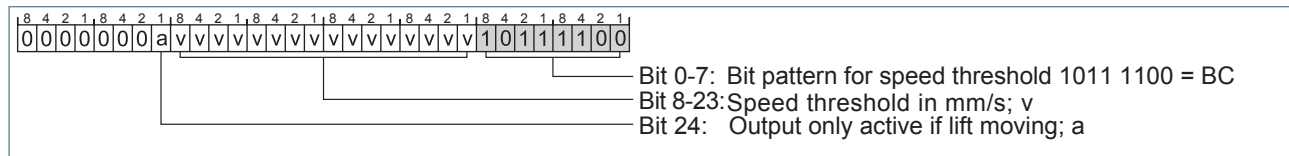


Fig. 6.16: Speed threshold function

#### Calculation

The speed value must be entered in the RAW register in hexadecimal form. The conversion from decimal to hexadecimal value is performed recursively, digit-by-digit, until the decimal value < 16:

- › Digit 1 = integer remainder with (decimal value / 16)
- › New decimal value = (old decimal value - integer remainder) / 16
- › Digit 2 = integer remainder with (new decimal value / 16)
- › New decimal value = (old decimal value - integer remainder) / 16

#### Example

Speed value = 300 mm/s

- › Digit 1 = integer remainder with (300 / 16) = 12 = "C"
- › New decimal value = (300 - 12) / 16 = 18
- › Digit 2 = integer remainder with (18 / 16) = 2 = "2"
- › New decimal value = (18 - 2) / 16 = "1"
- › Digit 3 = "1"

=> RAW register = 00012CBC

### 6.4.13 Function "DRM I/O Port"

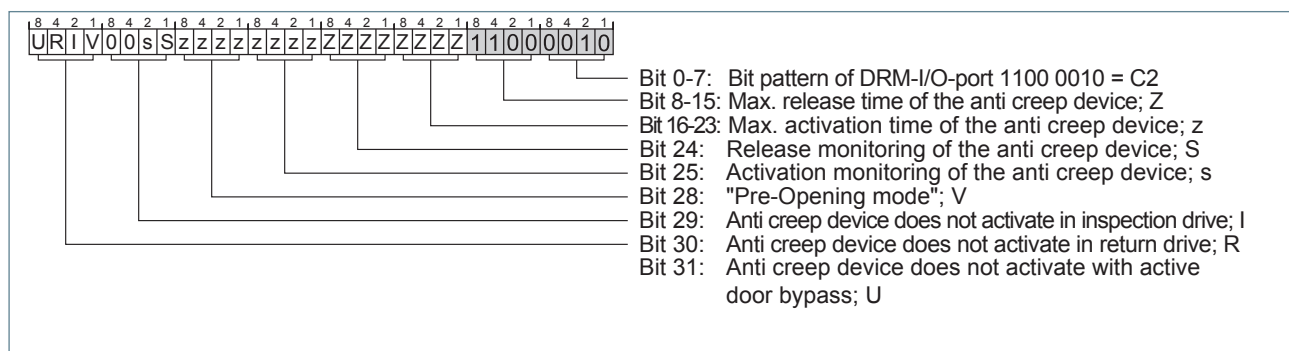


Fig. 6.17: DRM I/O port function

#### 6.4.14 Function "destination call"

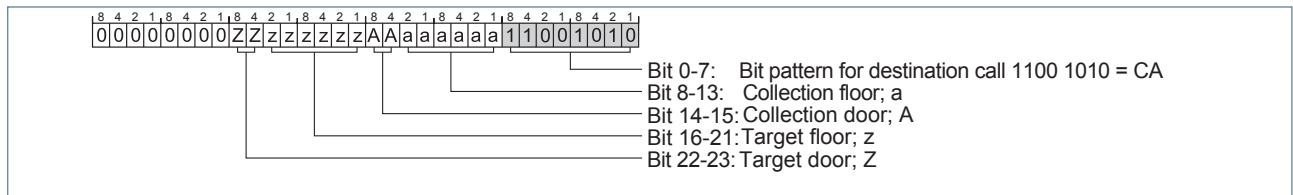


Fig. 6.18: Destination call function

#### 6.4.15 Function "ramp drive"

The "ramp drive" function enables the provision of the inputs on the terminal of a programmable input/output that are necessary during a ramp drive.

The ramp drive enables the controlled movement of the car in dead man control with completely opened car door within an expanded door zone. Four inputs are necessary for this purpose:

- › Activate ramp drive
  - › UP button (dead man)
  - › DOWN button (dead man)
  - › OPEN door end switch of the car door
- Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured ( $\overline{S} + \overline{T}$ ).

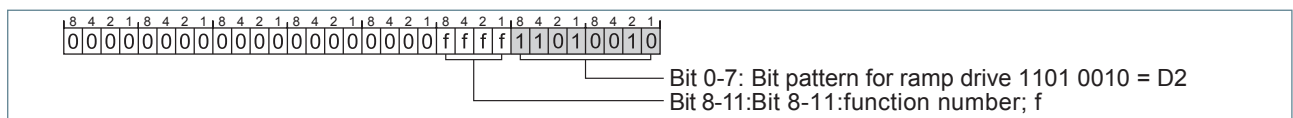


Fig. 6.19: Ramp drive function

##### Setting the four inputs

Function	Raw register
Activate ramp drive	0000 03D2
Ramp drive, UP button	0000 01D2
Ramp drive, DOWN button	0000 02D2
Ramp drive, OPEN door end switch	0000 04D2

#### 6.4.16 Function "bypass floor locking"

The "bypass floor locking" function enables the cancellation of floor locking through the terminal of a programmable input/output.

Select the MAIN MENU / CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured ( $\overline{S} + \overline{T}$ ).

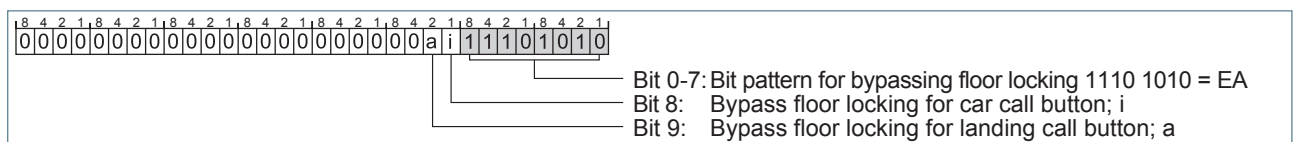


Fig. 6.20: Bypass floor locking function

#### Examples

Function	Raw register
Bypass floor locking for car call	0000 01EA
Bypass floor locking for landing call	0000 02EA
Bypass floor locking for car and landing call	0000 03EA

### 6.4.17 Function "block floors"

The "block floors" function enables the dynamic blocking of floors using the terminal of a programmable input/output.

Select the MAIN MENU/ CONFIG / I/O CONFIGURATION / I/O PORTS / RAW menu item and set the I/O port that is to be configured (**S**+**T**).

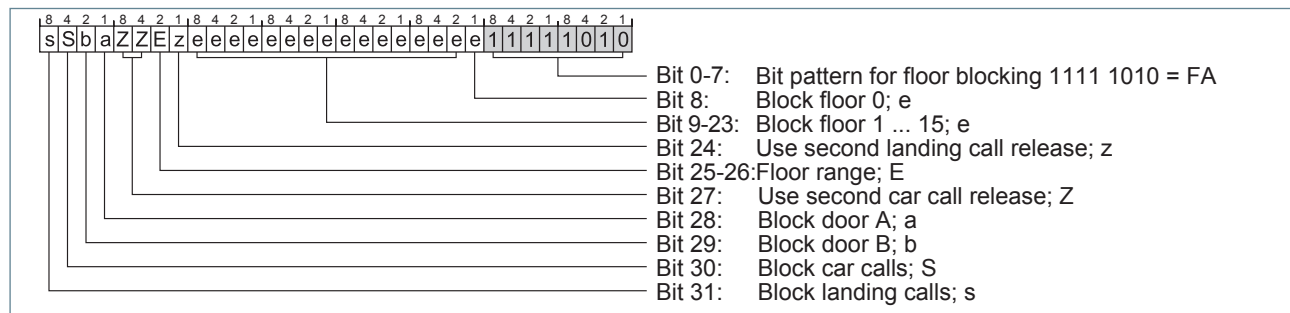


Fig. 6.21: Function block floors

#### Floor range

- 0: floors 0-15 can be blocked
- 1: floors 16-31 can be blocked
- 2: floors 32-47 can be blocked
- 3: floors 48-63 can be blocked

#### Examples

Function	Raw register
Block floor 0, door A, block car calls	500001FA
Block floors 0 and 1, door B, block landing calls	A00003FA
Block floors 0 ... 7, doors A and B, block car and landing calls	F000FFFA
Block floors 16 ... 23, doors A and B, block car and landing calls	F200FFFA
Block floors 32 ... 39, doors A and B, block car and landing calls	F400FFFA

## 7 LON module configuration

It is sometimes necessary to reconfigure a LON module. Provided for this eventuality is an “emergency editor” for editing individual LON modules under MAIN MENU/Config/LON Configuration/Show LON Modules. To edit the bytes, it is first necessary to perform a release via parameter LON-EDIT ENABLE=YES.

For a detailed and transparent configuration of the LON modules, NEW LIFT recommends using the LON Module Center. With this universal LON module program, extensive adjustment options are available for all parameters of the modules. The current program is available on the NEW LIFT website <http://www.newlift.de/en/service/download/pc-software/>.

### Requirements

The LON module editor can be used with the following modules:

- › ADM xx
- › EAZ xx
- › SPK (speech computer I/F)



### NOTE

Only modules that are in the FST LON module list can be edited. This list is created each time SEARCH LON MODULES is called from the LON CONFIGURATION menu.

Please note that all ADMs in the LON module list appear as ADR.

Expert knowledge is necessary for using the editor since no help functionality is provided and each of the individual bytes of the LON module configuration has a different function. The backup function of the FST-2XT/s does not support the changes to the bytes; in addition, bytes changes are accepted immediately without prior notice.

Please always contact NEW LIFT if you do not know exactly which change is necessary for your needs.

### Procedure

- › Enable Edit mode with LON-EDIT ENABLE=YES.  
This value is not stored and is always reset to NO following an FST restart!
- › Byte-wise navigation through the configuration data.  
For modules that do not appear in the list mentioned above, the changed value is not stored (see „7 LON module configuration“ page 155).
- › Save value with E.



### NOTE

Before editing, please write down the old values so that they can be restored in case of doubt.

Some of the changed configuration values do not take effect until after a cold start of the LON module. This applies, in particular, to the configuration of RIO-2 or SPK modules to another FST-ID number (e.g. FST-A / FST-B). Please note that, in this case, the LON module with the new FST-ID will no longer be visible in the LON module list.

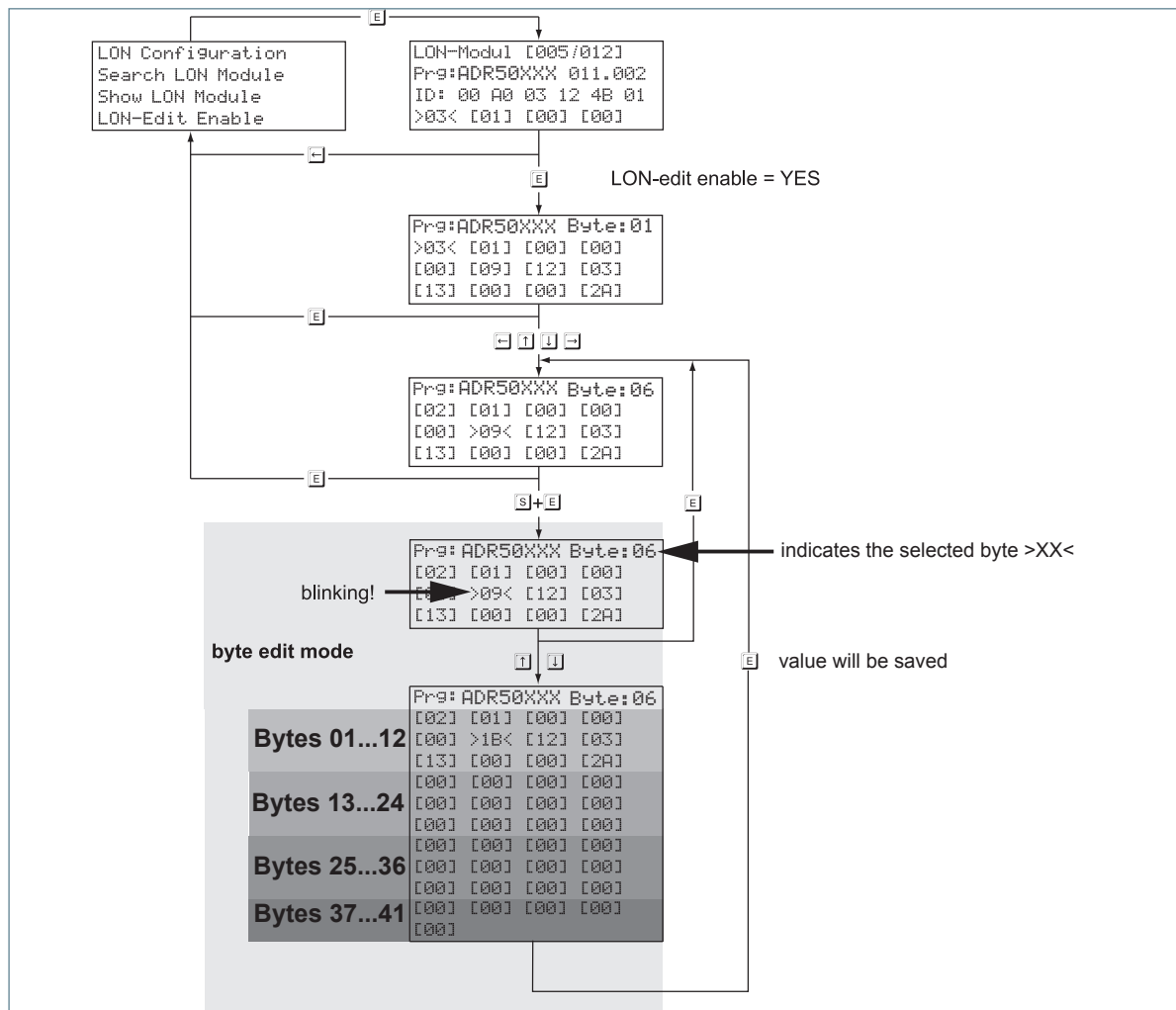


Fig. 7.1 Overview: LON module editing (example ADR-50XXX)

### Set values

The following lists show important set values in HEX format and their locations in the menu table. Bytes 13 to 24 are available beginning with version ADM-50. Currently, 24 of the 41 bytes are used. Please contact NEW LIFT if you require detailed information.

Byte addresses Prg: ADR50XXX EDITOR

[byte-01] [byte-02] [byte-03] [byte-04]  
[byte-05] [byte-06] [byte-07] [byte-08]  
[byte-09] [byte-10] [byte-11] [byte-12]  
[byte-13] [byte-14] [byte-15] [byte-16]  
[byte-17] [byte-18] [byte-19] [byte-20]  
[byte-21] [byte-22] [byte-23] [byte-24]  
[byte-25] [byte-26] [byte-27] [byte-28]  
[byte-29] [byte-30] [byte-31] [byte-32]  
[byte-33] [byte-34] [byte-35] [byte-36]  
[byte-37] [byte-38] [byte-39] [byte-40]  
[byte-41]

bytes 01-24 for ADM-50

bytes 25-41 currently have no function



**Set values ADR20, ADR20B, ADR20E**

Byte	Uses	Set values	Comment
01	Floor	00-3F (0-63 decimal)	
02	Door	A=0, B=1, C=2	ADM must be restarted
03	Bus no.	0-7	ADM must be restarted
04	FST-Host ID	0RRR0LLL RRR="Right" FST, A=0, B=1 etc. LLL="Left" FST A=0, B=1 etc.	ADM must be restarted
05	Special	FST selection for ADM-20E A=0, B=1 etc.	
06	Config. bits	Bit 0=configured Bit 1=selectivity 1=ADM only for left FST Bit 2=arrow mode lock 0=FST menu 1="Arrow" Bit 3=arrow 0=direction 1=continue Bit 4,5=reserved Bit 6=occupied display option Bit 7=disabled option	› Must be set! › Normally '0'
07	Input pin 12	Bit 0-3=input function no. Bit 4=AutoRepeat Mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
08	Input pin 13	Bit 0-3=input function no. Bit 4=AutoRepeat Mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
09	Output pin 7,14	Bit 0-3=output function no. pin-14 Bit 4-7=output function no. pin-7	
10	Add. info	Input-function-dependent information	
11	Add. info	Input-function-dependent information	
12	Not used		

Pins 12 and 13 input function	Value (hex)	AutoRepeat	Comment
Fire mode	2	Yes	
Landing priority	3	No (standard)	
Remote shutdown	4	Yes	
Fire-recall selective	5	Yes	
Remote shutdown selective	6	Yes	Pin 12 function: byte 07 bit 5=FST select. 0=left FST; 1=right FST Pin 13 function: byte 08 bit 5= 0=left FST; 1=right FST
Smoke detector	7	Yes	
Landing priority selective	9	No (standard)	Byte 11 = FST mask, HGFEDCBA
Special function	A	No	Byte 11 = function number
Fire recall reset (SIA)	B	No	
Landing priority super	C	No (standard)	
Landing priority super selective	D	No (standard)	Byte 11 = FST mask, HGFEDCBA

**Set values ADR21, ADR22 (penthouse), ADR23 (bank)**

Byte	Uses	Set values	Comment
01	Floor	00-3F (0-63 decimal)	
02	Door	A=0, B=1, C=2	ADM must be restarted
03	Bus no.	0-7	ADM must be restarted
04	FST-Host ID	00000LLL LLL="Left" FST A=0, B=1 etc.	ADM must be restarted
05	Reserved		
06	Config. bits	Bit 0=configured Bit 1=selectivity 1=ADM only for left FST Bit 2=arrow mode lock 0=FST-menu 1= "Arrow" Bit 3=arrow 0=direction 1=continue Bit 4,5=EAZ Mode 0=hex 1=gray 2=1-of-N Bit 6=occupied display option Bit 7=disabled option	› Must be set! › Normally '0'
07	Input pin 12	Bit 0-3=input function no. Bit 4=AutoRepeat mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
08	Input pin 13	Bit 0-3=input function no. Bit 4=AutoRepeat mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
09	Output pin 7,14	Bit 0-3=output function no. pin 14 Bit 4-7=output function no. pin 7	
10	Add. info	Input-function-dependent information (pin 12)	
11	Add. info	Input-function-dependent information (pin 13)	
12	Not used		

Pins 12 and 13 input function	Value (hex)	AutoRepeat	Comment
Fire mode	2	Yes	
Landing priority	3	No (standard)	
Remote shutdown	4	Yes	
Fire-recall selective	5	Yes	
Remote shutdown selective	6	Yes	
Smoke detector	7	Yes	
Landing priority selective	9	No (standard)	Byte 11 = FST mask, HGFEDCBA
Special function	A	No	Byte 11 = function number
Fire recall reset (SIA)	B	No	
Landing priority super	C	No (standard)	

**Set values ADR30 / 31 (EAZ-256.40/64)**

Byte	Uses	Set values	Comment
01	Floor	00-3F (0-63 decimal)	
02	Door	A=0, B=1, C=2	ADM must be cold started afterwards
03	Bus no.	0-7	ADM must be cold started afterwards
04	FST-Host ID	00000LLL LLL="Left" FST A=0, B=1 etc.	ADM must be restarted
05	Reserved		
06	Config. bits	Bit 0=configured Bit 1=selectivity 1=ADM only for left FST Bit 2=arrow mode lock 0=FST menu 1= "arrow" Bit 3=arrow 0=direction 1=continue Bit 4,5=reserved Bit 6=reserved Bit 7=reserved	› Must be set! › Normally '0'
07	Input pin 8	Bit 0-3=input function no. Bit 4=AutoRepeat mode bit 5-7 reserved	In event of fire recall, set remote off 1.

Byte	Uses	Set values	Comment
08	Input pin 9	Bit 0-3=input function no. Bit 4=AutoRepeat mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
09	Reserved		
10	Add. info	Input-function-dependent information (pin 8)	
11	Reserved		
12	Not used		

Pins 8 and 9 input function	Value (hex)	AutoRepeat	Comment
Fire mode	2	Yes	
Landing priority	3	No (standard)	
Remote shutdown	4	Yes	
Fire-recall selective	5	Yes	
Remote shutdown selective	6	Yes	
Smoke detector	7	Yes	
Landing priority selective	9	No (standard)	Please enquire with NEW LIFT
Special function	A	No	Please enquire with NEW LIFT
Fire recall reset (SIA)	B	No	
Landing priority super	C	No (standard)	Please enquire with NEW LIFT

#### Set values ADR32 / 33 (EAZ-256.40/64)

Byte	Uses	Set values	Comment
01	Floor	00-3F (0-63 decimal)	
02	Door	A=0, B=1, C=2	ADM must be cold started afterwards
03	Bus no.	0-7	ADM must be cold started afterwards
04	FST-Host ID	00000LLL LLL="Left" FST A=0, B=1 etc.	ADM must be restarted
05	Reserved		
06	Config. bits	Bit 0=configured Bit 1=selectivity 1=ADM only for left FST Bit 2=arrow mode lock 0=FST menu 1="arrow" Bit 3=arrow 0=direction 1=continue Bit 4,5=reserved Bit 6=reserved Bit 7=reserved	› Must be set! › Normally '0'
07	Input pin 8	Bit 0-3=input function no. Bit 4=AutoRepeat mode bit 5-7 reserved	In event of fire recall, set remote off 1.
08	Input pin 9	Bit 0-3=input function no. Bit 4=AutoRepeat mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
09	Reserved		
10	Add. info	Input-function-dependent information (pin 8)	
11	Reserved		
12	Not used		

Pins 8 and 9 input function	Value (hex)	AutoRepeat	Comment
Fire mode	2	Yes	
Landing priority	3	No (standard)	
Remote shutdown	4	Yes	
Fire-recall selective	5	Yes	
Remote shutdown selective	6	Yes	
Smoke detector	7	Yes	
Landing priority selective	9	No (standard)	Please enquire with NEW LIFT
Special function	A	No	Please enquire with NEW LIFT
Fire recall reset (SIA)	B	No	

Pins 8 and 9 input function	Value (hex)	AutoRepeat	Comment
Landing priority super	C	No (standard)	Please enquire with NEW LIFT

### RIO-2 settings

Byte	RIO-2 as I/O module	RIO-2 as ASV module (pawl-control module)
3	08	00
4	10	10
5	01	01

### Set values SPK (Prg=SPK000xx)


Byte	Uses	Set values	Comment
1	FST-Host ID	FST A=0, B=1 etc.	ADM must be restarted

### ADR-50 settings (includes the functions of the ADR20,20E,21,22, and 23)

Byte	Uses	Set values	Comment
01	Floor	00-3F (0-63 decimal)	
02	Door	A=0, B=1, C=2	ADM must be restarted
03	Bus no.	0-7	ADM must be restarted
04	FST-Host ID	FST A...H = 00...07	ADM must be restarted
04	FST-Host ID	"Right, double" FST A...H = 0X...7X X = variable if the "left" FST host changes in "double" mode: A...H = X0...X7	ADM must be restarted
05	Reserved		
06	Config. bits	Bit 0=configured Bit 1=selectivity 1=ADM only for left FST Bit 2=arrow mode lock 0=FST-menu 1= "Arrow" Bit 3=arrow 0=direction 1=continue Bit 4,5=EAZ Mode 0=hex 1=gray 2=1-of-N Bit 6=occupied display option Bit 7=disabled option	› Must be set! › Normally '0'
07	Input pin 12	Bit 0-3=input function no. Bit 4=AutoRepeat mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
08	Input pin 13	Bit 0-3=input function no. Bit 4=AutoRepeat mode Bit 5-7 reserved	In event of fire recall, set remote off 1.
09	Output pin 7,14	Bit 0-3=output function no. pin 14 Bit 4-7=output function no. pin 7	
10	Add. info	Input-function-dependent information (pin 12)	
11	Add. info	Input-function-dependent information (pin 13)	
12	Add. info	For other configurations, see <i>LON Module Center</i>	

Pins 12 and 13 input function	Value (hex)	AutoRepeat	Comment
Fire mode	2	Yes	
Landing priority	3	No (standard)	
Remote shutdown	4	Yes	
Fire-recall selective	5	Yes	
Remote shutdown selective	6	Yes	
Smoke detector	7	Yes	
Landing priority selective	9	No (standard)	Byte 11 = FST mask, HGFEDCBA
Special function	A	No	Byte 11 = function number
Fire recall reset (SIA)	B	No	
Landing priority super	C	No (standard)	


## 8 Error list

The FST controller stores up to 100 event and error messages. These messages can be called up on the user interface of the FST (3 x ) , with the PC-Card or via remote data transmission at any time.

### LCD-Display

```
ERROR[00037/00040]
28.09 10:18:26 [012]
Door close failed
FLOOR:03 V00 R01 I00
```

A  
B  
C  
D

A	Event/error no. 37 of 40 total
B	Date / Time / Message Code
C	Text description of event/error
D	03: Floor V00: Generated signals (see "Position messages pos.: Virt=0b Real=00" on page 31) R01: Actual signals (see "Position messages pos.: Virt=0b Real=00" on page 31) I00= Information byte infobyte1 (page down to infobytes 2 ... 8 with  )

### 8.1 Error messages

Code	Message	Description	Reason
0	NO ERROR		
1	NMI	Major CPU error determined by watchdog supervision.	There may be a hardware error. In this case, the circuit board must be replaced.
3	EMERGENCY STOP-ON EMERGENCY STOP-OFF	"ON" and "OFF" states of the triggered emergency device are displayed. Interruption of the safety circuit before terminal FST X14.7. All safety circuit inputs are de-energized.	Check the safety circuit inputs.
4	RESTART	Restart of the FST application	Message occurs after resetting with the four-button combination, Editor Data File Upload
5	DRIVE-BOOT	Error during start up of drive process.	Internal error
6	DRIVE-WATCHDOG	Major CPU error in drive process area determined by watchdog supervision.	Internal error
7	DRIVE-XFER	Error during transmission of data relevant for drive process.	Internal error

Code	Message	Description	Reason
9	OPEN DOOR LOCK	Door contact open while the car is moving. Infobyte2: Safety circuit status: Bit 0 .. 2: not assigned Bit 3: emergency stop Bit 4: door contact C Bit 5: door contact B Bit 6: door contact A Bit 7: blocking agent ("0" = interrupted, "1" = closed)	The safety circuit of the door circuit was interrupted while the car was moving. Whether the interruption was caused by a car door or shaft door is encoded in Infobyte2.
10	MISSED TARGET	Upon arrival at the target floor, the programmed level position was exceeded or not reached	<ul style="list-style-type: none"> <li>› Drive is not working accurately or is load dependent.</li> <li>› Increase crawl distance (see "Global -" on page 114).</li> <li>› Carry out another calibration drive.</li> <li>› Check switch-off points prior to levelling (see "Floor -" on page 114).</li> </ul>
11	DOOR OPEN FAILED	Car door does not open. › Infobyte2: 0 = door A 1 = door B 2 = door C › Infobyte 3: 1 = door still closed 2 = door partially open	<ul style="list-style-type: none"> <li>› Check door drive.</li> <li>› Check wiring of the safety circuit.</li> <li>› Check operation of door relays on FSM.</li> <li>› Check operation of door end switches and jumpers FSM-2 J21, J31, J71, J81.</li> <li>› State of the safety circuit at the time of the error message is encoded in Infobyte 2.</li> </ul>
12	DOOR CLOSE FAILED	Car door does not close. › Infobyte2: 0 = door A 1 = door B 2 = door C › Infobyte 3: » 1 = completely open, OPEN end switch is active » 2 = does not close completely, CLOSE end switch does not activate	<ul style="list-style-type: none"> <li>› The car door is mechanically or electrically blocked.</li> <li>› Check operation of door relays on FSM.</li> <li>› Check operation of door end switches and jumpers FSM-2 J21, J31, J71, J81.</li> </ul>
13	DOOR LOCK RETRY CNT	Error during closing of doors. › Infobyte2: 0 = door A 1 = door B 2 = door C  The number of failed lock attempts is displayed under MAIN MENU / Doors / Doors-Basic / Lock fail.	The shaft door contact (lock) does not close even after n attempts.
14	DRM-START PROBLEM	The car does not start moving even with pre-selection active.	<ul style="list-style-type: none"> <li>› Check pre-selection relay on FST</li> <li>› Check control contactors of main brake and valve</li> <li>› Check motor, brake and valves</li> <li>› Speed of car much too low during start</li> </ul> Reset error with TEST MENU / Fault Reset.

Code	Message	Description	Reason
15	DRM-DRIVE MONITOR	Monitoring or drive error. No movement of the car could be determined during the drive. Reset TEST MENU / Fault Reset.	<ul style="list-style-type: none"> <li>› The encoder position does not change even with pre-selection active.</li> <li>› The drive does not move.</li> <li>› No electric connection to encoder.</li> <li>› The encoder is faulty.</li> </ul>
16	DRM-ENCODER FAILURE	Plausibility testing of car position with the encoder is faulty. Reset error with TEST MENU / Fault Reset.	<ul style="list-style-type: none"> <li>› The encoder is faulty.</li> <li>› Check electric connection of the encoder.</li> <li>› During commissioning: check direction of rotation of the encoder and execute Set floor 0.</li> <li>› Encoder value is outside of the shaft range.</li> <li>› Encoder unplugged or plugged in while controller switched on</li> </ul>
17	DRM-CAR COMMS FAIL	Communication between the FST-Controller and the FSM-2 car top control module is faulty.	<ul style="list-style-type: none"> <li>› Plug-in connections of the trailing ribbon cable are not plugged or are loose.</li> <li>› Line break in trailing ribbon cable.</li> <li>› Car top control module FSM-2 defective.</li> <li>› Check jumper settings JK1, JK2, JK3 on the car top control module.</li> <li>› Temporary short circuit on the car bus, cable, FPM, EAZ, etc.; <i>see car bus topology</i></li> </ul>
18	DRM-END FLOOR SPEED	Reset TEST MENU / Fault Reset.	The delay control circuit at the top and bottom end floors has triggered.
19	DRM-MISSING ZONE	No zone message available. Reset TEST MENU / Fault Reset.	<ul style="list-style-type: none"> <li>› The car has reached a level position but does not receive a zone message from the safety device.</li> <li>› Check safety device and zone magnet switches.</li> </ul>
20	DRM-BRAKE FAILURE	The brakes do not react or cannot be released. Reset TEST MENU / Fault Reset.	<ul style="list-style-type: none"> <li>› The brake does not release even with pre-selection active.</li> <li>› The brake does not close even with the car stopped.</li> </ul> <p>Monitoring via input FST X1.19, X1.20 (<i>see „5.4 MAIN MENU - Drive“ page 88</i>) - <i>Brake Monitoring.</i></p>
21	DRM-MOTOR FAILURE	Temperature monitoring of the drive has triggered.	<p>Motor overheated.</p> <p>Monitoring via input FST X1.22 (<i>see „5.4 MAIN MENU - Drive“ page 88</i>) - <i>Drive Page.</i></p>
22	DRM-FORCED STOP	Input signal "Forced Stop" was active at a programmable input. The car is brought to a standstill with open door on the floor.	Refer to the order-specific wiring diagrams to determine which signal triggered the forced stop ( <i>see chapter (see „6.3 Programmable I/O ports“ page 139).</i>
23	DRM-EMERG.LIMIT SW	Overtravel of the bottom floor (rope lifts) or highest floor (hydraulic lifts) according to EN81. Reset TEST MENU / Fault Reset.	The lower or upper emergency end switch has triggered. The contact is queried by terminal FST X14.6 ("TC"). Or alternatively via I/O port 0000000DA.

Code	Message	Description	Reason
24	DRM-DOOR FAILURE-	The car door cannot be moved. Reset TEST MENU / Fault Reset. See DRM-Door menu item.	In spite of active door control, the car door does not move; the control stops the lift.
25	DRM CONTACTOR MONIT.	Contactor monitoring has triggered.	Terminal FST X1.23 must be supplied with 24V while at a stand- still. Check circuit according to wiring diagram. Possibly increase contactor monitoring time param- eter (see „5.4 MAIN MENU - Drive“ page 88) - Contactor Monitoring.
26	DRM-SPECIAL I/O-PORT	The special function monitored by a programmed input "Special I/O- Port" has failed.	One of the terminals X1.4 ... X1.11 is occupied with function "Special I/O port" (see wiring diagram). Check the switching sequence of this input. This is generally the contact of the speed-limiter anti- creep device or auxiliary brake.
27	SLIP OUTSIDE LEVEL	Unexpected car movement out of the stopping position.	Car moves outside of the level range due to heavy loading or unloading. The Positioning/Floor/ Level UP/DOWN level edges are set too small due to Ve that is calibrated too small.
28	SLIP OUTSIDE ZONE	Unexpected car movement out of the zone.	Car moves outside of the zone range.
29	DRIVE: CHKSUM-ERROR	Error during transmission of drive data from/to drive processor	Internal error
30	BUS-I/F TIMEOUT	Fault in LON-bus interface.	Internal error
31	START-ABORT	Drive start sequence cancelled.	The drive cannot be started. No return signals from drive or signals delayed: › See FST X1.19, X1.20 brake monitoring. › See FST X1.11 wiring diagram › (see „5.4 MAIN MENU - Drive“ page 88) - Brake Delay.
32	STOP-ABORT	Drive stop sequence cancelled.	The drive cannot be stopped. No return signals from drive or signals delayed: › See FST X1.19, X1.20 brake monitoring. › (see „5.4 MAIN MENU - Drive“ page 88) - Brake Delay.
33	RELEVELLING ABORT	An error has occurred during relev- elling and the re-levelling process was cancelled.	› Check drive and pre-selection. › Check safety circuit bypass control. › Check bypass relay FST K20. › (see „5.9 MAIN MENU - Doors“ page 130) - Bypass t-Off.
34	BYPASS FAILURE	Safety circuit bypass not available despite zone message.	› Check FST K20. › Check wiring of the safety circuit. › Check the safety circuit bypass control. › (see „5.9 MAIN MENU - Doors“ page 130)



Code	Message	Description	Reason
35	DOOR LOCK TIMEOUT	The set door lock timeout is not long enough.	The car door is closed but the lock contact has not closed in the specified time. › Perform mechanical check of shaft doors (smooth running). › Check door lock contacts. › Increase door lock timeout (see "Door lock timeout" in chapter (see „5.9 MAIN MENU - Doors“ page 130)
36	CAR LIGHT FAILURE	Sensor on FSM-2 reports defective car lighting.	Check car lighting. Check sensor on FSM-2 (jumper J112).
37	REGULATOR ERROR-	Error message from frequency inverter when using serially controlled inverters.	Check error list of the frequency inverter. The number of the regulator error corresponds to the error code in the documentation of the frequency inverter.
38	REFILL PUMP TIMEOUT	Error during refilling of the hydraulic counterweight.	The cut-off pressure for refilling was not reached after 30 sec. Check function and control of the refill valve.
39	SAFETY CURTAIN BRK.	The safety curtain was interrupted while the car was moving.	Check function and control of the safety curtain (see "Light curtain" in chapter (see „5.9 MAIN MENU - Doors“ page 130).
40	SAFETY CURTAIN FAIL	Error during test of safety curtain.	The FST controller outputs a test signal to the FSM-2 X7 or X9 for the safety curtain prior to each drive. The safety curtain acknowledges the test signal with an interruption of the safety circuit. › Check operation of the safety curtain test. › Check the length of the test pulse under MAIN MENU - Doors - Doors-Basic - SAFETY CURTAIN FAIL (see „5.9 MAIN MENU - Doors“ page 130) - SAFETY CURTAIN FAIL
41	DRIVE-SERIAL OFF	No serial connection to the frequency inverter (FST X11, DCP)	› Check connection cable between FST X11 and frequency inverter. › Check settings in frequency inverter (DCP03).
42	DRIVE-SERIAL BAD	Serial connection to the frequency inverter is faulty (FST X11, DCP)	› Check connection cable between FST X11 and frequency inverter. › Check shielding of connection cable.
43	UPS FAILURE-OFF UPS FAILURE-ON	State change at programmable input "UPS FAILURE" for monitoring a UPS error message	Check function of the UPS.
44	APRON CONTACT FAIL	The apron cannot be folded in.	Check mechanics, contact or I/O port with setting 000014F2.
45	EMERG.HALT TEST FAIL	The emergency stop test for inclined lifts has failed.	
46	UNEXPECTED STOP	Error in DCP communication between FST and frequency inverter.	Error in frequency inverter, DCP cable or FST. Or EMC problems caused by faulty motor brake resistor or DCP cable shielding and connection.

Code	Message	Description	Reason
47	ASV ERROR-	Error in controlling the pawl-control.	Check signal interface of the pawl-control ( <i>see system description of the pawl-control</i> ).
48	MOTOR-ROOM OVERHEAT	The thermostat in the motor room has triggered (temperature > 40 °C).	Monitoring via terminal FST X1.16.
49	REVISION TOO FAST	Inspection speed or auxiliary speed over 800 mm/s.	Check drive speeds and shaft positioning.
50	FAST-START DOOR SW.	The quick start door "almost closed" switch closed too early.	Check door switch
51	DRM-ZONE BRIDGED	No movement was detected in the door zone switch during the last drive.	Door zone switches A and B are permanently connected to 24 V.
52	SAFETY CCT BRIDGED	During the last arrival and door opening, the safety circuit did not open.	Check door lock/door switch safety circuit.
53	DRM-CMM FAILURE	"Critical Module Monitoring" does not receive feedback from one of the modules.	The list number of the missing module is in the info byte. This can be displayed in Show-LON-Modules.
54	DRM-BELT SLIPPAGE	Toothed belt monitoring has triggered. The toothed belt has slipped more than 100 mm.	› Check tension of toothed belt. › Check toothed belt and wheel for dirt deposits.
55	WRONG ENCODER DIR.	During a learn or calibration drive: encoder position moves against the controlled direction.	› Change / Positioning / Global / Direction to other direction. › Check connections from the drive.
56	DRM-AUXILIARY BRAKE	Error at auxiliary brake monitoring contact.	› Check monitoring contacts › Extend / Drive / Aux. Brake Max Time.
57	DRM-RELEVEL.TIMEOUT	The maximum allowed releveling time of 60 sec. has been exceeded.	Check drive.
58	ROPE-TENSION-ERROR	Input port signal contact has triggered.	Input port is only used for signalling.
59	LCS DATA MISSING	FST does not receive load measurement from LCS.	Check LCS and, if applicable, jumper on LCS.
60	DRM LITHIUM BATTERY	Voltage of lithium button cells dropped below < 2.58V. This message, which can be individually set by the user, must be enabled with MISCEL-9=01000000. This message results in the installation being shut down!	Check the FST onboard lithium button cell for secure seating; otherwise replace. See also event message 141 BATTERY EMPTY. Both messages are caused by insufficient lithium battery voltage.
61	DRM PROGRAMMABLE 1	Freely programmable error message under System/Factory Menu/DRM-Program1:Texts Triggered via an I/O port	Check the signal on an I/O port or the set function under Config/I/O Configuration/I/O Ports with value XXXX39F2 X= custom value
62	DRM-PROGRAMMABLE 2	Freely programmable error message under System/Factory Menu/DRM-Program2:Texts Triggered via an I/O port	Check the signal on an I/O port or the set function under Config/I/O Configuration/I/O Ports with value XXX139F2 X= custom value

Code	Message	Description	Reason
63	DRM-PROGRAMMABLE 3	Freely programmable error message under System/Factory Menu/DRM-Program3:Texts triggered via an I/O port	Check the signal on an I/O port or the set function under Config/I/O Configuration/I/O Ports with value XXX239F2 X= custom value
64	DRM-DRIVE ERROR	The monitoring contact of the drive (X1.21 NC) has switched on. By default, the regulator fault alarm contact (inverter or similar) is connected here.	Check regulator. If no fault alarm contact is connected, monitoring must be switched off under Drive/Antriebsueberwachung9. = NO
65	PRE-SELECTION RELAY ERROR	Current measurement of the coils of the K0-K12 pre-selection relay faulty.	Check relay K0-K12 or the used relay (depending on drive types) for secure seating; otherwise replace because coil is defective
66	DRM UCM-A3 ERROR	Detection of an uncontrolled car movement with open door! This message appears depending on the door position and car speed and position. Possible serious error in the drive, hydraulic unit, regulation and/or control area! See also the "UCM-A3" manual.	With an open door, car has › exceeded the UCM-A3 zone, UCM-A3 zone = zone range of magnet switch S27/28 › or, within the UCM-A3 zone, exceeded the speed of 0.2m/s for 102ms from standstill, › or the drive-brake or valve system is to be checked for errors.
67	DRM A3-DRIVE ERROR	The feedback from the monitoring contacts of the actuator (e.g., holding brake or valve) is faulty. Error can only be reset with TEST MENU/UCM-A3 Fehl.Reset! See also the "UCM-A3" manual.	Signal sequence at terminals FST X1:19 and X1:20 is incorrect. Actuator or feedback contacts are faulty.
68	DRM ANTI-CREEP DEVICE	The response (check during start and stop of the drive) from the anti-creep device on I/O port 00003FF2 "Terminal open" is exceeded after 3 seconds of activation or 000040F2 "error message at clamping fixture". Error results in opening of the door and blocking of the lift.	Check signal sequence on the ports. Clamping fixture or feedback contacts are faulty. Fault alarm contact of anti-creep device tripped.
69	DRM INSP.END SWITCH	Optional monitoring of the mechanical inspection end switches through I/O port 000142F2 for TC or 000042F2 BC floor tripped.	Check signal sequence on the ports. Switching cam or feedback contacts are faulty or do not switch in the defined range. Defined range TC = from middle of next-to-last to last floor. BC = analogous to TC.
70	DRM Re-levelling monitoring	10 re-levellings must be performed in the maximum allowed time, otherwise the car is brought to a standstill on the highest floor with the error message DRM Re-levelling monitoring	Check the holding brakes because the holding force is too low.
71	DRM Anti Creep		
72	Bypass Failure		
73	DRM Headroom		
74	DRM Safety Gear (Dn) DRM Safety Gear (Up) DRM Safety Gear (-)	Safety gear, whose evaluation runs via an I/O port, has triggered. The ridden direction is displayed when the error occurred	Safety gear has activated

Code	Message	Description	Reason
75	DRM-Speed Governor	Speed limiter, whose evaluation runs via an I/O port, has triggered.	Speed limiter has activated
76	DRM-Photocell ERR	<p>The level change at the photocell input of the FSM-2 did not take place after voltage has been switched off.</p> <p>This leads to a malfunction of the photocell.</p> <p>By reducing kinetic closing force of the car door and the acoustic sounding of a signal the further operation of the system is possible.</p> <p>The info byte indicates the door side: 1=A; 2=B; 4=C Bits are combinable</p>	<ul style="list-style-type: none"> <li>- Testing of the wiring in regard to wire breakage</li> <li>- Check the shutdown of the light curtain</li> <li>- Set the light curtain</li> <li>- Replace the light curtain</li> </ul>
77	DRM-Door Bridged	<p>It was detected that a door circuit is bridged.</p> <p>This may be the blocking agent circuit, the car doors circuit or the end switch DOOR CLOSE of the door drive.</p> <p>The info byte indicates the door side: 0=A; 1=B; 2=C</p>	<p>Check the blocking agent circuit or the car doors circuit for possible bridging.</p> <p>Check the end switch DOOR CLOSE.</p>
78	Glass Door Stopped	<p>During the door opening the reversing contact of the door controller has triggered.</p> <p>The info byte indicates the door side: 0=A; 1=B; 2=C</p>	<ul style="list-style-type: none"> <li>- There are some objects in the landing or car doors.</li> <li>- Sluggishly closing door, mechanical adjustment required.</li> <li>- Check the electrical connection of the reversing contact.</li> <li>- Check the parameter of the door controller</li> </ul>

## 8.2 Event messages

Code	Message	Description	Reason
128	COLDSTART	Restart of FST-Controller	<ul style="list-style-type: none"> <li>› FST-2-Controller was switched off and on again on the fuse or the main switch.</li> <li>› Power failure</li> <li>› All four arrow buttons were pressed simultaneously.</li> <li>› Menu item FST-Reset was performed.</li> </ul>
129	INSPECTION-ON INSPECTION-OFF	Inspection work is being carried out.	The inspection switch on the car roof is set to INSPECTION or no safety circuit interruption follows.
131	POWER LOST	Failure of the 24 V power supply.	System was switched off or power supply defective.
132	REMOTE RESET	The FST controller was reset by the GST Group Controller.	The FST controller was reset through the serial interface.
133	CALIBRATION-START CALIBRATION-OK! CALIBRATION-ABORT!	Calibration progress is displayed.	A calibration drive was triggered.
134	LEARN DRIVE-START LEARN DRIVE--OK! LEARN DRIVE-ABORT!	Learn drive progress is displayed.	A learn drive was triggered.
135	SOFTWARE UPDATE	FST software update was performed via USB stick.	Action by user
136	EVACUATION-ON EVACUATION-OFF EVACUATION-OK	An evacuation drive was carried out.	Evacuation signal on a programmable I/O port was active.
137	DRIVE-SERIAL OK	DCP-interface X12 in operation.	The serial DCP-interface X11 between FST and frequency inverter was initialised without error (e.g. after being switched on).
138	MONITOR SIGNAL-ON MONITOR SIGNAL-OFF	State change at programmable input "Monitor"	The programmable input "Monitor" has changed its state. This input can be used to enter the status change of an arbitrary signal in the error list (see „6.3 Programmable I/O ports“ page 139).
139	APRON OUT-ON APRON OUT-OFF	State change at input "Apron monitoring".	For very small shaft pits, the state of the electrically monitored apron is registered as a message in the error list.
140	ORIENTATION	Orientation drive during incremental positioning.	<ul style="list-style-type: none"> <li>› Power failure for non-level car</li> <li>› Serious inconsistency in magnet switch states TC, BC and Zone B.</li> </ul>
141	BATTERY EMPTY	Voltage of lithium button cells dropped below < 2.58V.	Check the FST onboard lithium button cell for secure seating; otherwise replace.
142	AUXILIARY-ON AUXILIARY-OFF	Auxiliary mode control was switched on and off.	The auxiliary mode switch in the control cabinet was actuated.
143	FIREMAN MODE-ON FIREMAN MODE-OFF	Fire recall was switched on or off.	<ul style="list-style-type: none"> <li>› Fire recall received at FST, RIO or ADM.</li> <li>› FIREMAN MODE-OFF is always displayed if fire-recall I/O ports are used (normally closed contacts).</li> </ul>

Code	Message	Description	Reason
144	ENCODER RE-ALIGNED	Toothed belt monitoring for absolute positioning: Automatic correction has occurred Positioning/Global/Enc. Belt Mon. = ON	If the read position of an upward drive from the bottom floor is different from the reference position of the zone signal. The shaft table was shifted accordingly.
145	LCS-DRIFT-ADJUSTMENT	Load measuring system LCS automatically performed an empty load calibration. Config/Weight Sensor/LCS Settings/Auto-Adjustments/Drift Compensation = YES	A constant additional load in excess of 30 kg has been present in the car for more than 2 hours.
146	BLDG. AUTOM. STATUS	I/O-Port "GLT-signals" can be used to display changes for external signals in the event list of the FST. I/O-Port=000n34F2 n=0...9, A...F Placeholder n is registered in infobyte 1 of the event list.	Change of the signal status from inactive to active.
147	ARREST TEST ACTIVATED	Message appears from the time of activation of the remote triggering of the speed limiter	Action triggered by the user under TEST MENU/FangTest-Automatik or Immediate arrest test.
148	A3 ACTUATOR TEST OK!	The ten test drives for the function check of the self-monitoring with A3 actuators (e.g., holding brake or valves) were successfully completed. See UCM-A3 manual	Action triggered by user under TEST MENU/UCM-A3 Test Aktor
149	currently without function		
150	currently without function		
151	Bypass Switch On Bypass Switch Off	Bypass Switch in the controller cabinet was switched in position NORMAL, SP, FK or DT.	Action by USER with triangle key.

## 9 Index

### A

Abbreviations 6

ADM

Bus masks 95, 109

Anti-nuisance function 96

Attendant operation 25, 109, 122

Automatic test drive 91 see test drive 92, 133

### B

Backup 124

Background music 101

Bank-control 104

Bit calculation 136

Blocking agent see Lock

Brake monitoring 86

Buffer test 133

Bus see LON bus

Bus cable 68

Bus plan 42

Buttons 13, 18

### C

Calibration drive 25, 86

Cam delay 128

Car priority 26, 144

Car ventilator 96, 109

Car lighting 96

Car light see car lighting

Car-operate-panel 97

Car top control module 59  
State 29

Chain compensation 99

Chime functions 95

Clock see time

CMM 6, 28, 92

Colour code

Bus cable 68

Travelling cable 69

Contactor monitoring 86, 162

Counter

Service 84

Crawl distance 114

### D

Date 123

Debounce value 144

Departure arrow 107

Destination call 151

Diagnostic messages 27

Doors 128

Door times 126

Door test 106

Down-valve shutoff 87  
DRM  
DRM test 38, 133  
Drive  
    Type 86  
    States 30  
Drive optimisation 86, 89  
Drift compensation 100

## E

EAZ configuration 94, 95  
Empty load 96, 99  
Emergency stop 24, 50, 87  
End switch 25-26, 60, 107, 130  
End switch test 20, 141  
Energy-saving mode 106  
EN 81-20 80, 126  
Error  
    Error list 15, 84, 158  
    Error message 159  
ESM see energy-saving mode  
Evacuation  
    Switch 14, 21  
    Function 23, 106, 148

## I

I/O configuration 93  
I/O ports 28, 93, 135, 144  
Input function see I/O Ports  
Installation mode 26, 90, 144

## F

Factory number 95  
Fire service standard 25, 98  
Fireman options 98  
Fire main floor 98  
Fireman mode 99, 109, 144, 167  
Filter setting 123  
Flat travelling cables see travelling cables  
Flag 135, 142  
Floor  
    Level position 27, 114  
    Pseudo floor 103, 116  
    setting  
    blocking  
    Zone  
Floor locking 151  
    LMS 92  
    bypassing 125  
FPM see car operating panel module  
FSM  
FSM-2 see car top control module  
Full load 100, 144  
Function  
    Loading function 103, 110

## G

Group settings 95  
GST



menu 95

## H

Hidden menus 70, 124

Homing time 87

## I

Incremental positioning 29, 116-118

Information

Information page 13, 40

Info texts 37

## J

Jumpers 60

FSM-2 61

FST-2 XT/s 48

## L

Lag time 102, 144

Landing priority 26, 90  
function 140

Landing call 25, 139

Language 123

LCD-display 24

LCS 98

Learn drive 90, 167

LEDs 41  50, 61  
FSM-2 59

Level adjustment 115, 117

Level position 22, 114, 116

Lift ID-Name 95

Lift ID-Nummer 95

Light curtain 130, 147

Lift-boy see attendant operation

Line A 24

Line B 25

Line C 27

Line D 36

Loading function 110

Loading program 110

Load control system 100

Lobby stop 103, 112

LON bus 68

LON configuration 92

LON-modules 102, 124, 128

Lock 83, 131

## M

Main menu 83

Drive 86

Config 90

Positioning 114

Calls 121

Service 84

Blocking 83

System 123

Doors 128

Manual door 130

Messages 24, 25, 27, 36  
Menu 15, 71  
    Hidden menus 71, 124  
Misuse  
    Emergency call 96, 149  
Modem 92  
Motor run-on see stopping time

## N

Nudge 129, 131  
Nudging 39, 129, 147

## O

Open hold time 130-132  
Opening time 129-131  
Output function 135 see I/O Ports  
Overload 52, 88, 110


## P

Panel test 126  
Park drive 91, 107, 144  
Park drive program 91, 107  
Password setting 83  
Password 123  
Pawl-control 87, 88  
    States 35  
Photocell 125, 126  
Pin 34 function 110  
Priority  
    Landing see landing priority  
    Car see car priority  
Programming 135  
Position indicator 141  
    dimming  
    configuration  
Pseudo floor 141

## Q

Quick start 88

## R

Ramp drive 105  
RAW register 136  
Recorder 123  
Recording 123  
Recording filter 127  
Re-levelling 86, 88  
Relevelling see re-levelling  
Remote entry 104  
Remote shutdown 33, 102, 147  
Resolution of absolute encoder 114  
Reset 21  24, 39, 99  
Reversing time 131

## S

Safety circuit messages 24

Safety curtain 26, 99, 163  
Safety circuit bypass control 51  
Safety levels 106 SAM 101  
Safety instructions 8  
Shaft positioning 27, 49  
    Definition 49  
    Incremental 54, 49, 114-116  
    Parameters 118  
    Type 118  
Sel. door-security 105, 112  
Service counter 83  
Security circuit  
    States 19  
Sockets 52-58  
    FSM-2 62-67  
    FST-2XT/s 52-61  
Special parameters 88  
Special call 121  
Speech output 101  
Speech output codes 110  
Special drive  
    function 148  
Start method 87  
Stopping time  
    Drive 86  
State messages 25  
Statistics 123  
Status messages 27  
Super priority 91

## T

Terminal strips  
    FST-2XT/s 52  
Terminal strips  
    FSM-2 62  
Test  
    End switch 25  
    DRM 6, 26  
    Buffer 107, 133  
    Deceleration monitoring 133  
    Test drive 91, 133  
Test menu 15, 133  
Time 88  
Travelling cable 69

## U

Update 37, 123, 128

## V

Valve time 87  
Ventilator see car ventilator  
VIP mode 113  
Volume 101

## W

Weight sensor 101 see load control system

## Z

Zone 23, 51, 114

Manual FST-2XT FST-2XTs

## 10 Certificates

Attached to the following pages you will find

- › For FST 5 00 (FST-2XT) and FSM 5 20 (FSM-2)
  - » Examination Certificate
  - » Annex to Examination Certificate
  - » Declaration of Conformity
  
- › For FST 51 00 (FST-2XTs) and FSM 5 20 (FSM-2)
  - » Examination Certificate
  - » Annex to Examination Certificate
  - » Declaration of Conformity

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ CERTIFICADO ◆ CERTIFICAT



Industrie Service

## EU-TYPE EXAMINATION CERTIFICATE

According to Annex IV, Part A of Directive 2014/33/EU

<b>Certificate No.:</b>	EU-ESD 023
<b>Certification Body of the Notified Body:</b>	TÜV SÜD Industrie Service GmbH Westendstr. 199 80686 München - Germany Identification number 0036
<b>Certificate holder:</b>	NEW LIFT GmbH Lochhamer Schlag 8 82166 Gräfelfing - Germany
<b>Manufacturer of the Test Sample:</b>	NEW LIFT GmbH Lochhamer Schlag 8 82166 Gräfelfing - Germany
<b>Product:</b>	Printed circuit boards "FST-2XT" and "FSM-2" with electronic components, taps in the safety circuit and safety circuit bypass control as well as subsystem against unintended car movement
<b>Type:</b>	FST 5 00 (FST-2XT) and FSM 5 20 (FSM-2)
<b>Directive:</b>	2014/33/EU
<b>Test basis:</b>	- Directive 2014/33/EU dated 2014-02-26 Annex I - EN 81-1/2:1998+A3:2009 (D) - EN 81-20:2014 (D) - EN 81-50:2014 (D)
<b>Test report:</b>	EU-ESD 023 dated 2016-10-04
<b>Outcome:</b>	The safety component conforms to the essential health and safety requirements of the mentioned Directive as long as the requirements of the annex of this certificate are kept.
<b>Date of issue:</b>	2016-10-04
<b>Date of translation:</b>	2017-03-28

  
Achim Janocha

Certification Body "lifts and cranes"



TUV®

**Enclosure to the EU-Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**



Industrie Service

**Authorised Manufacturer of Serial Production – Production Sites (valid from: 2016-10-04):**

**Company:** NEW *LIFT* GmbH  
**Address:** Lochhammer Schlag 8  
D-82166 Gräfelfing  
Germany

- END OF DOCUMENT -

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**

Industrie Service

**1 Scope of application**

The test items are the FST 5 00 (FST-2XT) printed circuit board as "lift control system" and FSM 5 20 (FSM-2) printed circuit board as "car top control module" with electronic components, taps in the safety circuit and safety circuit bypass control (FST 5 00) as well as subsystem as element for detecting unintended car movement. Also tested are the clearance and creepage distances of the FST 5 00 and the FSM 5 20 as well as the safety circuit scan control of the FST 5 00.

**1.1 Function of the safety circuit**

The safety circuit bypass control consists of the K21, K22 and K23 safety relays.

The SHS\_ZOFR (+24V) zone release signal must be activated by the controller. A zone release is active if necessary, i.e., if the controller is to open the car door on the corresponding floor.

First, K21 must be energized; for this purpose, K20, K22 and K23 must be de-energized. K21 holds itself as long as K20 is not energized and there is a zone release.

K23 can only be energized after K21 if zone switch B closes. K23 holds itself as long as zone switch B is closed.

K22 can be energized after K23 and K21 if zone switch A closes. K22 holds itself as long as zone switch A is closed.

If K23 and K22 are energized, K20 can also be energized as soon as the controller starts the bypass release (0V). This, however, only occurs as needed and if the car speed is <0.3m/s. Not until K20 energizes does K21 de-energize. The door bypass is now active and remains so until the bypass release is cancelled and K20 is de-energized again.

K22 and K23 are not de-energized until switches A and B are opened again due to a drive outside of the door zone. – Only if both relays are de-energized can another cycle begin by energizing K21 as soon as the controller switches a renewed zone release. Transistor T2 is used for resetting relay K22 after a power failure.

In the event of failure of the operating voltage, zone switch A continues to be supplied via auxiliary power supply HSG, allowing the door zone to be detected should freeing be necessary. At the same time, T2 switches K22 and K23 off so that when the operating voltage is restored, the switching sequences can be completed as described.



Industrie Service

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**

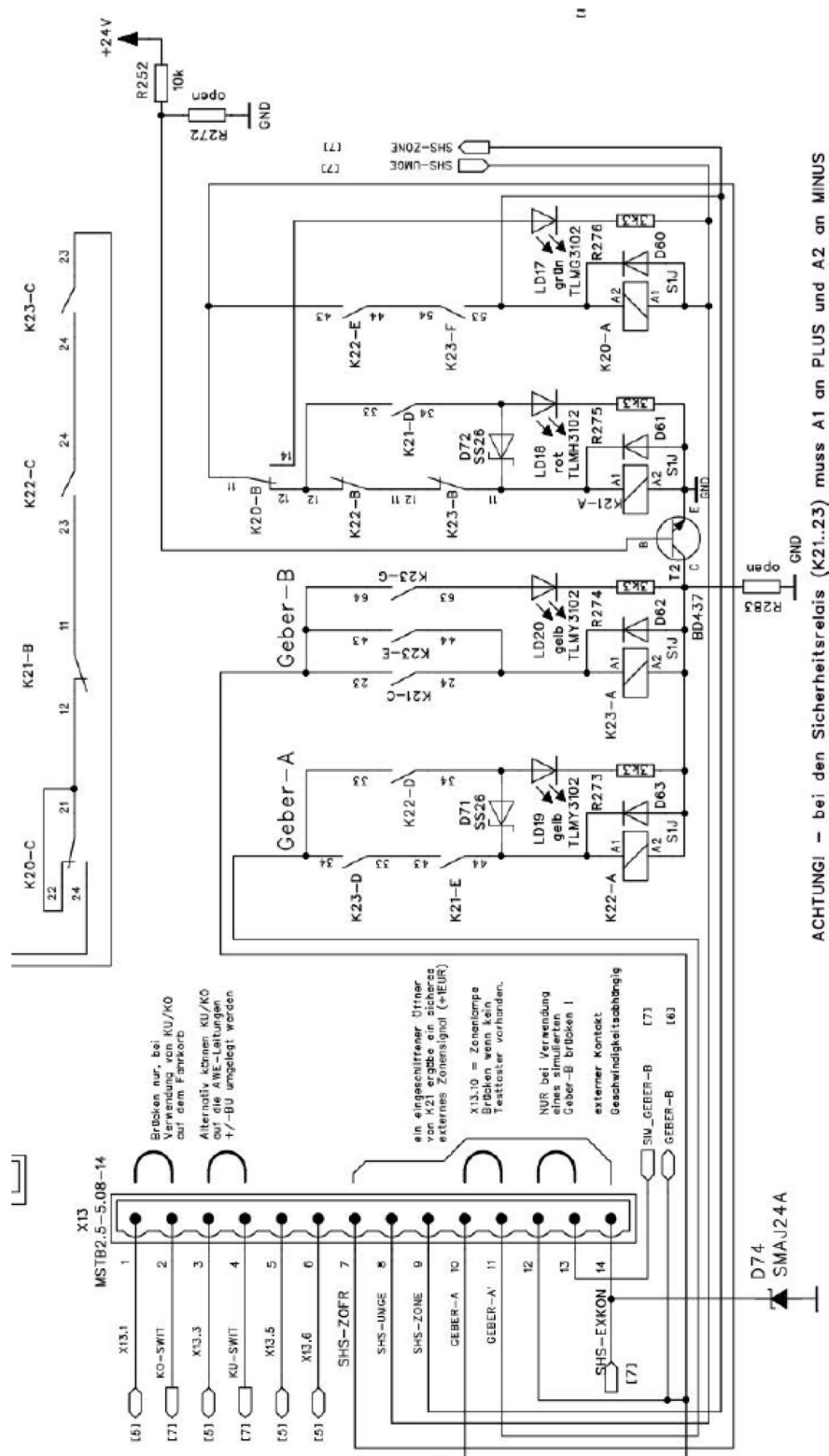


Figure 1: Portion of the wiring diagram for the control system of the door zone bypass





## Industrie Service

**Annex to the EU Type Examination Certificate**  
**No. EU-ESD 023 of 2016-10-04**

Depicted on the following page is the wiring diagram of the safety circuit scan control and safety circuit bypass control (figure 2).

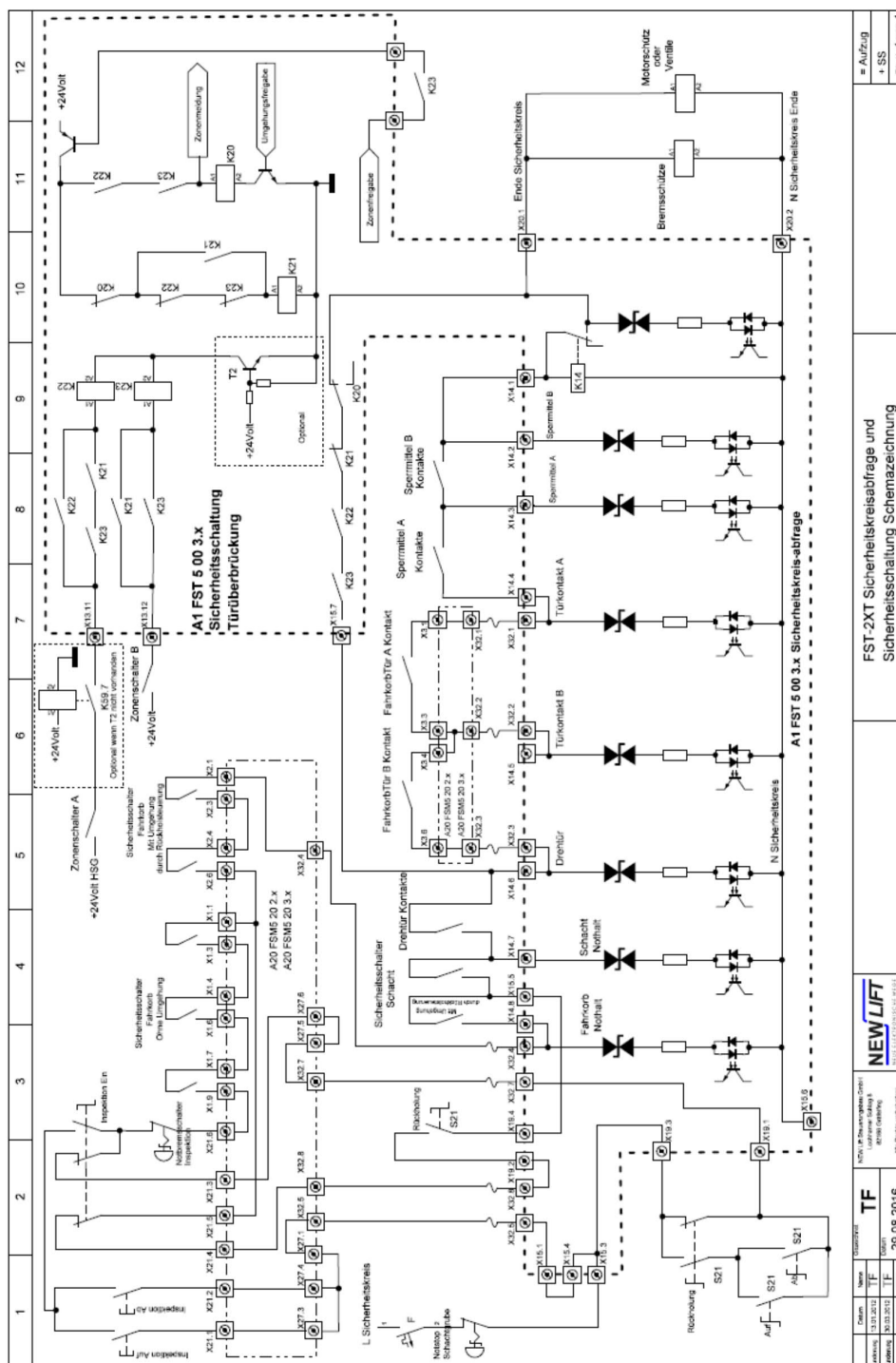


Figure 2: Wiring diagram of the safety circuit scan control and safety circuit bypass control Type FST-2XT

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**



Industrie Service

**1.2 Description of the function against unintended car movement**

For the device as a detecting and, if necessary, triggering element: if combined with a braking element tested in accordance with A3, e.g., in the form

- a) of a drive brake for electrically operated rope lifts,
- b) of a safety valve or similar for hydraulically driven lifts, this can represent the detecting as well as the triggering element of the entire protective device against the unintended movement of the car. If, on the other hand, the device is combined with a braking element tested in accordance with A3, e.g., in the form
- c) of a double-acting safety gear/braking device triggered by a speed limiter tested in accordance with A3 as a triggering element – for both electrically operated rope lifts as well as with hydraulically driven lifts – this can only represent the detecting element of the entire protective device against the unintended movement of the car.

**1.2.1 Electrically operated passenger and freight lifts**

The safety circuit bypass control is only activated by the control system if firstly the target floor has been reached and secondly the measured car speed is  $\leq 0.2$  m/s.

The safety circuit bypass control, when triggered, i.e.,

- if the door zone (defined by two magnet switches) is exited as well as
- before the door zone is exited with a speed of  $\geq 0.2$  m/s with unlocked landing door and/or open car door,

ensures a safe shutdown of the downstream drive components and, subsequently,

- either the triggering of the braking element according to cases (a.) and (b.) in the comment of the previous section
- or the activation of the triggering element of the protective device against the unintended car movement in cases of the combination specified in (c). of the previous section.

The car speed is detected by the control system via the encoder of the shaft positioning system. For additional safety (redundancy), a speed-dependent contact of the frequency inverter is integrated at the terminals of the control system – A1:X13.7 and A1:X13.14. It is thereby ensured that the safety circuit bypass control is also inactive (safety circuit open) if the frequency inverter detects a car speed of more than 0.2 m/s.

**1.2.2 Hydraulically operated passenger and freight lifts**

In principle, the function is identical to that of electrically operated passenger and freight lifts (electrically operated rope lifts), but without monitoring of the car speed.

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**



Industrie Service

**1.2.3 Electrically as well as hydraulically operated passenger and freight lifts**

In order to adhere to the permissible total stopping distance in the case of an unintended car movement, the length of the door zone must be limited depending on the installation and its maximum length calculated during the course of planning the lift system.

For the device in question, the reaction times of the detecting element (sensors and their control system) as well as the reaction times and reaction distances of the triggering element and those of the braking element(s) in addition to the maximum possible acceleration by the drive in the event of an error (if applicable) and the mass ratios and other factors that influence the movement of the lift system (compensation tools, rope lengths depending on the type of rope arrangement and drive arrangement,...) are known for this purpose.

The calculated, maximum door zone size must be entered in the menu of the control system during commissioning. During the automatic learn drive, the actually specified door zone lengths are automatically checked for correctness at all floors by the control system.

During tests of the lift system in the course of the conformity assessment procedure, tests "UCM-A3 test upward" and "UCM-A3 test downward" are to be performed in the test menu of the FST controller.

This ensures that the UCM case is performed with the assistance of the UCM test relay under safe conditions, i.e., with closed car door and locked landing door.

Both UCM cases, the "exiting of the door zone" as well as "excessive speed" (only for electrically operated lifts with rope drive) with open car door(s) and/or unlocked landing door(s), are detected by the control system. The lift system is brought to a standstill with the "LSU-UCM-A3 Error" error message and can only be put back into operation by resetting the error message in the control system menu by a competent person.

In the case of a power failure, the "LSU-UCM-A3 Error" is stored and prevents the installation from being operated upon restoration of power.

Designation		Detection time
FST-2XT safety circuit bypass control	Electr./mech. switching	10 ms
Contactor for brake / valves	Siemens 3RTxxx	12 ms
Zone magnet switch	Schmersal BN32r	
	Normally open (NO) contact switching time	0.3 - 1.5 ms
	Restarting precision	+ / - 0.25 mm
Speed signal > 0.2 ms	FST-2XT	102 ms
Speed signal > 0.2 ms	Frequency inverter	15 ms

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**



Industrie Service

It is not mandatory that the specified types of "contactors for brake/valves" as well as "zone magnet switches" be used. The type can be selected based on the reaction and detection times of the "contactors for brake/valves" as well as the "zone magnet switches". If types other than those specified above are used, verification of the reaction and detection times is to be provided.

Shown on the following pages are the wiring diagram for rope-operated passenger and freight lifts (figure 3), the wiring diagram for hydraulically operated lift systems with shutoff valve as braking element (figure 4) as well as the wiring diagram for hydraulically operated lift systems with redundant lowering valves as braking elements (figure 5).

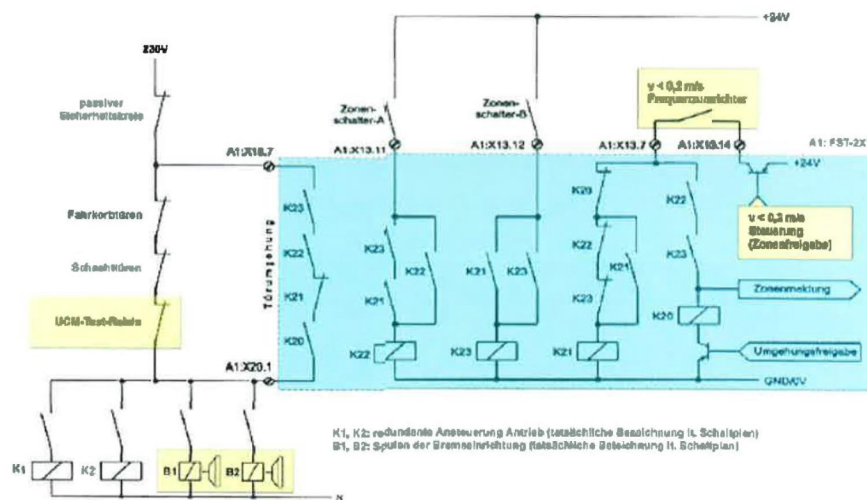


Figure 3: Wiring diagram for rope-operated passenger and freight lifts

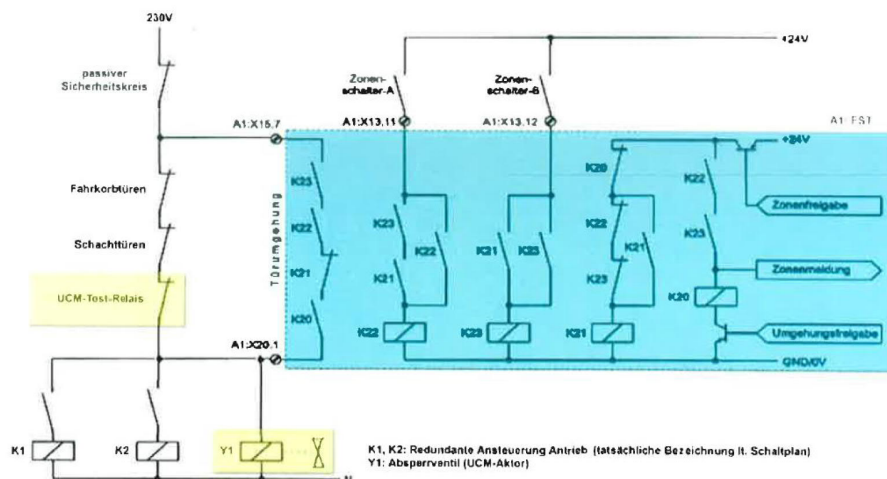


Figure 4: Wiring diagram for hydraulically operated lift systems with shutoff valve as braking element

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**



Industrie Service

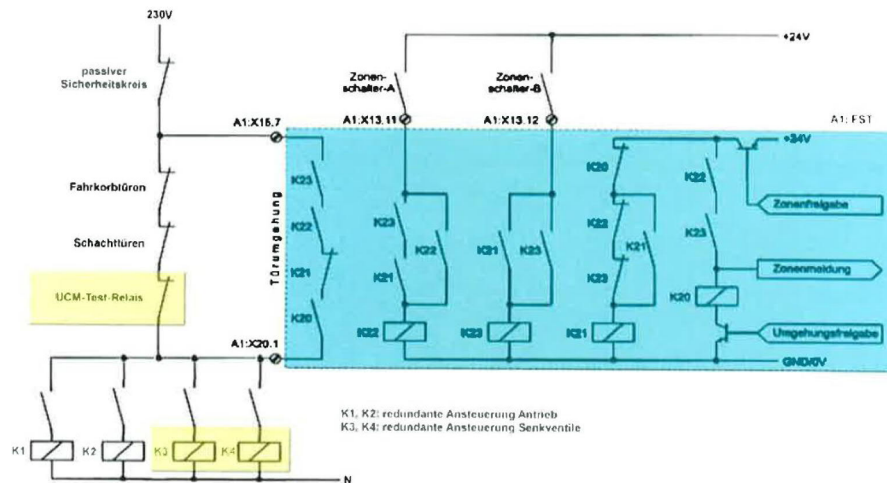


Figure 5: Wiring diagram for hydraulically operated lift systems with redundant lowering valves as braking elements

## 2 Conditions

- 2.1 The safety devices of the circuit board (tap for safety chain) are to be connected as specified in document BMP-Hinweise\_FST-2XT.
- 2.2 The safety circuit bypass control is integrated on the printed circuit board as a fixed component of the FST-2XT 5 00 controller. It is designed for a temperature range from 0 to +65°C at a relative humidity of 15 to 85%.
- 2.3 The operating voltage is 24V DC, whereas the operating contacts and conductor paths are designed for a 230V AC (optional 48V DC, 110V AC) safety circuit, fuse-protected with max. 4A.
- 2.4 A closing contact from X20.1 to X14.1 is integrated in the controller for quick-start. Direct connection from X14.1 to X15.7 is not allowed.
- 2.5 The wiring must be implemented according to "FST-2XT safety circuit scan control and safety circuit bypass control schematic drawing" figure 2 (e.g., N-wire at X15.6, return wire of the contactors and valves at X20.2; X14.1 not connected to X15.7).
- 2.6 If the braking element is supplied with power directly via the electric safety circuit, redundant activation of the braking element is not necessary. If the braking element requires a voltage other than that available directly from the electric safety circuit, redundant activation with standstill monitoring is necessary.

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**



Industrie Service

- 2.7 If the braking element is not involved in the checking of the speed or deceleration in normal operation or does not stop the car in normal operation but is rather only responsible for braking in the UCM case, it is not necessary to monitor the proper function of the braking element.  
Otherwise, the proper opening or closing of the braking element via the contacts required for this purpose is necessary via the control software.
- 2.8 Use only in combination with:  
- Control systems manufactured by NEW *LIFT*, model FST-2XT
- 2.9 For electrically operated rope lifts, a signal must be made available to the control system in the event of speeds in excess of 0.2 m/s.
- 2.10 The subcomponents described in this certification must be supplemented with another subcomponent for the realisation of the "UCM-A3 function".  
For this purpose, assembly operation must adhere to the requirements before performing the conformity assessment procedure.
- 2.11 For hydraulically operated lift systems, items 3.6, 3.7, 3.7.1, 3.7.2 and 5 of the UCM-A3 manual are to be adhered to during commissioning or recurring inspections and maintenance.
- 2.12 For electrically operated rope lift systems, items 4.6, 4.7, 4.7.1, 4.7.2 and 5 of the UCM-A3 manual are to be adhered to during commissioning or recurring inspections and maintenance.
- 2.13 The "UCM-A3" manual is to be included with the product.
- 2.14 The EU type examination certificate may only be used together with the corresponding appendix and attachment (manufacturer list for serial production). This attachment is updated according to information from the manufacturer / representative and published with the updated information.

**3 Notes**

- 3.1 This EU type examination certificate was prepared on the basis of the following harmonised standards:  
- EN 81-1:1998 + A3:2009 (D), Appendix F.8  
- EN 81-2:1998 + A3:2009 (D), Appendix F.8  
- EN 81-20:2014 (D), Item 5.11.2.3  
- EN 81-50:2014 (D), Item 5.6  
  
In the event of changes or additions to the aforementioned standards or in the event of further developments to the state of the art, the EU type examination certificate must be revised.
- 3.2 The test results refer only to the "FST-2XT" and "FSM-2" printed circuit boards with electronic components with taps in the safety circuit and safety circuit bypass control as well as subsystem against unintended car movement and the associated EU type examination.

**Annex to the EU Type Examination Certificate  
No. EU-ESD 023 of 2016-10-04**



Industrie Service

- 3.3 At the "detection device for unintended car movement (UCM) – door zone" a sign must be present (e.g., near the control system) with details on the identification of the component with the name of the manufacturer, EU type examination designation and type plate.
- 3.4 In the event of changes or deviations from the version documented here, an examination and, if necessary, adaptation of the alternative measures is required by the notified body.
- 3.5 This certificate is based on the state of the art, which is documented by the currently valid harmonised standards. If the event of changes or additions to these standards or in the event of further advances in the state of the art, a revision may become necessary.





## EU Declaration of Conformity

According to the EU-directive

### Product description:

Printed circuit boards FST-2XT (FST 5 00) and FSM-2 (FSM 5 20) with electronic components, pick-off connections in the safety circuit and safety bypass control as well as partial system against unintended car movement for passenger and goods lifts.

### Device types: „FST-2XT“ and „FSM-2“ in all delivered versions

The EU-type examination (Certificate-no.: EU-ESD 023) was conducted by the TÜV SÜD Industry Services GmbH, ID-Nr.: CE0036.

Manufacturing control according to QM-System ISO 9001:2015 and ARL 2014/33/EU Annex VI is carried out by the Association for Technical Inspection (TÜV Rheinland Industrie Service GmbH, ID-No.: CE0035).

The named control boards were developed, constructed and produced in accordance with the Council Directives on the approximation of the laws of the Member States.

- Low Voltage Directive 2014/35/EU
- EMV-Richtlinie 2014/30/EU
- Lift Directive 2014/33/EU

The following standards have been considered for the evaluation of the control board:

- EN 81-1/2: 1998 + A3:2009
- EN81-20/50:2014
- EN12015:2004
- EN12016:2004 + A1:2008

There exists a complete technical documentation. The manual for the devices is available. The safety instructions of the delivered manual must be observed! This declaration confirms the conformity of the mentioned standards and directives. It does not, however, include a guarantee of characteristics.

Graefelfing, 12.10.2016

Legally binding signature:

  
Peter Zeitler, Managing Director

NEW LIFT - Neue elektronische Wege Steuerungsbau GmbH  
Lochhamer Schlag 8 - 82166 Graefelfing - Germany



ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ CERTIFICADO ◆ CERTIFICAT

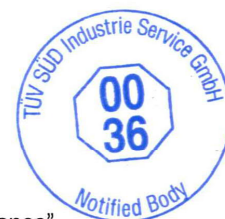


## EU-Design Examination Certificate

According to Annex IV, Part A of Directive 2014/33/EU

<b>Certificate No.:</b>	EU-ESD 024
<b>Certification body of the notified body:</b>	TÜV SÜD Industrie Service GmbH Westendstr. 199 80686 München - Germany Identification number 0036
<b>Certificate holder:</b>	NEW LIFT GmbH Lochamer Schlag 8 82166 Gräfelfing - Germany
<b>Manufacturer of the test sample:</b> (manufacturers for series production – see attachment)	NEW LIFT GmbH Lochamer Schlag 8 82166 Gräfelfing - Germany
<b>Produkt:</b>	Printed circuit boards "FST-2XTs" and "FSM-2" with electronic components, taps in the safety circuit and safety circuit bypass control as well as subsystem against unintended car movement
<b>Type:</b>	FST 51 00 (FST-2XTs) and FSM 5 20 (FSM-2)
<b>Directive:</b>	2014/33/EU
<b>Test basis:</b>	- Directive 2014/33/EU dated 2014-02-26, Annex I - EN 81-1/2:1998+A3:2009 (D) - EN 81-20:2014 (D) - EN 81-50:2014 (D)
<b>Test report:</b>	EU-ESD 024 dated 2016-10-04
<b>Result:</b>	The safety component conforms the essential health and safety requirements of the mentioned Directive as long as the requirements of the annex of this certificate are kept.
<b>Date of issue:</b>	2016-10-04
<b>Date of Translation:</b>	2017-03-28

Achim Janocha  
Certification Body "lifts and cranes"



TUV®

**Enclosure to the EU-Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

**Authorised Manufacturer of Serial Production – Production Sites (valid from: 2016-09-28):**

**Company:** NEW LIFT GmbH  
**Address:** Lochhammer Schlag 8  
82166 Gräfelfing  
Germany

- END OF DOCUMENT -

**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

**1 Scope of application**

The test items are the FST 51 00 (FST-2XTs) printed circuit board as "lift control system" and FSM 5 20 (FSM-2) printed circuit board as "car top control module" with electronic components, taps in the safety circuit and safety circuit bypass control (FST 51 00) as well as subsystem as element for detecting unintended car movement. Also tested are the clearance and creepage distances of the FST 51 00 and the FSM 5 20 as well as the safety circuit scan control of the FST 51 00.

**1.1 Function of the safety circuit**

The safety circuit bypass control consists of the K21, K22 and K23 safety relays. The SHS\_ZOFR (+24V) zone release signal must be activated by the controller. A zone release is active if necessary, i.e., if the controller is to open the car door on the corresponding floor.

First, K21 must be energized; for this purpose K20, K22 and K23 must be de-energized. K21 holds itself as long as K20 is not energized and there is a zone release.

K23 can only be energized after K21 if zone switch B closes. K23 holds itself as long as zone switch B is closed.

K22 can be energized after K23 and K21 if zone switch A closes. K22 holds itself as long as zone switch A is closed.

If K23 and K22 are energized, K20 can also be energized as soon as the controller starts the bypass release (0V). This, however, only occurs as needed and if the car speed is <0.3m/s. Not until K20 energizes does K21 de-energize. The door bypass is now active and remains so until the bypass release is cancelled and K20 is de-energized again.

K22 and K23 are not de-energized until switches A and B are opened again due to a drive outside of the door zone. – Only if both relays are de-energized can another cycle begin by energizing K21 as soon as the controller switches a renewed zone release. Transistor T2 is used for resetting relay K22 after a power failure.

In the event of failure of the operating voltage, zone switch A continues to be supplied via auxiliary power supply HSG, allowing the door zone to be detected should freeing be necessary. At the same time, T2 switches K22 and K23 off so that when the operating voltage is restored, the switching sequences can be completed as described.

Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04



Industrie Service

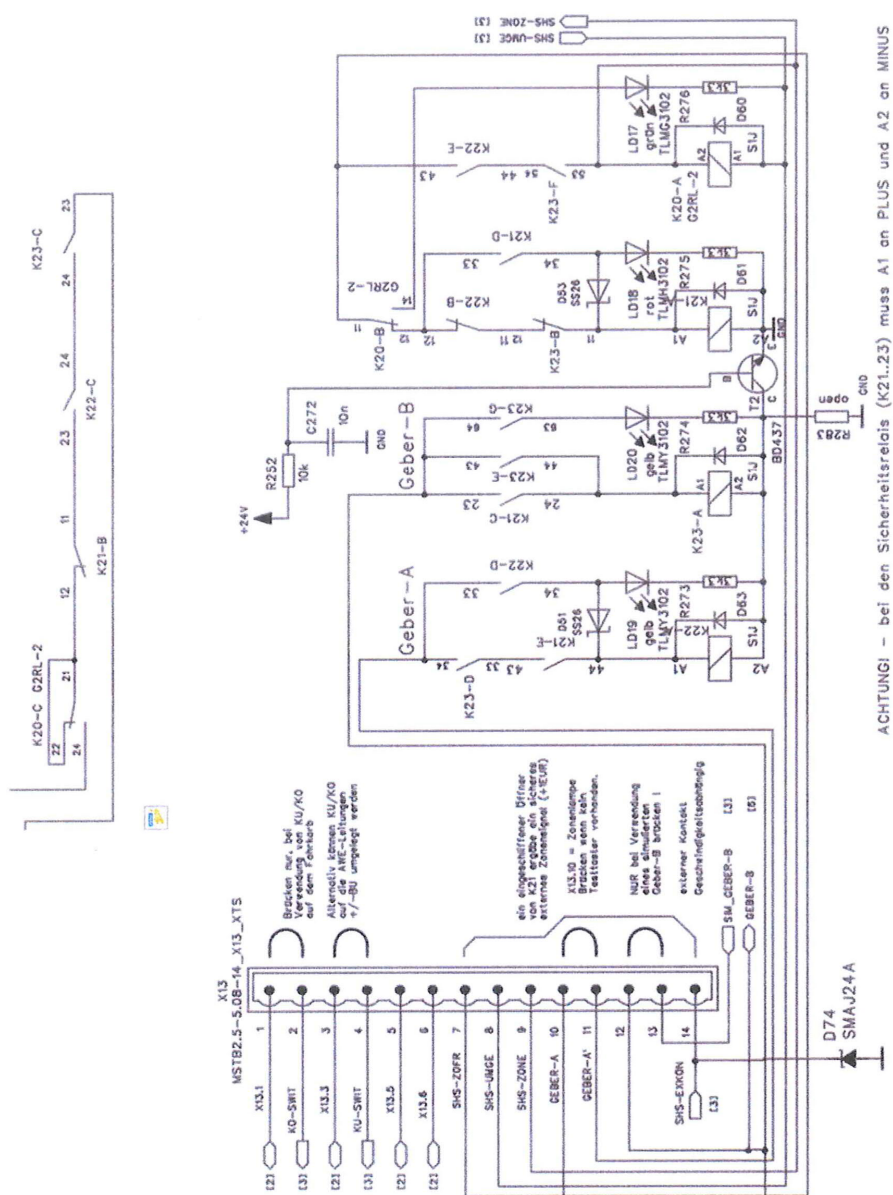


Figure 1: Portion of the wiring diagram for the control system of the door zone bypass



**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

Depicted on the following page is the wiring diagram of the safety circuit scan control an-  
safety circuit bypass control (figure 2).

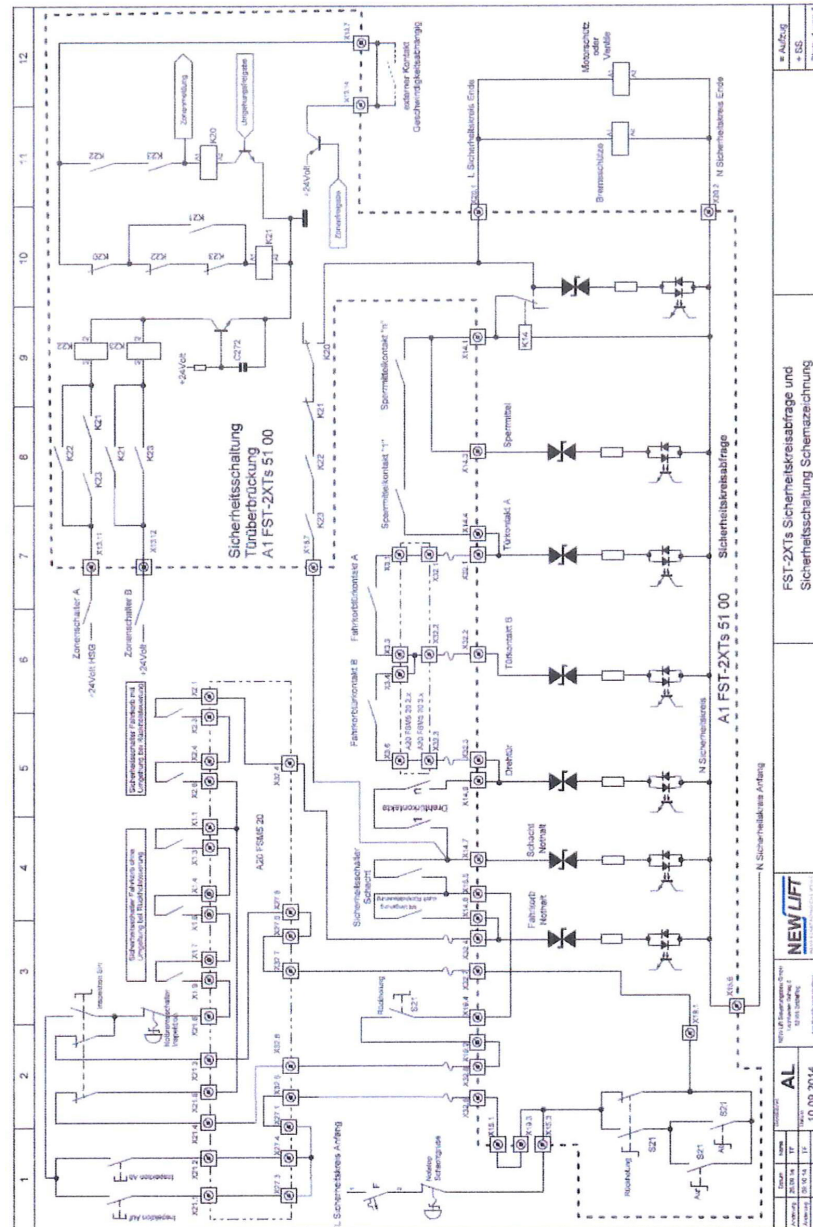


Figure 2: Wiring diagram of the safety circuit scan control and safety circuit bypass control  
Type FST-2XTs

The English text is a translation of the German original. In case of any discrepancy, the German version is valid only.

Page 3 of 9

**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

**1.2 Description of the function against unintended car movement**

For the device as a detecting and, if necessary, triggering element: if combined with a braking element tested in accordance with A3, e.g., in the form

- a) of a drive brake for electrically operated rope lifts,
- b) of a safety valve or similar for hydraulically driven lifts, this can represent the detecting as well as the triggering element of the entire protective device against the unintended movement of the car. If, on the other hand, the device is combined with a braking element tested in accordance with A3, e.g., in the form
- c) of a double-acting safety gear/braking device triggered by a speed limiter tested in accordance with A3 as a triggering element – for both electrically operated rope lifts as well as with hydraulically driven lifts – this can only represent the detecting element of the entire protective device against the unintended movement of the car.

**1.2.1 Electrically operated passenger and freight lifts**

The safety circuit bypass control is only activated by the control system if firstly the target floor has been reached and secondly the measured car speed is  $\leq 0.2$  m/s.

The safety circuit bypass control, when triggered, i.e.,

- if the door zone (defined by two magnet switches) is exited as well as
- before the door zone is exited with a speed of  $\geq 0.2$  m/s with unlocked landing door and/or open car door,

ensures a safe shutdown of the downstream drive components and, subsequently,

- either the triggering of the braking element according to cases (a.) and (b.) in the comment of the previous section
- or the activation of the triggering element of the protective device against the unintended car movement in cases of the combination specified in (c). of the previous section.

The car speed is detected by the control system via the encoder of the shaft positioning system. For additional safety (redundancy), a speed-dependent contact of the frequency inverter is integrated at the terminals of the control system – A1:X13.7 and A1:X13.14. It is thereby ensured that the safety circuit bypass control is also inactive (safety circuit open) if the frequency inverter detects a car speed of more than 0.2 m/s.

**1.2.2 Hydraulically operated passenger and freight lifts**

In principle, the function is identical to that of electrically operated passenger and freight lifts (electrically operated rope lifts), but without monitoring of the car speed.

**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

**1.2.3 Electrically as well as hydraulically operated passenger and freight lifts**

In order to adhere to the permissible total stopping distance in the case of an unintended car movement, the length of the door zone must be limited depending on the installation and its maximum length calculated during the course of planning the lift system.

For the device in question, the reaction times of the detecting element (sensors and their control system) as well as the reaction times and reaction distances of the triggering element and those of the braking element(s) in addition to the maximum possible acceleration by the drive in the event of an error (if applicable) and the mass ratios and other factors that influence the movement of the lift system (compensation tools, rope lengths depending on the type of rope arrangement and drive arrangement,...) are known for this purpose.

The calculated, maximum door zone size must be entered in the menu of the control system during commissioning. During the automatic learn drive, the actually specified door zone lengths are automatically checked for correctness at all floors by the control system.

During tests of the lift system in the course of the conformity assessment procedure, tests "UCM-A3 test upward" and "UCM-A3 test downward" are to be performed in the test menu of the FST controller.

This ensures that the UCM case is performed with the assistance of the UCM test relay under safe conditions, i.e., with closed car door and locked landing door.

Both UCM cases, the "exiting of the door zone" as well as "excessive speed" (only for electrically operated lifts with rope drive) with open car door(s) and/or unlocked landing door(s), are detected by the control system. The lift system is brought to a standstill with the "LSU-UCM-A3 Error" error message and can only be put back into operation by resetting the error message in the control system menu by a competent person.

In the case of a power failure, the "LSU-UCM-A3 Error" is stored and prevents the installation from being operated upon restoration of power.

Designation		Detection time
FST-2XTs safety circuit bypass control	Electr./mech. switching	10 ms
Contactors for brake / valves	Siemens 3RTxxx	12 ms
Zone magnet switch	Schmersal BN32r	
	Normally open (NO) contact switching time	0.3 - 1.5 ms
	Restarting precision	+ / - 0.25 mm
Speed signal > 0.2 ms	FST-2XTs	102 ms
Speed signal > 0.2 ms	Frequency inverter	15 ms



**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

It is not mandatory that the specified types of "contactors for brake/valves" as well as "zone magnet switches" be used. The type can be selected based on the reaction and detection times of the "contactors for brake/valves" as well as the "zone magnet switches". If types other than those specified above are used, verification of the reaction and detection times is to be provided.

Shown on the following pages are the wiring diagram for rope-operated passenger and freight lifts (figure 3), the wiring diagram for hydraulically operated lift systems with shutoff valve as braking element (figure 4) as well as the wiring diagram for hydraulically operated lift systems with redundant lowering valves as braking elements (figure 5).

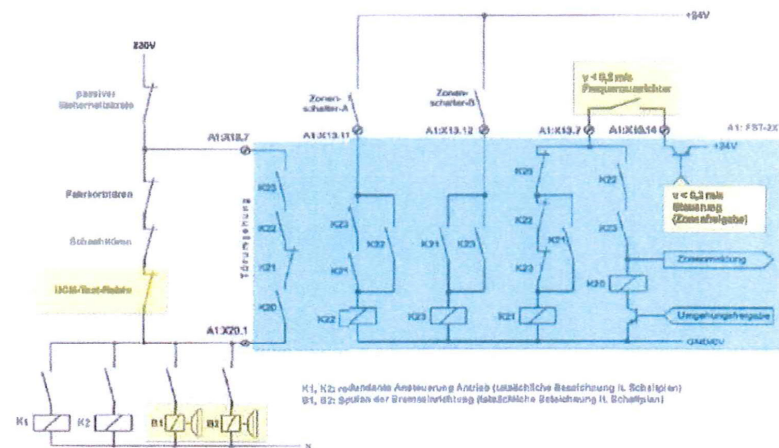


Figure 3: Wiring diagram for rope-operated passenger and freight lifts

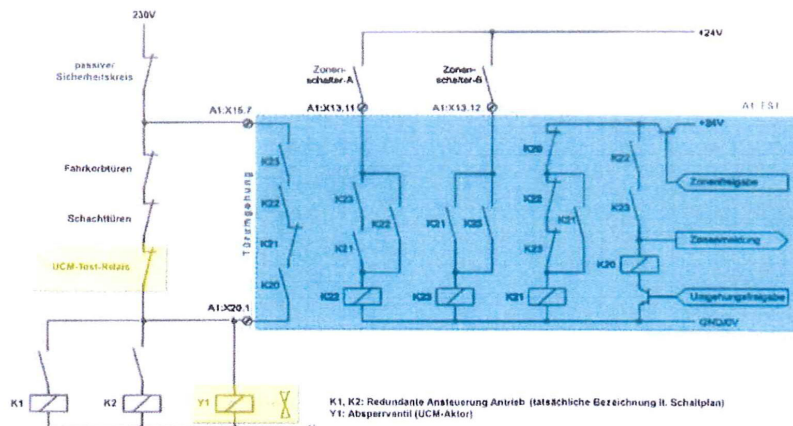


Figure 4: Wiring diagram for hydraulically operated lift systems with shutoff valve as braking element



**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

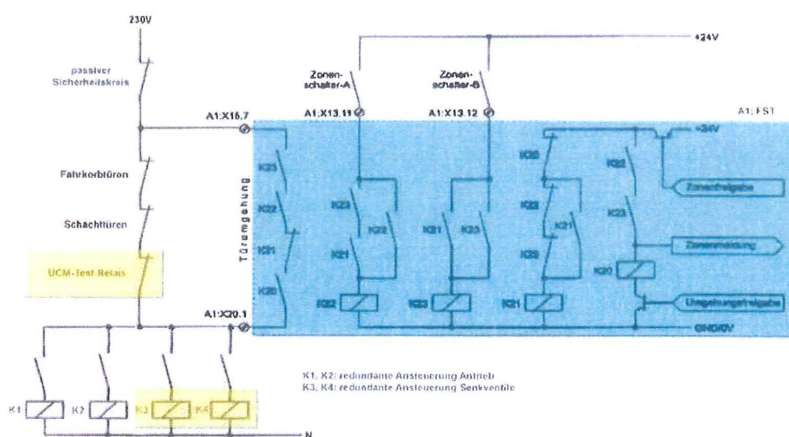


Figure 5: Wiring diagram for hydraulically operated lift systems with redundant lowering valves as braking elements

## 2 Conditions

- 2.1 The safety devices of the circuit board (tap for safety chain) are to be connected as specified in document BMP-Hinweise\_FST-2XTs.
- 2.2 The safety circuit bypass control is integrated on the printed circuit board as a fixed component of the FST-2XTs 51 00 controller. It is designed for a temperature range from 0 to +65°C at a relative humidity of 15 to 85%.
- 2.3 The operating voltage is 24V DC, whereas the operating contacts and conductor paths are designed for a 230V AC (optional 48V DC, 110V AC) safety circuit, fuse-protected with max. 4A.
- 2.4 A closing contact from X20.1 to X14.1 is integrated in the controller for quick-start. Direct connection from X14.1 to X15.7 is not allowed.
- 2.5 The wiring must be implemented according to "FST-2XTs safety circuit scan control and safety circuit bypass control schematic drawing" figure 2 (e.g., N-wire at X15.6, return wire of the contactors and valves at X20.2; X14.1 not connected to X15.7).
- 2.6 If the braking element is supplied with power directly via the electric safety circuit, redundant activation of the braking element is not necessary. If the braking element requires a voltage other than that available directly from the electric safety circuit, redundant activation with standstill monitoring is necessary.

**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

- 2.7 If the braking element is not involved in the checking of the speed or deceleration in normal operation or does not stop the car in normal operation but is rather only responsible for braking in the UCM case, it is not necessary to monitor the proper function of the braking element.  
Otherwise, the proper opening or closing of the braking element via the contacts required for this purpose is necessary via the control software.
- 2.8 Use only in combination with:  
- Control systems manufactured by NEW LIFT, model FST-2XTs
- 2.9 For electrically operated rope lifts, a signal must be made available to the control system in the event of speeds in excess of 0.2 m/s.
- 2.10 The subcomponents described in this certification must be supplemented with another subcomponent for the realisation of the "UCM-A3 function".  
For this purpose, assembly operation must adhere to the requirements before performing the conformity assessment procedure.
- 2.11 For hydraulically operated lift systems, items 3.6, 3.7, 3.7.1, 3.7.2 and 5 of the UCM-A3 manual are to be adhered to during commissioning or recurring inspections and maintenance.
- 2.12 For electrically operated rope lift systems, items 4.6, 4.7, 4.7.1, 4.7.2 and 5 of the UCM-A3 manual are to be adhered to during commissioning or recurring inspections and maintenance.
- 2.13 The "UCM-A3" manual is to be included with the product.
- 2.14 The EU type examination certificate may only be used together with the corresponding appendix and attachment (manufacturer list for serial production). This attachment is updated according to information from the manufacturer / representative and published with the updated information.

**3 Notices**

- 3.1 This EU type examination certificate was prepared on the basis of the following harmonised standards:
- EN 81-1:1998 + A3:2009 (D), Appendix F.8
  - EN 81-2:1998 + A3:2009 (D), Appendix F.8
  - EN 81-20:2014 (D), Item 5.11.2.3
  - EN 81-50:2014 (D), Item 5.6
- In the event of changes or additions to the aforementioned standards or in the event of further developments to the state of the art, the EU type examination certificate must be revised.
- 3.2 The test results refer only to the "FST-2XTs" and "FSM-2" printed circuit boards with electronic components with taps in the safety circuit and safety circuit bypass control as well as subsystem against unintended car movement and the associated EU type examination.

**Annex of the EU Type Examination Certificate  
No. EU-ESD 024 of 2016-10-04**



Industrie Service

- 3.3 At the "detection device for unintended car movement (UCM) – door zone" a sign must be present (e.g., near the control system) with details on the identification of the component with the name of the manufacturer, EU type examination designation and type plate.
- 3.4 In the event of changes or deviations from the version documented here, an examination and, if necessary, adaptation of the alternative measures is required by the notified body.
- 3.5 This certificate is based on the state of the art, which is documented by the currently valid harmonised standards. If the event of changes or additions to these standards or in the event of further advances in the state of the art, a revision may become necessary.



## EU Declaration of Conformity

According to the EU-directive

### Product description:

Printed circuit boards FST-2XTs (FST 51 00) and FSM-2 (FSM 5 20) with electronic components, pick-off connections in the safety circuit and safety bypass control as well as partial system against unintended car movement for passenger and goods lifts.

### Device types: „FST-2XTs“ and „FSM-2“ in all delivered versions

The EU-type examination (Certificate-no.: EU-ESD 024) was conducted by the TÜV SÜD Industry Services GmbH, ID-Nr.: CE0036.

Manufacturing control according to QM-System ISO 9001:2015 and ARL 2014/33/EU Annex VI is carried out by the Association for Technical Inspection (TÜV Rheinland Industrie Service GmbH, ID-No.: CE0035).

The named control boards were developed, constructed and produced in accordance with the Council Directives on the approximation of the laws of the Member States.

- Low Voltage Directive 2014/35/EU
- EMV-Richtlinie 2014/30/EU
- Lift Directive 2014/33/EU

The following standards have been considered for the evaluation of the control board:

- EN 81-1/2: 1998 + A3:2009
- EN81-20/50:2014
- EN12015:2004
- EN12016:2004 + A1:2008

There exists a complete technical documentation. The manual for the devices is available. The safety instructions of the delivered manual must be observed! This declaration confirms the conformity of the mentioned standards and directives. It does not, however, include a guarantee of characteristics.

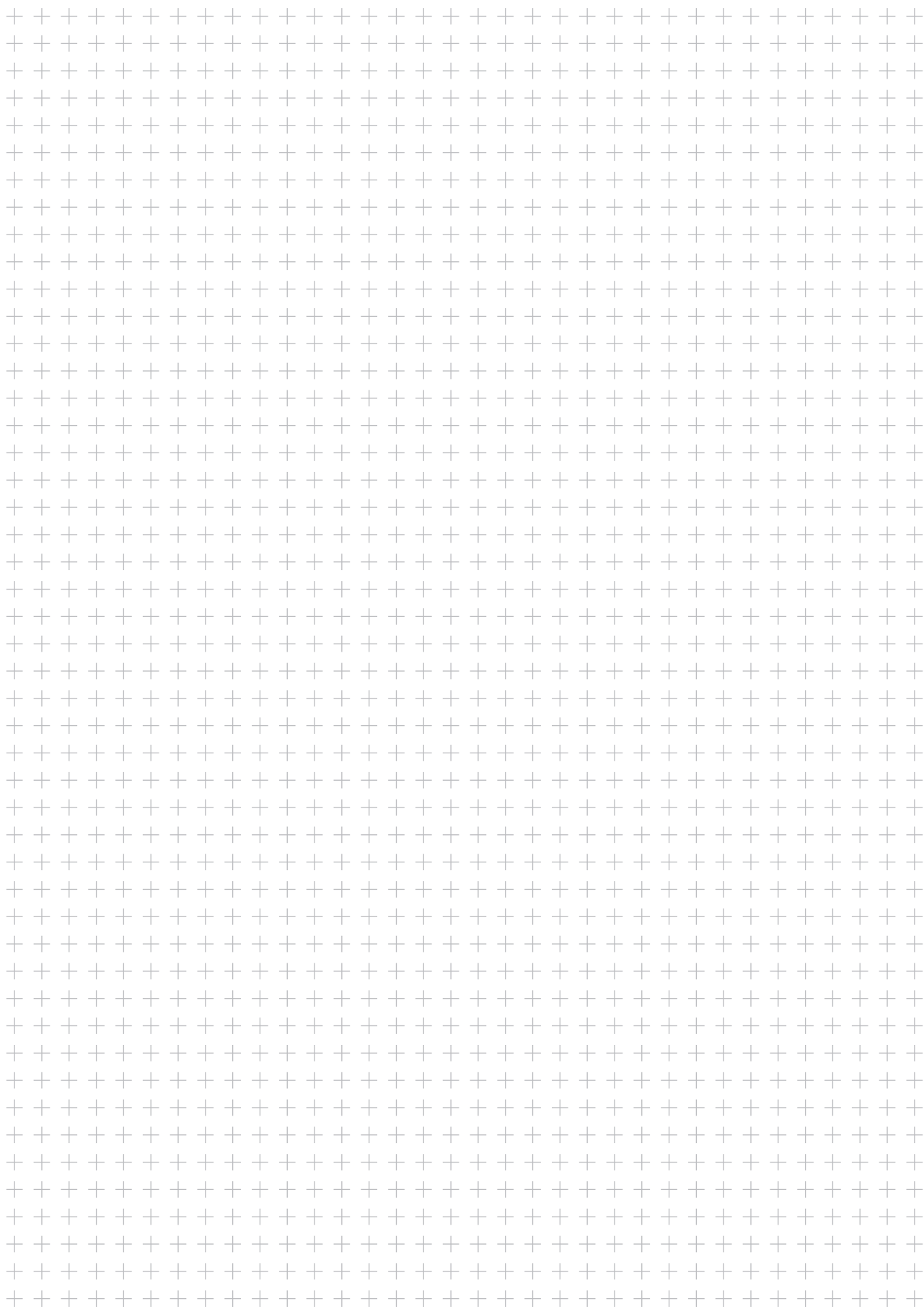
Graefelfing, 12.10.2016

Legally binding signature:

  
Peter Zeitler, Managing Director

NEW LIFT - Neue elektronische Wege Steuerungsbau GmbH  
Lochhamer Schlag 8 - 82166 Graefelfing - Germany

# Notes





NEW *LIFT* Steuerungsbau GmbH

Lochhamer Schlag 8  
82166 Graefelfing

Tel +49 89 – 898 66 – 0  
Fax +49 89 – 898 66 – 300  
Mail [info@newlift.de](mailto:info@newlift.de)

Serviceline  
Tel +49 89 – 898 66 – 110  
Mail [service@newlift.de](mailto:service@newlift.de)

[www.newlift.de](http://www.newlift.de)