# NEW LIFT 

NEUE ELEKTRONISCHE WEGE


## Field Bus Controller



## Manual

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## 1 About this manual

### 1.1 General

The FST manual is a comprehensive reference work for experienced lift service experts.

## Aims of this manual

- describe the characteristics of the LON bus technology
- describe the characteristics and functions of the FST and its components
- 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


### 1.2 Signs and Symbols used

Below you can find a description of the signs and symbols used in this manual.

Symbols + Key combination: Press the linked keys simultaneously.
$\leftrightharpoons$ Action:
Actions are executed immediately and will not be saved as permanent settings.

LC-Display and keypad
In the left column you will find the LC-Display of the FST-Controller with a grey background. The displays and messages or possible keypad functions are explained in the table.

LC-Di=Fly
Line or $\quad$ Description of display or keypad functions
key

### 1.3 Further information

The following documentation is available for the FST-Controller and its components:

- Description of FST-Controller
- FST Installation \& Commissioning
- FST Quick Guide
- FST Manual (this document)
- GST Manual
- System description - Holding Device
- Installation \& Commissioning - FAX Modem
- Quick Guide EAZ-256
- Quick Guide EAZ-VFD
- Quick Guide EAZ-LCD
- Quick Guide FST-IRT
- Manual for Fireman Mode
- System description - Speech Output
- System description - Attika Control
- System description - Bank-Control
- System description - Ramp-Drive
- System description - Panel Test
- System description - Safety curtain

NEW LIFT is happy to provide this documentation on request. Please contact our marketing department.

## 1 General Safety Regulations

The FST-Controller must be in technically perfect condition and may only be used in accordance with regulations and in awareness of safety and risks. The "FST Installation \& Commissioning" manual as well as the relevant guidelines for the prevention of accidents and the guidelines of local power utilities must be observed.

### 1.1 Standards and regulations applied

The FST-Controller complies with:

- Regulation for lift systems
(German regulation for lift systems, AufzV)
- Safety regulations for the construction and installation of passenger lifts, building hoists and service lifts (DIN EN 81 Parts 1 and 2)
- Technical regulations for lifts (TRA, Technische Regeln für Aufzüge)

Operation of lift systems (TRA 007)
Testing parts and components (TRA 101)
Passenger lifts, building hoists and service lifts (TRA 200)

- Regulations for the erection of power installations with rated voltages of up to 1kV (DIN VDE 0100)
- Measures for contact voltage protection in the engine room (DIN EN 60990)
- Data sheet on safety measures during installation, maintenance and servicing or repair of lift systems (ZH 1/312)


### 1.2 Electromagnetic compatibility (EMC)

An accredited inspection body has verified that the FST-Controller and its components comply with the standards, limits and test intensities according to EN 12015/1995 and EN 12016/1995.

The FST-Controller and its components are:

- resistant against electrostatic discharges
(EN 61000-4-2/1995)
- resistant against electrostatic fields (EN 61000-4-3/1997)
- resistant against transient disturbances
(EN 61000-4-4/1995)
The field strengths of the electromagnetic disturbances radiated by the FST-Controller and its components do not exceed the permitted limits. (EN 55011/1997)


### 1.3 Handling electronic components

Leave electronic components 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 resistance (terminator).

## 3 FST-Controller user interface

The user interface of the FST-Controller is located on the FST board in the control cabinet of the list system. The FST user interface consists of front panel, LCD screen, keyboard and LEDs.


Fig. 3.1 FST-Controller user interface

### 3.1 LC-Display and messages

The LC-Display consists of four lines A, B, C and D with 20 digits each. After switching on and during normal operation the FST-Controller displays the main screen.

## Main screen



| 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 normal mode (after switching on) it displays status messages, see "Status messages in line C" on page 14. When switching with key combination $\sqrt{s}+\square+\theta$ it displays diagnostic messages, see "Diagnostic messages in line C" on page 15.

Also see "Keypad functions" on page 32.

## Line A

Safety circuit messages in Line A

| Display | Description |
| :---: | :---: |
| Shety Cut Cube | The safety circuit is completely closed. |
| DOUR Lince Ofed | A shaft door contact is open (interruption between terminals VSM X1.2 and VSM X1.3). |
| Done A OPEV | Car door A is open (interruption between terminals VSM X1.3 and VSM X1.4). |
| Dute E OPEN | Car door B is open (interruption between terminals VSM X1.4 and VSM X1.5). |
| Dote C OPEN | Car door C is open (interruption between terminals VSM X1.5 and VSM X1.6). |
| BLEREUY STOP | An emergency switch has triggered (interruption before terminal VSM X1.6). The lift is not ready for operation. |
| Whupl bote open | A manual door contact is open (interruption between terminals VSM X1.5 and VSM X1.6). |
| ETREEUC EW GUTTH | The top emergency end switch of an hydraulic lift is interrupted according to EN 81 (interruption between terminals VSM X1.5 and VSM X1.6). |

 EW EUTTH are triggered by the same safety circuit input of the pre-
selection module (TC input: VSM X1.5) and exclude each other.

## Line B

| State messages in line B | Display | Description |
| :---: | :---: | :---: |
|  | 240 Libu | The 24 V supply of the FST board (FST X7.1 and X 7.2 ) is below the permitted range of 24 V $-10 \%$. Check power supply and cables. |
|  | LHWTM GRE OFP | Landing control is blocked by a safety circuit interruption (interruption of before terminal VSM X1.6), line A displays ETETEXT STOP, see "EUEEECY STOF" on page 10. |
|  | ¢HWTWE CDTROL GF | The landing control has been switched off manually. Possible switch-off points: <br> - $\square$ key of the FST keypad <br> - Programmable input of an external RIO module <br> - Input FST X7.15 <br> - Programmable input of the FST-Controller <br> - Key switch on the in-car control panel (FPM input X4.34) <br> - Key switch on the landing control panel (ADM input X3.12 / X3.13) <br> See "Source of special drive signals SET EW WE We we" on page 24. |
|  | FTREDT | A fire input is active. Possible reasons: <br> - Fire input on the landing control panel (ADM input X3.12 / X3.13) <br> - Programmable input of the FST-Controller <br> - GST Group Controller (see GST Manual) <br> See "Source of special drive signals SETED जए we be" on page 24.. |
|  | EW-SUTCH TEST | The manual end switch test is running, see "TEST MENU" on page 149. |
|  | ES-GPED MOW. TEST | The manual test of the deceleration monitoring function at the top and bottom limits is running, see "TEST MENU" on page 149. |
|  | EUFGHTTOW | The controller is in evacuation mode. The source of the evacuation signal is a programmable input on the FST-Controller. |
|  | GED FRX | The controller is in fax mode (see Installation \& Commissioning - Fax modem). |


| Display | Description |
| :---: | :---: |
| LTPT OFP | The controller has been switched off. Possible switch-off points: <br> - Car light failure <br> - Input "Car Light OFF", FST X7. 14 <br> - Programmable input/output of a RIO module (external) <br> - Programmable input/output of the FSTController <br> - Externally by the GST Group Controller or the LMS lift monitoring system <br> See "Source of special drive signals 5 CW BL <br>  |
| FTEDTH MODE | Fireman mode has been activated. Possible sources: <br> - Key switch on the in-car control panel (FPM X4.4) <br> - Programmable input/output of the FSTController <br> - The state was saved after a power failure and has been reconstructed. Function Firemen More Feset must be used to reset this state, see "Fireman Options" on page 123. <br> - Key switch on the landing control panel (ADM input X3.12 / X3.13) <br> - GST Group Controller (see GST Manual) <br>  जए घW चW" on page 24. |
| FTE TRWGER GCTTE | The controller is in remote data transmission mode to transfer files to a GST Group Controller or to a PC. |
| MEPECTMO | The controller is in inspection mode (input FSM X12.2). <br> Attention: Line A of the FST display must show BURERUY STOF! |
| Ch\%eration -- | The calibration drive has been started. The number of remaining drives is displayed (see "Calibration drive" on page 117). |
| LERU DETUE GCTME | The controller performs a learn drive, see "Learn drive" on page 117. |
| AROU DRTE STPT | The controller performs a learn drive, see "Learn drive" on page 117. |
| AEMR DRTUE-GK | The learn drive has been completed, see "Learn drive" on page 117. |
| LERQN DETUE-GEOET | The learn drive has been aborted due to a fault. The reason for the abortion is entered in the error list, see "Learn drive" on page 117 and "Error List" on page 151. |
| GhETY CuThT4 | The safety curtain replacing the car door has been interrupted. The contact is in the safety circuit instead of the car door contacts (see System description - Safety curtain). |


| Display | Description |
| :---: | :---: |
| ORt = = | An drive monitoring error has occurred. There are different types of drive monitoring functions that can shut down the lift, see "Error List" on page 151. |
| ThGThLMTMO MGE | The controller is in installation mode, see "Installation Mode" on page 117. |
| Qenturntum | The controller performs an orientation drive to the top or bottom limit after switching on (only when using incremental positioning). The orientation drive can take place automatically or when the first call is placed, see "Auto-Orien." on page 135. |
| PREG DRTUE MTTUE | The controller sends the car to a programmed parking floor, see "Park Drive -" on page 118. |
| FRTORTY LmbTH | A priority landing drive has been triggered. <br> Possible sources: <br> - Key switch on the landing control panel (ADM input X3.12 / X3.13) <br> - Programmable input of the FST-Controller <br> - Programmable input of an external RIO module |
| FRTRTY GR | A priority car drive has been triggered. Possible sources: <br> - Key switch on the in-car control panel (FPM input X4.37) <br> - Automatically after a type Auto 2 priority landing drive, see "Prio-Landing/Car -" on page 117. |
| MWTEmey | The controller is in auxiliary mode (input VSM X6.2). <br> Attention: Line A of the FST display must show EREQEUCY STOF! |
| HOTME GCTME | The hydraulic lift is sent to the lowest landing, see "Homing Time" on page 114. |
| GRUTE GTTTE | The controller is in service mode, see description of the controller and "Source of special drive signals 5ए ED we we me" on page 24. |
| ERUMCE REUMPED | A set limit of one of the service-counters has been exceeded, see "Service-Counters -" on page 111. |
| $5 \mathrm{ETEM5TO}$ | The controller has been stopped via the FST Menu. |
| DUERGHD | The overload input on the FSM or on one of the programmable inputs is active, see "FSM: X11" on page 63. |
| UGE ERQe -- | An user error has occurred. The number of the error is displayed. |
| Ful Lobe | The full load input on the FSM is active, see "FSM: X11" on page 63. |

## Line C

Status messages in line C

Line $C$ is divided and displays one of the following status messages in the left and in the right part. For scrolling the status messages in the left part use the key combination $\sqrt{s}+\Omega$ and for the right part the key combination s+

| Status | Display | Description |
| :---: | :---: | :---: |
| Car doors | S | Door A completely open |
|  | >R | Door A closed |
|  | 《-Hे | Door A is opening |
|  | ->¢ - | Door A is closing |
|  | प\| ${ }^{\text {a }}$ | Photocell or reversing contact door A active |
|  | 4ब | Door A is locked (test menu) |
|  |  | Door is in loading mode (loading button has been pressed) |
|  | --- | Door A is stopped |
|  | 7 F | State of door A is unknown (check door limit switches) |
|  | <> | Door open button active |
|  | 人 | Door close button active |
| Shaft positioning | $\underline{Z}$ | Zone message active |
|  | $F$ | Zone message missing |
|  | -- | Car is in levelled position |
|  | $\cdots$ | Car position relative to levelled position (each pixel $=2.5 \mathrm{~mm}$ ) |
|  | $\underline{Y}$ | Correction switch bottom active |
|  | 7 | Correction switch top active |
| Car position | $\mathrm{F}=6200$ | Current position of the car relative to levelling position of lowest landing in [mm] |
| Levelling | Fde ma | Current position of the car relative to closest levelling position in [mm] |
| Car speed | U $=13 \mathrm{DE}$ | Current speed of the car in [mm/s] |
| Set / current speed | T- - - - - - - | 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 | E043E1 | Operating hours of the drive |
| Drive counter | F2-12346 | Number of completed drives |
| Memory occupied | Feci 4 F | Memory occupied on the PC-Card when recording. |

The door positions marked with F also apply to doors E and C .

## Diagnostic messages in line C

Line $C$ can be switched from status messages to diagnostic messages with key combination $\sqrt{\sigma}+\square+\square$. Use key combination $\sqrt{\sigma}+\sqrt{\sigma}$ and $\sqrt{\sigma}$ to scroll through the diagnostic messages.

| Display | Description |
| :---: | :---: |
| 1Tk-Errsmbebe bbebe | Diagnosis of absolute value encoder function (see page 16), this display is irrelevant when using incremental positioning. |
|  | Real-time display of counted increments of the encoder on plug X2. The counted increments together with the covered distance can help when calculating the required Feselstion. |
| Demeni FI=60 F2-b0 | Current state of the FSM for door A (see page 17) |
| Denter Fi=60 F2-mb | Current state of the FSM for door B (see page 17) |
| Demex Fimbe Famb | Current state of the FSM for door C (see page 17). |
|  | Internal motor state (see page 20) and states of the pre-selection contact outputs (see page 21). |
| Kownirtobl rexamem | Generated and actual position messages from the car (see page 21). |
| GHK5RECN | State of the safety circuit (see page 21). |
|  | Internal NEW LIFT diagnostic message. |
|  | Internal NEW LIFT diagnostic message. |
| Wextrosemf UT=42 | Next possible stop (Hextposes) that can be approached and the set speed (ITT), see page 22. |
| Fort ExTM = EGR Pube | State of input EXIN1, see page 22. |
| Fort ExTOX= 日bebebe | State of input EXIN2, see page 23. |
| Fort HeThi $=$ EGU0 | State of input H8IN1, see page 23. |
| Ft-k | State of the outputs on FSM X6, see page 23. |
| GC:BE BE BE BE BQ | Source of the special drive signals fireman, fireman mode, landing control OFF, lift off and service mode, see page 24. |
| LuE: 2 EGE EE FQ OE | State of the weight sensor, see page 25. |
| Prajstmemen = = = = | State of the project specific parts of the program (internal). |
| $\mathrm{PCa}=\mathrm{B}$ mi ab +b mbebs | State of the PC-Card slot, see page 26. |
|  | Incoming and outgoing data packets of the FST-Controller in [packets/sec]. |
|  | State of the holding device, see page 26. |
| F9 memsmbut | Number of message packets from the FSM car control module to the FST-Controller. |

## Absolute value encoder

 functionITK-ErTEMEDEE BEDEE

The two numbers of the display show the number of encoder failures since the last activation of the system. The left number shows the different values resulting from double scanning, the right number shows the number of failed plausibility checks. Sporadic errors are compensated by the FST-Controller and can be tolerated. A continuous increase of one of these values indicates an encoder or cable failure.

## Left number:

| Display | Description |
| :---: | :--- |
| DEDE <br> or constant value | Communication between the FST-Controller <br> and the absolute value encoder is working <br> correctly. Double scanning to suppress electric <br> interference does not show any differences. |
| constantly rising value | Double scanning to suppress electric <br> interference does show differences. There is <br> electric interference on the connection cable <br> between FST-Controller and encoder. Check <br> connection cable and inform your NEW LIFT <br> Hotline. |

## Right number:

| Display | Description |
| :---: | :--- |
| EDEE | The position values of the absolute value <br> encoder are plausible (are within the regular <br> shaft). There are no invalid jumps in the <br> position value. |
| EHE | The position values of the absolute value <br> encoder are not plausible (are outside the <br> regular shaft). Check direction of rotation of the <br> encoder and commission the linear positioning <br> function, (see Installation and Commissioning <br> Manual). |
| DELTA | There are invalid jumps in the position value. <br> Absolute value encoder faulty. |



Fig. 3.2 Hexadecimal encoding of an 8-bit register

State bytes F1 and F2 describe the states of 8 functions each in real-time
(8 bits, hexadecimal code). Hexadecimal bytes are decoded digit by digit. Each digit has a decimal value according to the following table:

| Hexadecimal number | Decimal value |
| :---: | :---: |
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| $\pm$ | 10 |
| $\underline{L}$ | 11 |
| \% | 12 |
| d | 13 |
| E | 14 |
| $\stackrel{\square}{7}$ | 15 |

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

| Bit | Number | Value | Setting | Fi $=$ Byte F1 |
| :---: | :---: | :---: | :---: | :---: |
| 0 | digit 1 <br> (right number) | 1 | active | FSM car control module configured |
| 1 |  | 2 | active | Door locked |
| 2 |  | 4 | active | Door reversing |
| 3 |  | 8 | Door completely open | Limit switch "door open" |
| 4 | digit 2 <br> (left number) | 1 | Door completely closed | Limit switch "door closed" |
| 5 |  | 2 | active | Photocell interrupted |
| 6 |  | 4 | active | Reversing contact |
| 7 |  | 8 | active | Minimum load input* |

* Signal only relevant for door versions A and B.

| Bit | Number | Value | Setting | $F 2=$ Byte F2 |
| :---: | :---: | :---: | :---: | :---: |
| 0 | digit 1 <br> (right number) | 1 | on | Car light sensor* |
| 1 |  | 2 | active | Inspection signal "fast" |
| 2 |  | 4 | active | Inspection signal "down" |
| 3 |  | 8 | active | Inspection signal "up" |
| 4 | digit 2 <br> (left number) | 1 | active | Inspection signal "ON" |
| 5 |  | 2 | active | Door closing motor |
| 6 |  | 4 | active | Door opening motor |
| 7 |  | 8 | active | Door ready for drive |

## Example:



State byte F1 = 6c and state byte F2 = 21
This results in the following hexadecimal numbers:

F1:
Digit $1=" c "($ decimal $=12)$
Digit 2 = " 6 " (decimal $=6$ )

F2:
Digit $1=" 1 "($ decimal $=1)$
Digit 2 = "2" (decimal = 2)
The decimal numbers are calculated from the following values:

## F1:

Digit $1=12=8+4$
Digit $2=6=4+2$

F2:
Digit $1=1$
Digit $2=2$
This results in the following active bits:
F1:
Digit $1=8+4$
$=>$ according to the table for F1 (Digit 1) bits 2 and 3 are active =>the door is reversing and limit switch "open" has switched

Digit $2=4+2$
=>according to the table for F1 (Digit 2) bits 5 and 6 are active $=>$ the photocell is interrupted and the reversing contact has switched

F2:
Digit $1=1$ =>according to the table for F2 (Digit 1) bit 0 is active
=>the door is reversing and limit switch "open" has switched
Digit $2=2$
=>according to the table for F2 (Digit 2) bit 5 is active
=>the car light sensor is active and the door motor is closing

Internal motor states Motar $=6 \mathrm{~B}$

Internal motor states are decoded according to the following table:

| Value | Motar = motor state |
| :---: | :---: |
| be | Motor ready |
| E1 | Motor starting |
| ம2 | Motor running |
| bS | Motor approaching stop position |
| 04 | Motor braking |
| 05 | Motor stopping |

## Internal states of the preselection relays <br> ustebebe



Fig. 3.3 Hexadecimal encoding of a 16-bit register
The four digit display describes the hexadecimal coded states of the preselection relays of the VSM pre-selection module in real-time according to the following table. Hexadecimal values are decoded digit by digit as described in "States of the FSM car control module Dequ$F 2=\mathrm{BE}$ " on page 16.

| Bit | Number | Value | Setting | UST = pre-selection relay |
| :---: | :---: | :---: | :---: | :---: |
| 0 | Number 1 <br> (right number) | 1 | active | Output VSTK-0 (VSM) |
| 1 |  | 2 | active | Output VSTK-1 (VSM) |
| 2 |  | 4 | active | Output VSTK-2 (VSM) |
| 3 |  | 8 | active | Output VSTK-3 (VSM) |
| 4 | Number 2 | 1 | active | Output VSTK-4 (VSM) |
| 5 |  | 2 | active | Output VSTK-5 (VSM) |
| 6 |  | 4 | active | Output VSTK-6 (VSM) |
| 7 |  | 8 | active | Output VSTK-7 (VSM) |
| 8 | Number 3 | 1 | active | Output VSTK-8 (VSM) |
| 9 |  | 2 | active | Output VSTK-9 (VSE) |
| 10 |  | 4 | active | Output VSTK-10 (VSE) |
| 11 |  | 8 | active | Output VSTK-11 (VSE) |
| 12 | Number 4 <br> (left number) | 1 | active | Output VSTK-12 (VSE) |
| 13 |  | 2 | active | Zone signal B |
| 14 |  | 4 | active | Safety circuit bypass K20 (VSM) |
| 15 |  | 8 | active | Enable zone switching |

Position messages
Gof i Cirtobr Rembeb

The generated (virtual) and actual (real) position messages of the car describe the states of 8 switches each ( 8 bits, hexadecimal code) in realtime according to the following table. Hexadecimal values are decoded digit by digit as described in "States of the FSM car control module Deor-H: FI=6B F2=BE" on page 16.

| Bit | Number | Value | Setting | Uirt $=$ virtual position |
| :---: | :---: | :---: | :---: | :---: |
| 0 | Number 1 (right number) | 1 | active | Level ( A and B ) |
| 1 |  | 2 | active | Level (A and B) with motor stopped |
| 2 |  | 4 | active | Approach area |
| 3 |  | 8 | active | Zone B |
| 4 | Number 2 <br> (left number) | 1 | active | Relevelling "up" |
| 5 |  | 2 | active | Relevelling "down" |
| 6 |  | 4 | active | Enable zone switching |
| 7 |  | 8 | active | Internal use |


| Bit | Number | Value | Setting | Remi $=$ real position |
| :---: | :---: | :---: | :---: | :---: |
| 0 | Number 1 (right number) | 1 | active | zone message |
| 1 |  | 2 | active | Correction switch, top "CT" |
| 2 |  | 4 | active | Correction switch, bottom "CB" |
| 3 |  | 8 | active | Level (incremental) |
| 4 | Number 2 <br> (left number) | 1 |  | Not assigned |
| 5 |  | 2 | active | Brake monitoring |
| 6 |  | 4 | active | Motor monitoring |
| 7 |  | 8 |  | Not assigned |

States of the safety circuit The state of the security circuit is decoded according to the following table: Gh=5REC

| Code | Description |
| :---: | :--- |
| $\mathbf{E}$ | Door lock open |
| B | Door A open |
| B | Door B open |
| C | Car door C (manual door) open |

Next possible stop
Hextpesemi

The next possible stop that can be approached by the car is decoded with hexadecimal values according to the following table:

| Code | Description Hextrose= |
| :---: | :---: |
| Fi | All floors possible (car is at rest) |
| +e | No further floor possible (when decelerating) |
|  | Next possible stop = code (hexadecimal) |

Current set speed $1+=12$

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

| Code | Description Ut= |
| :---: | :---: |
| UI = U8 | Drive speed 1... 8 (for normal drives) |
| ve | Approach speed |
| Ui | Fast inspection speed |
| H: | Relevelling speed |

Input EXIN1
Fot ExMi=EGRPDE
Input EXIN1 displays the states of the controller inputs according to the following table:

| Bit | Terminal | Setting | Description |
| :---: | :---: | :---: | :--- |
| R | VSM X6.2 | active | Auxiliary control ON |
| U | VSM X6.3 | active | Auxiliary control UP |
| D | VSM X6.4 | active | Auxiliary control DOWN |
| F | FST X7.13 | not active | 230V AC power supply |
| L | FST X7.14 | active | Car light OFF |
| B | FST X7.15 | active | Landing control OFF |
| E |  | active | GST found |
|  |  | active | Alarm |

Input EXIO2
Fort ExTQ=0bublen

Input/output EXIO2 displays the states of the programmable inputs and outputs according to the following table:

| Bit | Terminal | Setting | Description |
| :---: | :---: | :---: | :--- |
| $\boldsymbol{B}$ | FST X7.4 | active | Programmable input/output 0 |
| 1 | FST X7.5 | active | Programmable input/output 1 |
| 2 | FST X7.6 | active | Programmable input/output 2 |
| $\overline{3}$ | FST X7.7 | active | Programmable input/output 3 |
| 4 | FST X7.8 | active | Programmable input/output 4 |
| $\bar{Z}$ | FST X7.9 | active | Programmable input/output 5 |
| $\boldsymbol{\sigma}$ | FST X7.10 | active | Programmable input/output 6 |
| $?$ | FST X7.11 | active | Programmable input/output 7 |

Input H8IN1
Fort HeTHI=ZEGUN

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

| Bit | Terminal | Setting | Description |
| :---: | :--- | :--- | :--- |
| 0 |  |  | Not assigned |
| 1 |  |  | Not assigned |
| U | FSM X5.5 | active | Correction switch, top "CT" |
| U | FSM X5.7 | active | Correction switch, bottom "CB" |
| B | VSM X4.5 | active | Motor monitoring |
| $\underline{Z}$ | VSM X4.6 | active | Standstill monitoring |
|  | VSM X5.4 | active | zone message |

FSM-X6
Fy-ki
The FSM-X6 display shows the states of the following outputs of the car control module:

| Code | Terminal | Setting | L= car light |
| :---: | :---: | :---: | :--- |
| $\bar{b}$ | FSM X6.3 | active | Car light OFF |
| 1 | FSM X6.3 | not active | Car light ON |


| Code | Terminal | Setting | car ventilator |
| :---: | :---: | :---: | :--- |
| $\bar{n}$ | FSM X6.4 | not active | Car ventilator OFF |
| 1 | FSM X6.4 | active | Car ventilator ON |


| Code | Terminal | Setting | K= door lock solenoid |
| :---: | :---: | :---: | :---: |
| $\boldsymbol{i}$ | FSM X6.5 | not active | Door locking solenoid released |
| $\mathbf{i}$ | FSM X6.5 | active | Door locking solenoid activated |

Source of special drive signals GC:BE BE BE BE

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


Fig. 3.4 Signals sources of SRC display

Decoding of the source display:

| Code | Source for fire mode signal |
| :---: | :--- |
| BI | Landing button module ADM |
| De | Programmable input/output of the FST-Controller |
| B4 | GST Group Controller |


| Code | Source for fireman mode signal |
| :---: | :--- |
| BI | FPM car operate panel, X4.4 |
| De | Programmable input/output of the FST-Controller |
| B4 | State was saved after a power failure and has been <br> reconstructed. |
| Be | ADM landing button module |

3 FST-Controller user interface
3.1 LC-Display and messages

| Code | Source for landing control OFF signal |
| :---: | :---: |
| bl | $\square$ key of the FST keypad |
| W2 | Programmable input/output of a RIO module (external) |
| 04 | Input "Landing control OFF", FST X7.15 |
| be | Programmable input/output of the FST-Controller |
| 10 | FPM car operate panel, X4.34 |
| 2 e | ADM landing button module |
| 40 | Push button mode (see "Special Call Mode" on page 139) |


| Code | Source for lift off signal |
| :---: | :---: |
| 01 | Lift off after a car light failure |
| D2 | Input "Car Light OFF", FST X7.14 |
| 04 | Programmable input/output of a RIO module (external) or ADM |
| E8 | Programmable input/output of the FST-Controller |
| 16 | Externally by the GST Group Controller or the LMS lift monitoring system |


| Code | Source for service mode signal |
| :---: | :---: |
| bi | External via LMS lift monitoring system |
| ம2 | TEST MEW E Gevice mode On |
| 04 | Programmable input/output of the FST-Controller |

Weight Sensor
LUE: ZGE ED FD DE

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


Fig. 3.5 State of the weight sensor

| Code | Description |
| :---: | :---: |
| ED | No PC-Card inserted |
| $\pm 1$ | PC-Card inserted - card type not detected |
| $\pm 2$ | PC-Card inserted - card type detected / card OK |
| 3 | PC-Card inserted - card type not detected / error |
| me | PC-Card memory type unknown |
| mi | Card type: static RAM |
| - | Card type: flash memory |
| CD | CIS memory: no CIS found |
| 61 | CIS status: CIS OK |
| +b | Flash type: PC-Card unknown / unusable |
| 41 | Flash type: AMD A28F040-512kB memory module |
| $+2$ | Flash type: INTEL I28f016-2MB memory module |
| \% | Size of memory storage in 0.1 MB steps |

## State of holding

 deviceGGu: bebebeb $\mathrm{F}=\mathrm{EbO}$

The state of the holding device is decoded as follows:

| Bit | Setting | Description HSU: $= \pm= \pm=$ = |
| :---: | :---: | :---: |
| $\begin{gathered} \mathrm{B} \\ \text { (right) } \end{gathered}$ | active | Pump for bolt control ON |
| 1 | active | Valve "extend bolt" activated |
| 2 | active | Valve "retract bolt" activated |
| 3 | active | Limit switch "bolt extended" active |
| 4 | active | Limit switch "bolt retracted" active |
| E | active | Input "car bottomed" active |
| $\begin{gathered} \bar{\epsilon} \\ \text { (left) } \end{gathered}$ | active | Input "re-pump" active |


| Number | Code | Description $\mathrm{P}=\mathrm{E}=\mathrm{I}$ ] |
| :---: | :---: | :---: |
| 1 (right) | 0 | Standstill |
| 1 (right) | 1 | Main contactors ON, waiting for star-delta start up |
| 1 (right) | 2 | Lift car (approx. 30mm) |
| 1 (right) | 3 | Motor run-on active |
| 1 (right) | 4 | Wait for bolt to extend or retract |
| 1 (right) | 5 | Bolt extended or retracted completely |
| 1 (right) | 6 | Wait for input "car bottomed" |
| 1 (right) | 7 | Delay after stop |
| 2 (left) | 0 | No bolt movement |
| 2 (left) | 1 | Bolts are retracting |
| 2 (left) | 2 | Bolts are extending |


| Number | Code | Description $\mathrm{F}=\mathrm{I}=\mathrm{I}$ |
| :---: | :---: | :--- |
| 2 (left) | 3 | Re-pumping active |
| 2 (left) | 4 | Error in bolt control |

## Line D

Drive mode messages
in line D

| Column | Display | Description |
| :---: | :---: | :---: |
| 1 | T | Auto test drive active |
|  | 5 | No serial connection to the frequency converter (FST X12) |
|  | $\pm$ | Data transmission to the frequency converter via serial connection is faulty (FST X12) |
| 2 | $\dagger$ | Direction of travel UP |
|  | 4 | Direction of travel DOWN |
| 3-4 | 10 | Next possible floor |
| 5-8 | [1] | In-car and landing call to target floor |
|  | 113 | In-car call to target floor |
|  | 131 | Landing call to target floor |
|  | शु | In-car control blocked |
|  | 1 1- | Landing control blocked |
| 9 |  | Not assigned |
| 10 | C | FST is integrated in a GST Group Controller |
|  | $=$ | FST is integrated in a GST Group Controller but communication with the GST is faulty |
| 11 | e | Flashes when recording data on the PC card |
|  | $F$ | Card is cleared |
| 12 |  | Not assigned |
| 13-20 | 1044412 | Current time of the FST-Controller |

## Information texts

When triggering actions in the FST Menu information texts may be displayed. They contain information on the result of the action.

| Display | Description |
| :---: | :---: |
| * ! Emereve mode ! $\%$ | The controller is in emergency operation mode. Drives are not possible. Emergency operation is activated by pressing the key while switching the system on. |
| GDU STCK ${ }^{\prime \prime}$ | The landing call from the specified floor and door side is permanently activated (is stuck). |
| mbm mhentimured | A landing button module connected to the shaft bus is not configured. Inform your NEW LIFT Hotline! |
| DRTUE THTETT OU! | The drive is locked by the LMS bus. Starting will be delayed until the connected systems have completed their acceleration phases. |
| Flesee umit | The triggered action has not been completed. Please wait! |
| FRXGE GीU OK! | A status fax has been successfully sent via the modem interface. |
| FRXGts -\% GT! | A fax/sms is sent to the group controller where it will be sent via the FAXmodem. |
| FREGUS WUT EEWT | Transmission of a status fax via the modem interface has been aborted. Check modem and telephone connection. See hHid tEDU -- Gontig ModemFerlug |
| FTE WUT FGWU! | The inserted PC-Card does not contain the files required for the triggered action. |
| Ft gotumre updete | The software of the FST is updated with a PC-Card. The progress in [\%] is displayed in line C. |
| Qt MPDTE COTPETE | The software update of the GST Group Controller has been completed. |
| FeTO CRe Hetue. | Soft priority car is waiting for standstill after the pending in-car call. See thTM <br>  |
| Cutibution mbort | The calibration drive has been aborted. Check function of connected drive speeds. Locate reason for abortion in the error list. |
| W6 ©T> ETGM | The car is on the top floor and the correction top signal is missing (only when using incremental positioning). Check function of CT switch. Check settings in <br>  Check setting of jumper JMP6 on the FST board. |
| W6 पe Entw | The car is on the bottom floor and the correction bottom signal is missing (only when using incremental positioning). Check function of CB switch. Check settings in MHTWEWE -- Fositionime -- Tmerempos. -CTAC-1evel. Check setting of jumper JMP6 on the FST board. |
| Covfr Trateree Eet | An error has occurred during copying of the controller configuration. |
| Covere Trpubree ok | Copying the controller configuration has been completed successfully. |
| Covemidy Conert | A parameter of the drive configuration is not plausible. Change a parameter in MHi WTH -- Drive and undo the change again. The information text disappears after saving the settings. |
| CWFTES] CORQPT | A parameter of the system configuration is not plausible. Change a parameter in mid MED -- Gotis and undo the change again. The information text disappears after saving the settings. |
| AREM DeTUE FRTMEE | The started learn drive has not been successful. Check function of signals zone B, correction bottom and correction top. |


| Display | Description |
| :---: | :---: |
| LEREN STRET FRMLUEE | The started learn drive has been aborted due to the car not moving even with pre-selection active. |
| DRU-TES STRTED | A drive test has been triggered. |
| Dev-TEST FMUSHE! | The drive test has been completed successfully. |
| CR \&UGQWE DETET! | The car nuisance protection function has triggered. See MHTMED -Gonit -- miti huismace |
| WUT TH THE ZONE: | The started learn drive can not be completed because the car is not in the door zone. Check function of Zone B signal and settings in WhT ITEUL -Fositionine -- Thorempos. -- Zoued-level. Check setting of jumper JMP7 on the FST board. |
|  | The started learn drive can not be completed because the car is not on the lowest floor. |
| WUT Fett EM Flodel | The car is at an end floor. The triggered end switch test cannot be started from this floor. |
| OUY FROU EUE FLOER | The triggered drive test can only be started from an end floor. |
| PC-CRE RETUUE! | The inserted PC-Card has been removed from slot X8. |
| FC-GRD Flat Trege | The flash type of the inserted PC-Card is unkown. The PC-Card cannot be used. |
| PC-TRE ETPT | The inserted PC-Card has been cleared successfully. |
| PC-GRE LOL DRTGRy | The battery voltage of the inserted PC-Card is too low. Change battery! |
| PC-TRC OX | The inserted PC-Card has been recognized by the controller and can be used. |
| FC-CHO TYPE\%\%? | The inserted PC-Card has not been recognized by the controller and cannot be used. |
| Chekime hFdete File | The software is updated. The inserted PC-Card is checked for update files. |
| PEDRQTG RE¢TMET | An already started recording has been restarted. |
| PCCORDHE GTOPPD | Recording has been stopped. |
| PECDOTW \&EQ STRT! | A new recording is started. |
| Supreusor level | The supervisor level is accessed with a master password. It enables setting hidden parameters. |
| FTE WUT FGWD | The software update has been aborted. The inserted PC-Card does not contain update files. |
| UFDRTE FTE FDUW | The file required for the software update has been found on the PC-Card. The software is updated. |
| UPDPTE COPPETE | The software update of the LON module has been completed. |
| WFTTWETO REST".* | Automatic RESET after changing basic parameters (e.g. Dr ive time). This may take a few seconds. |
| EXESGTE SLPPPGE! | During the last drive of the learn drive hysteresis of the connected solenoid switches CT, CB and Zone B has been detected (only when using incremental positioning). If a value greater than 10 mm is measured this message is displayed. Hysteresis is limited to 10 mm automatically. See "ZoneB-Hysters" on page 135. |
| Domembembe | Nudging (forced closure) of the car door is activated. Photocell and reversing contacts are ignored. See mhT THW -- Dotes -- Detrs <br>  Gelective - Whee Time. |

## Information page

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

It can be accessed with key combination + and closed with ${ }^{6}$. The $\uparrow \sqrt{\square}$ keys are used to navigate through the information page.


```
    Hu ver = I4-4%
```



```
    ##%EMET
```

| A | Information page |
| :--- | :--- |
| B | Hardware version 12-16 of the FST |
| C | Software version V1.100-026 of the FST |
| D | Release date of the software version |

Messages in
lines B, C and D

| Display | Description |
| :---: | :---: |
| Hu Uere 14 - 6 | Hardware version of the FST board |
|  | Software version with release date |
| Enct पer bub4 | Software version of the operating system |
| F94 Uer Fgubles | Software version of the FSM car control module If no software version is displayed here there is no bus connection to the FSM (see "LON Configuration" on page 118). |
| FPM Uer Fpoblige | Software version of the FPM car operating panel module If no software version is displayed here there is no bus connection to the FPM (see "LON Configuration" on page 118). |
| Littonim | Internal identification of the controller The ID displayed here must correspond to the jumper settings of FSM and FPM (see "ID " on page 121, "FSM car control module" on page 58 and "FPM car operating panel module" on page 65). |
| Wenman Tin <br> Q1 DE 2 Cl +h D | Unique ID for identification of the FST |
| SEtemTM. Test bench | System location or name |
| Fetory mumer. Fcgebed 4 | Order number of the individual lift system |
| Sterti2\%\%r01 06:2S | Date and time of activation |
| की $12 \% \mathrm{~F}$ | Date and time of last calibration drive |
|  | Start date and time of the current statistics recording |
|  | Date and time of the last change of a parameter in the FST Menu |


| Display | Description |
| :---: | :---: |
| CTEEMEMTME 12 BE | Date and time of the current backup copy in the internal buffer |
|  | Date and time of the last reset of the error list |
| Sectevel 1 | current security level of the FST |

### 3.2 Keypad functions

The FST-Controller is operated using six keys. The keys have different functions in the different displays.

## When switching on



| s | Pressing and holding key during the switch-on sequence of <br> the FST starts emergency mode. In emergency mode no <br> drives are possible. Emergency mode is required if the FST <br> cannot be switched on in normal mode due to a fault. The <br> complete FST Menu and the PC-Card functions are active in <br> emergency mode. |
| :---: | :--- |

## Main screen



| (1) | Set in-car call to top floor |
| :---: | :---: |
| (1) | Set in-car call to bottom floor |
| $\square$ | Switch landing control on and off (switch function) |
| $\Theta$ | Open test menu |
| 國 | Open main menu |
| S | Press before switching on and hold until the start-up sequence of the FST is completed: Emergency operation is activated, see "*!! EMERGENY MODE !!*" on page 28. |
| [ + 1 | Set in-car call to next floor up |
| [ + d | Set in-car call to next floor down |
| S + B | Scroll through the right status messages in line C |
| S $+\square$ | Scroll through the left status messages in line C |
| [ + E | Display information page |
| $\sqrt{s}+\square+\square$ | Toggle diagnostic messages in line C on and off |
| $\boxed{1}+\square_{+} \square_{+}$ | Controller RESET |


| ShFETY Ct Clued | $\sqrt{6}+\square$ | Scroll diagnostic messages down |
| :---: | :---: | :---: |
|  |  | Scroll diagnostic messages up |
| D6 13\#6E:E6 |  |  |

## Main menu and test menu

| THT MEUI <br> Drive <br> Contig <br> PFGEitionime |  | 1 | Move cursor up |
| :---: | :---: | :---: | :---: |
|  |  | (1) | Move cursor down |
|  |  | 5 | Exit submenu |
|  |  | $\theta$ | Change menu level |
|  |  | E | Select submenu / menu item |


| Chate Setine | (1) | Increase value |
| :---: | :---: | :---: |
|  | - | Decrease value |
|  | $\square$ | Move cursor left |
| 134460 | $\Theta$ | Move cursor right |
|  | 國 | Confirm settings |

## Error list

|  | \1 | Switch to 2nd to 8th information byte in line D |
| :---: | :---: | :---: |
| 28.09 10.18.26 [0121 | 1 | Switch to initial display in line D |
|  | [ ${ }^{\text {a }}$ + | To last error message |
|  |  | To next error message |

## Information page

| - Fi Intormition |  |
| :---: | :---: |
| Hib Uer ${ }^{\text {a }}$-16 |  |
|  | Gu UEE "U1 166-6026 |
|  | "1865 199 |


| $\boxed{\square}$ | Scroll one line up |
| :---: | :--- |
| $\square$ | Scroll one line down |
| $\square$ | Back to main screen |
| $\square$ |  |

### 3.3 LEDs

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

| LED | Colour | State | Reason | Action |
| :---: | :---: | :---: | :---: | :---: |
| RUN | green | on | Power on |  |
|  |  |  | The hardware of the FST-Controller is working correctly. |  |
|  |  | off | No power | Check 24 V power supply of the FSTController. |
|  |  |  | The hardware of the FST-Controller is faulty. | Inform your NEW LIFT Hotline! |
| STATUS | green | on | The drive processor is working correctly. |  |
|  |  | flashing | Landing control OFF | $\square$ switches the landing control on again. |
|  |  | off | Fault in the drive processor. | Inform your NEW LIFT Hotline! |
| ERROR | red | on | A drive is 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 have been added to the error list. | The ERROR LED goes out after the error list has been called up. |
|  |  | off | There is no error or event. |  |

### 3.4 HHT handheld terminal

The HHT handheld terminal enables operation of all control functions of the FST-Controller for commissioning and maintenance independent of location. The handheld terminal can be connected to the LON bus at any place.

The user interface of the HHT is identical to that of the FST-Controller, see page 10.


Fig. 3.6 HHT handheld terminal

## Selection of the FST when using a group controller

When using a group controller, all FST-Controllers access the LON bus at the same time. This means that after connecting the HHT handheld terminal the desired FST-Controller must be selected. After connecting the HHT defaults to FST-Controller A.

If key is pressed for more than three seconds the screen displays:

| -- Fiterminm Un ib - | 1/ | Select the desired FST-Controller (E...i-i) |
| :---: | :---: | :---: |
| Gommect torgion | 國 | Confirm selection. If the display flashes after confirmation, no connection can be established to the selected FST-Controller. |

The selection is preserved during power failures.

## 4 Technical Data

The FST Lift Controller from NEW LIFT is a result of years of product experience in the area of controller design for lift systems and close cooperation with various component manufacturers, technical regulatory authorities and our customers.

The lift control system consists of the FST main circuit board with the user interface, electronics modules and cables. The individual components of the FST Lift Controller are described and dimensions, jumpers, LEDs, terminals and plugs are explained. All FST components described in this manual are shown in the component overview Fig 5.1 on page 38.

All electronics module designs from NEW LIFT are one hundred per cent compatible. Drill-hole dimensions, jumpers or pin assignments are not changed when the electronics modules are modified.

### 4.1 Component overview - bus plan

NEW LIFT provides an overview of the individual components known as "bus plan" that is supplied with the circuit documentation of each lift system. For each electronics module installation site, associated bus and the respective length of LON bus cables are specified in the bus plan. Each electronics module is clearly labelled on the circuit board. Using this labelling, the individuals components are assigned on the bus plan.


Fig. 4.1 FST-Controller component overview (bus plan)

### 4.2 FST-Controller

All standard types of cable and hydraulic lifts can be operated using the FST-Controller. The pre-assembled FST-Controller can easily be adapted to any individual lift system on site using the FST Menu. New software versions can be easily installed at any time via the PC-Card slot without changing system-specific settings.

Components and features of the FST-Controller:

## Components:

- FST main circuit board with separate processors for call processing, drive control and bus management
- Integrated repeater for electrical isolation of shaft and lift car buses
- RS-585 / RS-422 / RS-232 controller interfaces for communication with drive regulators
- Encoder interface for connecting common absolute and incremental encoders
- Flash memory and battery-buffered RAM for an error memory with up to 100 entries
- PC-Card / PCMCIA slot for using memory cards
- RS-232 modem interface for remote data transmission, FAX and PAM functions
- RS-232 PC interface (laptop on site)
- LC-Display with $4 \times 20$ characters (ASCII character set)
- Keypad for intuitive navigation in main and test menus
- 8 programmable inputs and outputs on the FST main circuit board
- 72 programmable inputs and outputs on additional RIO Modules

An overview of the features and functions of FST-Controller can be found in the description of the FST-Controller.

| Technical Data | Description | Value | Unit |
| :---: | :---: | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Power consumption | 300 | mA |
|  | Length $\times$ width $\times$ height | $200 \times 210 \times 50$ | mm |
|  | Temperature range |  |  |
|  | Storage / transport | $-20-+70$ | ${ }^{\circ} \mathrm{C}$ |
|  | Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
|  | Relative humidity |  |  |
|  | Storage / transport | 5-95 | \% |
|  | Operation | 15-85 | \% |



Fig. 4.2 FST-Controller


Fig. 4.3 FST jumpers and GND-PE coupling

## Jumper JMP1

## Output encoder-B simulation

The encoder-B signal internally generated by the controller for zone switching can be connected to terminal VSM X5.6 via jumper JMP1. Jumper JMP1 is usually not plugged. Only set this jumper if the external solenoid switch zone switch B is not connected (see "FSM: X5" on page 62 and MTH MUU - Fositionime - Guber - Zone metue).

| Function | JMP1 |
| :--- | :---: |
| External zone switch B connected to FSM X5.3 | open |
| No external zone switch B connected to FSM X5.3 | plugged |

## Jumper JMP2 Emergency stop recognition

The fast emergency stop recognition deletes the drive command of the frequency converter before the motor contactor drops and starts throwing out sparks. Jumper JMP2 defines the response time of the emergency stop recognition.

| Function | Response time | JMP2 |
| :--- | :---: | :---: |
| Fast emergency stop recognition | 5 ms | open |
| Normal emergency stop recognition | 30 ms | plugged |

## Jumper JMP3 Service jumper

JMP3 (service jumper) is not plugged.

## Jumper JMP4 Encoder jumper X2, pin 8

With jumper JMP4 signal X2.8 can be bridged with GND. This jumper is required for absolute value encoders with input for direction of rotation. Do not plug JMP4 with incremental value sensors.

| Encoder type | X2, pin 8 | JMP4 |
| :--- | :---: | :---: |
| Absolute value encoder | Direction of rotation | plugged |
| Incremental value encoder | Line A (inv.) | open |

## Jumper JMP5 Power supply X2

Jumper JMP5 determines the supply voltage of encoder connection X2. Jumper JMP5 must always be plugged.

| Power supply | JMP5 |
| :--- | :---: |
| 24 V DC | $1-2$ |
| 5 V DC | $2-3$ |

## Jumper JMP6 Potential of correction switches CB and CT

When using incremental encoders correction switches CB and CT are required for floor correction at the top and bottom landings. Jumper JMP6 defines the switched potential of the correction switches. Jumper JMP6 must always be plugged when using incremental positioning.

| Potential | JMP6 |
| :--- | :---: |
| switched + 24V DC | $1-2$ |
| switched GND | $2-3$ |

## Jumper JMP7 Potential of the external zone switch B (open on floor)

Jumper JMP7 defines the switched potential of the external zone switch B. Jumper JMP7 must always be plugged.

| Potential | JMP7 |
| :--- | :---: |
| switched + 24V DC | $1-2$ |
| switched GND | $2-3$ |

GND-PE coupling The potentials 24VGND and PE are coupled by the FST-Controller using an RC combination. The mounting hole across which both potentials are applied (internal PE, external GND, see "FST jumpers and GND-PE coupling" on page 42 ) are fitted with a plastic nut.

To enable bridging of the RC combination (direct connection between GND and PE) the mounting hole is fitted with a conductive metal nut.

LEDs

| LED | Colou <br> r | State | Description |
| :---: | :---: | :---: | :--- |
| RUN | green | on | The FST-Controller is switched on and <br> working correctly. |
|  |  | off | The FST-Controller has no power <br> supply. |
| STATUS | green | on | The drive processor is working correctly. |
|  |  | flashing | The landing control is switched off. |
|  | off | Fault in the drive processor. |  |
| ERROR | red | on | A drive is not possible. |
|  |  | flashing | One or more errors have been added to <br> the error list. |
|  |  | off | There is no error or event. |

4 Technical Data
4.2 FST-Controller

## Terminals and plugs

| FST: X1 | Pre-selection circuit board |  |
| :---: | :---: | :---: |
| 1 | Motor monitoring | (input) |
| 2 | Standstill monitoring | (input) |
| 3 | Brake monitoring | (input) |
| 4 | Auxiliary and ramp control "ON" | (input) |
| 5 | Auxiliary and ramp control "UP" | (input) |
| 6 | Auxiliary and ramp control "DOWN" | (input) |
| 7 | Correction switch, bottom "CB" | (input) |
| 8 | Correction switch, top "CT" | (input) |
| 9 | Zone enabling | (output) |
| 10 | Zone signal | (input) |
| 11 | Simulated encoder-B | (input) |
| 12 | Override safety monitoring device A6 | (output) |
| 13 | Pre-selection relay 0 | (output) |
| 14 | Pre-selection relay 1 | (output) |
| 15 | Pre-selection relay 2 | (output) |
| 16 | Pre-selection relay 3 | (output) |
| 17 | Pre-selection relay 4 | (output) |
| 18 | Pre-selection relay 5 | (output) |
| 19 | Pre-selection relay 6 | (output) |
| 20 | Pre-selection relay 7 | (output) |
| 21 | Pre-selection relay 8 | (output) |
| 22 | Pre-selection relay 9 | (output) |
| 23 | Pre-selection relay 10 | (output) |
| 24 | Pre-selection relay 11 | (output) |
| 25 | Pre-selection relay 12 | (output) |
| 26 | Opto-coupler "Emergency stop" | (input) |
| 27 | Opto-coupler "Door C" | (input) |
| 28 | Opto-coupler "Door B" | (input) |
| 29 | Opto-coupler "Door A" | (input) |
| 30 | Opto-coupler "Door lock" | (input) |
| 31 | +24V (permanent) |  |
| 32 | +24V (permanent) |  |
| 33 | +24V (pre-selection supply) |  |
| 34 | +24V (pre-selection supply) |  |
| 35 | + $12 \ldots+24 \mathrm{~V}$ (emergency power supply unit) |  |
| 36 | OV / GND |  |
| 37 | OV / GND |  |
| 38 | OV / GND |  |
| 39 | OV / GND |  |
| 40 | OV / GND |  |


| FST: X2 | Colour <br> code | Absolute value encoder | Pin on <br> absolute <br> value <br> encoder |
| :---: | :---: | :--- | :---: |
| 1 | PK | Data signal "A" | P2 |
| 2 | YE | Clock signal "A" | P3 |
| 3 | RD | Incremental encoder signal "A" |  |
| 4 | WH | $+24 V$ or +5 V (JMP5) | P8 |
| 5 | BN | 0V / GND | P1 |
| 6 | GY | Data signal "B" | P10 |
| 7 | GN | Clock signal "B" | PS0 |
| 8 | BU | Incremental encoder signal "B" | P5 |
| 9 | Shield | PE / protective conductor |  |


| FST: X3 | Colour <br> code | Option bus |
| :--- | :---: | :---: |
| See LON-Bus page 94. |  |  |


| FST: X4 | Colour <br> code | Car bus |
| :---: | :---: | :--- |
| 1 | PK | Bus signal "A" |
| 2 | YE | Phone "B" |
| 3 | RD | Voice "B" |
| 4 | BN | Alarm emergency power supply unit (HSG) |
| 5 | WH | $+12 . .24 V$ DC (supply voltage of emergency <br> power supply unit) |
| 6 | GY | Bus signal "B" |
| 7 | GN | Phone "A" |
| 8 | BU | Voice "A" |
| 9 | Shield | PE / protective conductor |


| FST: X5 | Colour <br> code | Shaft A bus |
| :--- | :---: | :---: |


| FST: X6 | Colour <br> code | Shaft B bus |
| :--- | :---: | :---: |
| See LON-Bus page 94. |  |  |

4 Technical Data
4.2 FST-Controller

| FST: X7 | Power supply / telephone / programmable inputs/outputs |
| :---: | :---: |
| 1 | +24V / 2A (power supply of FST) |
| 2 | 0V / GND / 2A (power supply of FST) |
| 3 | +24V / 0.5A (power supply) |
| 4 | Programmable input/output 0 |
| 5 | Programmable input/output 1 |
| 6 | Programmable input/output 2 |
| 7 | Programmable input/output 3 |
| 8 | Programmable input/output 4 |
| 9 | Programmable input/output 5 |
| 10 | Programmable input/output 6 |
| 11 | Programmable input/output 7 |
| 12 | OV / GND / 0.5A (power supply for low-active inputs) |
| 13 | Input: message "Power failure" (input) |
| 14 | Input: Car Light "OFF" (input) |
| 15 | Input: Landing control "OFF" (input) |
| 16 | Input: OV / GND (for emergency power and intercom system) (input) |
| 17 | Input: +12..24V (supply for emergency power unit) (input) |
| 18 | Output: Alarm horn (output) |
| 19 | Voice "A" |
| 20 | Voice "B" |
| 21 | Phone "A" |
| 22 | Phone "B" |
| 23 | Input: +24V / 4A (shaft bus and GST supply) |
| 24 | Input: OV / GND / 4A (shaft bus and GST supply) |


| FST: X9 | Service PC (RS-232 interface) |
| :---: | :--- |
| 1 | DCD Data Carrier Detected |
| 2 | RxD Receive Data |
| 3 | TxD Transmit Data |
| 4 | DTR Data Terminal Ready |
| 5 | 0V / GND Ground |
| 6 | DSR Data Set Ready |
| 7 | RTS Request To Send |
| 8 | CTS Clear To Send |
| 9 | RI Ring Indicator |


| FST: X10 | Modem (RS-232 interface) |
| :--- | :---: |
| See FST: X9 |  |


| FST: X11 | Serial 1 (2-wire RS-232 interface) |
| :---: | :--- |
| 1 | Not assigned |
| 2 | RxD Receive Data |
| 3 | TxD Transmit Data |
| 4 | Not assigned |
| 5 | $0 \mathrm{~V} /$ GND Ground |
| 6 | Not assigned |
| 7 | Not assigned |
| 8 | Not assigned |
| 9 | Not assigned |


| FST: X12 | Serial 2 |  |  |
| :---: | :---: | :---: | :---: |
|  | RS-232 | RS-422 | RS-485 |
| 1 | Not assigned | Not assigned | Not assigned |
| 2 | RxD | Not assigned | Not assigned |
| 3 | TxD | Not assigned | Not assigned |
| 4 | +TX | "A" | "A" bridged with 7 |
| 5 | OV / GND | OV / GND | OV / GND |
| 6 | Not assigned | Not assigned | Not assigned |
| 7 | + Rx | "A" | "A" bridged with 4 |
| 8 | -Rx | "B" | "B" bridged with 9 |
| 9 | -Tx | "B" | "B" bridged with 8 |

The software distinguishes between a RS-232 and a RS-4xx interface for connecting the position encoder. With RS-422 and RS-485 the plug wiring is different.

### 4.3 VSM pre-selection module

The VSM pre-selection module electrically isolates the mains voltage signals of the drive circuit and the safety circuit from the control signals of the FST-Controller. The control signals of the drive are isolated by the preselection relays. The control signals of the safety circuit are isolated by the opto-coupler.

The zero conductor of the drive contactors must be routed via the circuit board (see terminals X1.8 and X2.9 on page 52 for connecting the zero conductor).

A valid type verification certificate from the TÜV-Rheinland is available for the VSM pre-selection module.

| Technical Data | Description | Value | Unit |
| :---: | :---: | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Safety circuit control signals | 24 | V DC |
|  | Drive control signals | 250 | V AC |
|  | Power consumption | 50 | mA |
|  | Length $\times$ width $\times$ height | $120 \times 120 \times 17.5$ | mm |
|  | Temperature range |  |  |
|  | Storage / transport | $-20-+70$ | ${ }^{\circ} \mathrm{C}$ |
|  | Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
|  | Relative humidity |  |  |
|  | Storage / transport | 5-95 | \% |
|  | Operation | 15-85 | \% |



Fig. 4.4 VSM pre-selection module

Jumper J1 Jumper J1 determines whether the monitoring signals (motor, standstill, break) are low-active (0V) or high-active signals (+24V).



| Function | Pin |
| :--- | :---: |
| Low-active monitoring signals | $1-2$ |
| High-active monitoring signals | $2-3$ |

Jumper J1 must be plugged. The monitoring signals must not be undefined.

Jumper J2 Jumper J2 determines the source for the power supply of the pre-selection relays K0..K8.

If jumper $\mathbf{J} 2$ is not plugged the pre-selection relays K0..K10 are not powered and cannot be activated.

| Source | Function | Pin |
| :---: | :--- | :---: |
| +24 V | During an emergency stop the software <br> releases the pre-selection relays K0..K10. | $1-2$ |
| +24 V NH | During an emergency stop relays K0...K10 <br> are released by the hardware (24V NH). | $2-3$ |

LEDs

| LED | Colou <br> r | State | Description |
| :---: | :---: | :---: | :--- |
| LD1 | green | on | No emergency stop |
| LD2 | green | on | Door contact C closed |
| LD3 | green | on | Door contact B closed |
| LD4 | green | on | Door contact A closed |
| LD5 | green | on | Door lock or door lock contact closed |
| LD6 | green | on | Bypass relay K20 activated |
| LD7 | green | on | Pre-selection relay K0 activated |
| LD8 | green | on | Pre-selection relay K1 activated |
| LD9 | green | on | Pre-selection relay K2 activated |
| LD10 | green | on | Pre-selection relay K3 activated |
| LD11 | green | on | Pre-selection relay K4 activated |
| LD12 | green | on | Pre-selection relay K5 activated |
| LD13 | green | on | Pre-selection relay K6 activated |
| LD14 | green | on | Pre-selection relay K7 activated |
| LD15 | green | on | Pre-selection relay K8 activated |
| LD16 | green | on | Zone message (input) |
| LD17 | green | on | Zone enabling (output) |


| Terminals and plugs | VSM: X1 | Safety circuit poll |
| :---: | :--- | :--- |
|  | 1 | Bypass A6 Safety Circuit (input) |
| 2 | Monitoring safety contact "Door lock" |  |
| 3 | Monitoring safety contact "Door A" |  |
| 4 | Monitoring safety contact "Door B" |  |
| 5 | Monitoring safety contact "Door C" |  |
| 6 | Monitoring safety contact "Emergency stop" |  |
| 7 | Safety contact "emergency stop" of the A6 Safety Circuit |  |
| 8 | Zero conductor | (input) |


| VSM: X2 | Pre-selection "A" |
| :---: | :--- |
| 1 | Door lock conductor B (bridged with terminal X3.8 at zero <br> potential) |
| 2 | Pre-selection contact 3 (potential X2.4) |
| 3 | Pre-selection contact 2 (potential X2.4) |
| 4 | Door lock conductor B (bridged with terminal X2.6 at zero <br> potential) |
| 5 | Not assigned |
| 6 | Door lock conductor A (bridged with terminal X1.2 at zero <br> potential) |
| 7 | Pre-selection contact 1 (safety circuit potential) |
| 8 | Pre-selection contact 0 (safety circuit potential) |
| 9 | Zero conductor (the type verification certificate requires a zero <br> conductor of the motor contactors) <br> (output) |


| VSM: X3 | Pre-selection "B" |
| :---: | :--- |
| 1 | Pre-selection contact 8.NC (potential X3.8) |
| 2 | Pre-selection contact 8.NO (potential X3.8) |
| 3 | Pre-selection contact 7.NC (potential X3.8) |
| 4 | Pre-selection contact 7.NO (potential X3.8) |
| 5 | Pre-selection contact 6 (potential X3.8) |
| 6 | Pre-selection contact 5 (potential X3.8) |
| 7 | Pre-selection contact 4 (potential X3.8) |
| 8 | Door lock conductor C (bridged with terminal X2.1 at zero <br> potential) |


| VSM: X4 | 24V monitoring |
| :---: | :--- |
| 1 | +24 V |
| 2 | OV / GND |
| 3 | Correction switch, top "CT" |
| 4 | Correction switch, bottom "CB" |
| 5 | Motor monitoring |
| 6 | Standstill monitoring |
| 7 | Brake monitoring |


| VSM: X5 | A6 Safety Circuit |
| :---: | :--- |
| 1 | +24 V |
| 2 | 0V / GND |
| 3 | Zone enabling (output) |
| 4 | Zone message (input) |
| 5 | Zone switch "A" (antivalent to "B") |
| 6 | Zone switch "B" (antivalent to "A") |


| VSM: X6 | Auxiliary control |
| :---: | :--- |
| 1 | +24 V |
| 2 | Auxiliary control "ON" |
| 3 | Auxiliary control "UP" |
| 4 | Auxiliary control "DOWN" |


| VSM: X7 | Falling supply voltage |
| :---: | :--- |
| 1 | +24 V |
| 2 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 3 | +24 V |
| 4 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 5 | +24 V |
| 6 | $0 \mathrm{~V} / \mathrm{GND}$ |


| VSM: X8 | Trailing cable |
| :---: | :--- |
| 1 | +24 V |
| 2 | +24 V |
| 3 | $0 \mathrm{~V} /$ GND |
| 4 | $0 \mathrm{~V} /$ GND |
| 5 | Zone switch "A" (antivalent to "B") |
| 6 | Zone switch "B" (antivalent to "A") |
| 7 | Correction switch, top "CT" |
| 8 | Correction switch, bottom "CB" |


| VSM: X9 | FST connection |
| :---: | :--- |
| 1 | Motor monitoring |
| 2 | Standstill monitoring |
| 3 | Brake monitoring |
| 4 | Auxiliary control "ON" |
| 5 | Auxiliary control "UP" |
| 6 | Auxiliary control "DOWN" |
| 7 | Correction switch, bottom "CB" |
| 8 | Correction switch, top "CT" |
| 9 | Zone enabling |
| 10 | Zone signal |
| 11 | Encoder B |
| 12 | Bypass A6 Safety Circuit |
| 13 | Pre-selection contact 0 |
| 14 | Pre-selection contact 1 |
| 15 | Pre-selection contact 2 |
| 16 | Pre-selection contact 3 |
| 17 | Pre-selection contact 4 |


| VSM: X9 | FST connection |
| :---: | :--- |
| 18 | Pre-selection contact 5 |
| 19 | Pre-selection contact 6 |
| 20 | Pre-selection contact 7 |
| 21 | Pre-selection contact 8 |
| 22 | Not assigned |
| 23 | Not assigned |
| 24 | Not assigned |
| 25 | Not assigned |
| 26 | Safety circuit "Emergency stop" |
| 27 | Safety circuit "Door C" |
| 28 | Safety circuit "Door B" |
| 29 | Safety circuit "Door A" |
| 30 | Safety circuit "Door lock" |
| 31 | Not assigned |
| 32 | Not assigned |
| 33 | Not assigned |
| 34 | Not assigned |
| 35 | Not assigned |
| 36 | Not assigned |
| 37 | OV / GND |
| 38 | OV / GND |
| 39 | OV / GND |
| 40 | OV / GND |

Terminal X9 connects the pre-selection module VSM with terminal strip X1 of the FST-Controller (see page 45). The VSM pre-selection module does not use the FST signals on pins 22 to 25 and 31 to 36 at present. Therefore the pins are shown as "not assigned" in this table.

### 4.4 VSE pre-selection extension

The VSE pre-selection extension is an extension module for the VSM preselection module. It provides four additional pre-selection relays K9...K12 for controlling the drive.

The VSE pre-selection extension is only used with few drive types.

| Technical Data | Description | Value | Unit |
| :---: | :---: | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Drive control signals | 250 | V AC |
|  | Power consumption | 50 | mA |
|  | Length $\times$ width $\times$ height | $100 \times 50 \times 17.5$ | mm |
|  | Temperature range |  |  |
|  | Storage / transport | $-20-+70$ | ${ }^{\circ} \mathrm{C}$ |
|  | Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
|  | Relative humidity |  |  |
|  | Storage / transport | 5-95 | \% |
|  | Operation | 15-85 | \% |



Fig. 4.5 VSE pre-selection extension

Jumpers Jumpers $\mathrm{J} 10, \mathrm{~J} 11$ and J 12 determine the supply of relay contacts K10...K12. The supply of relay contact K9 is applied to terminal X10.1.

| Jumper |  | Potential |
| :---: | :--- | :--- |
| J10 | Pin 1-2 plugged | K10 supplied by X10.1. |
|  | Pin 2-3 plugged | K10 supplied by X10.4. |
| J 11 | Pin 1-2 plugged | K11 supplied by X10.1. |
|  | Pin 2-3 plugged | K 11 supplied by X10.8. |
| J 12 | Pin 1-2 plugged | K 12 supplied by X 10.1. |
|  | Pin 2-3 plugged | K 12 supplied by X 10.10. |

LEDs

| LED | Colou <br> $\mathbf{r}$ | State | Description |
| :---: | :---: | :---: | :--- |
| LD9 | green | on | Pre-selection relay K9 activated |
| LD10 | green | on | Pre-selection relay K10 activated |
| LD11 | green | on | Pre-selection relay K11 activated |
| LD12 | green | on | Pre-selection relay K12 activated |

## Terminals and plugs

| VSE: X9 | FST connection |
| :---: | :--- |
| $1 \ldots 21$ | Not assigned |
| 22 | Control pre-selection relay K9 |
| 23 | Control pre-selection relay K10 |
| 24 | Control pre-selection relay K11 |
| 25 | Control pre-selection relay K12 |
| $26 \ldots 30$ | Not assigned |
| 31 | +24 V (permanent) |
| 32 | +24 V (permanent) |
| $33 \ldots 36$ | Not assigned |
| 37 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 38 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 39 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 40 | $0 \mathrm{~V} / \mathrm{GND}$ |


| VSE: X10 | Extended pre-selection |
| :---: | :--- |
| 1 | Supply for relay contacts K9...K12 (see "Jumpers") |
| 2 | Opening contact K9 |
| 3 | Closing contact K9 |
| 4 | Supply for relay contact K10 (see "Jumpers") |
| 5 | Opening contact K10 |
| 6 | Closing contact K10 |
| 7 | Supply for relay contact K11 (see "Jumpers") |
| 8 | Opening contact K11 |
| 9 | Closing contact K11 |
| 10 | Supply for relay contact K12 (see "Jumpers") |
| 11 | Opening contact K12 |
| 12 | Closing contact K12 |

### 4.5 FSM car control module

The FSM car control module is the interface between FST-Controller and all low-voltage car signals. Signal exchange between FSM and FST takes place via the LON bus. The FSM is installed either in the control box on the car roof or in the car operating panel.

After switching off the main switch parts of the car control panel are still live.

- Plug X14 (car light) is only off circuit after the car light supply has been switched off.
- Plug X3 (emergency light) is only off circuit after the trailing cable plug X1 has been unplugged.

Technical Data

| Description | Value | Unit |
| :--- | :---: | :---: |
| Supply voltage | $24 \pm 10 \%$ | V DC |
| Power consumption | 300 |  |
| mA |  |  |
| Outputs | Excess load and short-circuit proof |  |
| Inputs/outputs | $200 \times 100.3 \times 34$ | mm |
| Length $\times$ width $\times$ height |  |  |
| Temperature range |  |  |
| Storage $/$ transport   <br> Operation $-20-+70$ ${ }^{\circ} \mathrm{C}$ <br> Relative humidity $\pm 0-+60$ ${ }^{\circ} \mathrm{C}$ <br> $\frac{\text { Storage } / \text { transport }}{\text { Operation }}$ $5-95$ $\%$ |  |  |

$\qquad$


Fig. 4.6 FSM car control module

## Jumpers Setting doors

| Setting | JT1 | JT2 |
| :---: | :---: | :---: |
| Door A or door A \& B | open | open |
| Door C | plugged | open |
| not applicable | open | plugged |
| not applicable | plugged | plugged |

A separate car control module is required for door $C$ when three car doors are installed.

Assigning the car in simplex mode

| Setting | JK3 | JK2 | JK1 |
| :---: | :---: | :---: | :---: |
| FST A | open | open | open |

## Assigning the 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 JK4.

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

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

## Setting the emergency power supply unit (HSG)

| Emergency power <br> supply unit | J3 |
| :---: | :---: |
| 12 V | plugged |
| 24 V | open |

## Unused jumpers

Not plugged:

- J2 (service jumper)
- J1 (no function at present)

| LEDs | LED | Colou r | State | Description |
| :---: | :---: | :---: | :---: | :---: |
|  | LD1 | green | on | Door " A " is closing |
|  | LD2 | green | on | Door " A " is opening |
|  | LD3 | green | on | Door " B " is closing |
|  | LD4 | green | on | Door " B " is opening |
|  | LD5 | green | on | Supply voltage present |
|  | LD6 | yellow | flashing briefly | FSM ready |
|  |  |  | flashing or permanent ly on | Hardware error |
|  | LD7 | red | on | Car light off (see "FSM: X14" and "CAR LIGHT FAILURE" on page 157) |

Terminals and plugs

| FSM: X1 | Trailing cable |
| :---: | :--- |
| 1 | Bus signal "A" |
| 2 | Phone "B" |
| 3 | Voice "B" |
| 4 | Alarm emergency power supply unit (HSG) |
| 5 | $12 . .24 \mathrm{~V}$ DC (supply voltage of emergency power supply unit) |
| 6 | Bus signal "B" |
| 7 | Phone "A" |
| 8 | Voice "A" |
| 9 | PE / protective conductor |


| FSM: X2 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |


| FSM: X3 | Intercom / telephone (optional) |
| :---: | :--- |
| 1 | Phone "A" |
| 2 | Phone "B" |
| 3 | Voice "A" |
| 4 | Voice "B" |
| 5 | $8 . .24 \mathrm{~V}$ DC (supply voltage of intercom) |
| 6 | Emergency light |
| 7 | $0 \mathrm{~V} /$ GND |
| 8 | Alarm button |
| 9 | Alarm test |


| FSM: X4 | Supply voltage |
| :---: | :--- |
| 1 | +24 V |
| 2 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 3 | +24 V |
| 4 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 5 | +24 V |
| 6 | $0 \mathrm{~V} / \mathrm{GND}$ |


| FSM: X5 | Zone and correction switches |
| :---: | :--- |
| 1 | Zone switch "A" (antivalent to "B") |
| 2 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 3 | Zone switch "B" (antivalent to "A") |
| 4 | $0 \mathrm{~V} /$ GND |
| 5 | Correction switch, top "CT" |
| 6 | $0 \mathrm{~V} /$ GND |
| 7 | Correction switch, bottom "CB" |
| 8 | $0 \mathrm{~V} /$ GND |


| FSM: X6 | Car light / ventilator / approach chime |
| :---: | :--- |
| 1 | Approach chime (negative trigger) |
| 2 | +24 V |
| 3 | Relay for car light |
| 4 | Relay for car ventilator |
| 5 | Relay for cam "A" |
| 6 | Relay for cam "B" |
| 7 | Relay for cam "C" |


| FSM: X7 | Controller door "A" |
| :---: | :--- |
| 1 | Controller door "A" / common contact / COM |
| 2 | Controller door "A" open <> |
| 3 | Controller door "A" close $><$ |


| FSM: X8 | Controller door "A" |
| :---: | :--- |
| 1 | +24 V |
| 2 | Enable "Open Door A" / limit switch "Door A OPEN" |
| 3 | +24 V |
| 4 | Enable "Close Door A" / limit switch "Door A CLOSE" |
| 5 | +24 V |
| 6 | Reversing contact door "A" |
| 7 | +24 V |
| 8 | Photocell contact door "A" |
| 9 | OV / GND |

When using doors without limit switches terminal X8.1 must be bridged with X8.2 and terminal X8.3 with X8.4.

| FSM: X9 | Controller door "B" |
| :---: | :--- |
| 1 | +24 V |
| 2 | Enable "Open Door B" / limit switch "Door B OPEN" |
| 3 | +24 V |
| 4 | Enable "Close Door B" / limit switch "Door B CLOSE" |
| 5 | +24 V |
| 6 | Reversing contact door "B" |
| 7 | +24 V |
| 8 | Photocell contact door "B" |
| 9 | $0 \mathrm{~V} / \mathrm{GND}$ |

When using doors without limit switches terminal X9.1 must be bridged with X9.2 and terminal X9.3 with X9.4.

| FSM: X10 | Controller door "B" |
| :---: | :--- |
| 1 | Controller door "B" / common contact / COM |
| 2 | Controller door "A" open <> |
| 3 | Controller door "A" close >< |


| FSM: X11 | Sensor (load / car light) |
| :---: | :--- |
| 1 | Overload contact |
| 2 | OV / GND |
| 3 | Full load contact |
| 4 | OV / GND |
| 5 | Car empty |
| 6 | 0V / GND |
| 7 | Pre-assembled current sensor for car light |
| 8 | OV / GND |


| FSM: X12 | $\quad$ Inspection control |
| :---: | :--- |
| 1 | +24 V |
| 2 | Inspection ON |
| 3 | Inspection UP |
| 4 | Inspection DOWN |
| 5 | Inspection FAST |


| FSM: X13 | Trailing cable |
| :---: | :--- |
| 1 | +24 V |
| 2 | +24 V |
| 3 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 4 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 5 | Zone switch "A" (antivalent to "B") |
| 6 | Zone switch "B" (antivalent to "A") |
| 7 | Correction switch, top "CT" |
| 8 | Correction switch, bottom "CB" |


| FSM: X14 | Car light sensor |
| :---: | :--- |
| 1 | 230V AC supply cable for car light (from relay K301) |
| 2 | 230V AC supply cable for car light (to terminal L4C) |

The power consumption of the car light is measured with coil L1. This allows monitoring of the car light function (see description of control). LED LD7 shows the state of the car light (see "CAR LIGHT FAILURE" on page 157).

### 4.6 FPM car operating panel module

The FPM car operating panel module is the interface between in-car control panel and FST-Controller. One FPM supports up to 16 in-car call buttons. The FPM is connected to the FST via the LON bus. The FPM is installed either in the control box on the car roof or in the car operating panel.

| Technical Data | Description | Value | Unit |
| :---: | :---: | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Power consumption | 50 | mA |
|  | Max. switch-on current per output for approx. 40 ms | 600 | mA |
|  | Outputs | Excess load and short-circuit proof |  |
|  | Inputs/outputs | Low-active |  |
|  | Length $\times$ width $\times$ height | $120 \times 71 \times 20$ | mm |
|  | Temperature range |  |  |
|  | Storage / transport | $-20-+70$ | ${ }^{\circ} \mathrm{C}$ |
|  | Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
|  | Relative humidity |  |  |
|  | Storage / transport | 5-95 | \% |
|  | Operation | 15-85 | \% |



Fig. 4.7 FPM car operating panel module

## Jumpers Setting lift car doors

In "single door mode" the in-car buttons of the car operating panel module are assigned using the jumpers on one door side (A, B or C). If jumper J2 is plugged the FPM is in "dual door mode", this means that the FPM can process the in-car calls of door sides $A$ and $B$.

A separate FPM is required for door $C$ when three car doors are installed.

| Setting | Mode | JT1 | JT2 | J2 |
| :---: | :---: | :---: | :---: | :---: |
| Door A | single door mode | open | open | open |
| Door B | single door mode | plugged | open | open |
| Door C | single door mode | open | plugged | open |
| Door A+B | dual door mode | open | open | plugged |
| Door A+B <br> (Fireman input X4.4 and <br> loading button X4.34 act <br> on door B.) | dual door mode | open | plugged | plugged |
| Door B+A <br> (Calls A and B <br> switched.) | dual door mode | plugged | open | plugged |

## Assigning the car in simplex mode

| Setting | JK4 | JK2 | JK1 |
| :---: | :---: | :---: | :---: |
| FST A | open | open | open |

## Assigning the 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 JK4.

| Setting | JK4 | JK2 | JK1 |
| :---: | :---: | :---: | :---: |
| FST A | open | open | open |
| FST B | open | open | plugged |
| FST C | open | plugged | open |
| FST D | open | plugged | plugged |
| FST E | plugged | open | open |
| FST F | plugged | open | plugged |
| FST G | plugged | plugged | open |
| FST H | plugged | plugged | plugged |

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

## Unused jumpers

Not plugged:

- J1 (service jumper)

LEDs \begin{tabular}{|c|c|c|l|}

\hline LED \& | Colou |
| :---: |
| $\mathbf{r}$ | \& State \& \multicolumn{1}{|c|}{ Description } <br>


\hline LD1 \& yellow \& | flashing |
| :---: |
| briefly | \& FPM ready <br>


\cline { 3 - 4 } | flashing or |
| :---: |
| permanent |
| ly on | \& Hardware error <br>

\hline LD2 \& green \& on \& Supply voltage (+5V) present <br>
\hline
\end{tabular}

| FPM: X1 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |


| FPM: X2 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |


| FPM: X3 | Car call button extension |
| :---: | :--- |
| 1 | +24 V (supply voltage) |
| 2 | +24 V (supply voltage) |
| 3 | +5 V (supply voltage) |
| 4 | +5 V (supply voltage) |
| 5 | Reset SPI driver |
| 6 | $0 \mathrm{~V} / \mathrm{GND}$ |
| 7 | Serial clock |
| 8 | OV / GND |
| 9 | Serial output |
| 10 | OV / GND |
| 11 | Serial input |
| 12 | 0V / GND |
| 13 | SPI select 3 (IDR 48..63) |
| 14 | 0V / GND |
| 15 | SPI select 2 (IDR 32.0.47) |
| 16 | OV / GND |
| 17 | SPI select 1 (IDR 16.0.31) |
| 18 | OV / GND |
| 19 | FPE recognition |
| 20 | OV / GND |

The colour code in the following table corresponds to the 50-pin standard cable for wiring the in-car control panel. Individual systems can use different colour codes.

| FPM: <br> X4 | Colour <br> code | In-car control panel signals in <br> "single door mode" | Input/ <br> output |
| :---: | :---: | :--- | :---: |
| 1 | WH | Button "Ventilator ON" | E |
| 2 | BR | Button "Close Door B" | E |
| 3 | GN | Button "Close Door A" | E |
| 4 | YE | Key switch for Fireman Mode | E |
| 5 | GY | Display-2 | A |
| 6 | PK | Overload indicator | A |


| $\begin{aligned} & \text { FPM: } \\ & \text { X4 } \end{aligned}$ | Colour code | In-car control panel signals in "single door mode" | Input/ output |
| :---: | :---: | :---: | :---: |
| 7 | BU | Direction display "UP" | A |
| 8 | RD | +24V | A |
| 9 | BL | Floor display 6 | A |
| 10 | VT | Floor display 3 | A |
| 11 | GY PK | Floor display 0 (LSB) | A |
| 12 | RD BU | In-car button 15 | I/O |
| 13 | WH GN | In-car button 12 | I/O |
| 14 | BR GN | In-car button 09 | I/O |
| 15 | WH YE | In-car button 06 | I/O |
| 16 | YE BR | In-car button 03 | I/O |
| 17 | WH GY | In-car button 00 | I/O |
| 18 | GY BR | OV / GND | A |
| 19 | WH PK | OV / GND | A |
| 20 | PK BR | OV / GND | A |
| 21 | WH BU | OV / GND | A |
| 22 | BR BU | +24V | A |
| 23 | WH RD | +24V | A |
| 24 | BR RD | +24V | A |
| 25 | WH BL | Floor display 7 (MSB) | A |
| 26 | BR BL | Floor display 4 | A |
| 27 | GY GN | Floor display 1 | A |
| 28 | YE GY | In-car button enable | A |
| 29 | RD GN | In-car button 13 | I/O |
| 30 | YE PK | In-car button 10 | I/O |
| 31 | GN BU | In-car button 07 | I/O |
| 32 | YE BU | In-car button 04 | I/O |
| 33 | GN RD | In-car button 01 | 1/O |
| 34 | YE RD | Landing control OFF or button „Ioading function" (see "Pin-34 Functn" on page 123) | E |
| 35 | GN BL | Button "Open Door B" or "divider door" (see "Divider-Door" on page 123) | E |
| 36 | YE BL | Button "Open Door A" | E |
| 37 | GY BU | Key switch for priority car | E |
| 38 | RD BU | Display-1 | A |
| 39 | GY RD | Display-0 | A |
| 40 | PK RD | Direction display "DOWN" | A |
| 41 | GY BL | OV / GND | A |
| 42 | PK BL | Floor display 5 | A |
| 43 | BU BL | Floor display 2 | A |
| 44 | RD BL | Secondary in-car call button enable (only active with a card reader in the car) | A |
| 45 | WH BR BL | In-car button 14 | I/O |
| 46 | YE GN BL | In-car button 11 | I/O |


| FPM: <br> X4 | Colour <br> code | In-car control panel signals in <br> "single door mode" | Input/ <br> output |
| :---: | :---: | :--- | :---: |
| 47 | PK GR BL | In-car button 08 | I/O |
| 48 | BL BU RD | In-car button 05 | I/O |
| 49 | WH GN BL | In-car button 02 | I/O |
| 50 | GN BR BL | +24 V | A |


| $\begin{aligned} & \text { FPM: } \\ & \text { X4 } \end{aligned}$ | Colour code | In-car control panel signals in "dual door mode" | Input/ output |
| :---: | :---: | :---: | :---: |
| 1 | WH | Button "Ventilator ON" | E |
| 2 | BR | Button "Close Door B" | E |
| 3 | GN | Button "Close Door A" | E |
| 4 | YE | Key switch for Fireman Mode | E |
| 5 | GY | Display-2 | A |
| 6 | PK | Overload indicator | A |
| 7 | BU | Direction display "UP" | A |
| 8 | RD | +24V | A |
| 9 | BL | Floor display 6 | A |
| 10 | VT | Floor display 3 | A |
| 11 | GY PK | Floor display 0 (LSB) | A |
| 12 | RD BU | In-car button 07, door side B | I/O |
| 13 | WH GN | In-car button 04, door side B | I/O |
| 14 | BR GN | In-car button 01, door side B | I/O |
| 15 | WH YE | In-car button 06, door side B | I/O |
| 16 | YE BR | In-car button 03, door side B | I/O |
| 17 | WH GY | In-car button 00, door side B | I/O |
| 18 | GY BR | OV / GND | A |
| 19 | WH PK | OV / GND | A |
| 20 | PK BR | OV/ GND | A |
| 21 | WH BU | OV/GND | A |
| 22 | BR BU | +24V | A |
| 23 | WH RD | +24V | A |
| 24 | BR RD | +24V | A |
| 25 | WH BL | Floor display 7 (MSB) | A |
| 26 | BR BL | Floor display 4 | A |
| 27 | GY GN | Floor display 1 | A |
| 28 | YE GY | In-car button enable | A |
| 29 | RD GN | In-car button 05, door side B | I/O |
| 30 | YE PK | In-car button 02, door side B | I/O |
| 31 | GN BU | In-car button 07, door side A | I/O |
| 32 | YE BU | In-car button 04, door side A | I/O |
| 33 | GN RD | In-car button 01, door side A | I/O |
| 34 | YE RD | Landing control OFF or button „loading function" (see "Pin-34 Functn" on page 123) | E |


| FPM: <br> X4 | Colour <br> code | In-car control panel signals in <br> "dual door mode" | Input/ <br> output |
| :---: | :---: | :--- | :---: |
| 35 | GN BL | Button "Open Door B" or "divider door" <br> (see "Divider-Door" on page 123) | E |
| 36 | YE BL | Button "Open Door A" | E |
| 37 | GY BU | Key switch for priority car | E |
| 38 | RD BU | Display-1 | A |
| 39 | GY RD | Display-0 | A |
| 40 | PK RD | Direction display "DOWN" | A |
| 41 | GY BL | OV / GND | A |
| 42 | PK BL | Floor display 5 | A |
| 43 | BU BL | Floor display 2 | A |
| 44 | RD BL | Secondary in-car call button enable (only <br> active with a card reader in the car) | A |
| 45 | WH BR BL | In-car button 06, door side B | $\mathrm{I} / \mathrm{O}$ |
| 46 | YE GN BL | In-car button 03, door side B | I/O |
| 47 | PK GR BL | In-car button 00, door side B | I/O |
| 48 | BL BU RD | In-car button 05, door side A | I/O |
| 49 | WH GN BL | In-car button 02, door side A | I/O |
| 50 | GN BR BL | +24V | A |

### 4.7 FPE car control panel extension module

The FPE car control panel extension module extends the 16 in-car commands of the car control panel module by:

- 16 in-car commands (FPE16)
- 32 in-car commands (FPE32)
- 48 in-car commands (FPE48)

The FPE is connected to the FPM via plug X3.
Switching from "single door mode" to "dual door mode" is done with jumper J2 of the assigned FPM (see "Jumpers" on page 66).

| Technical Data | Description | Value | Unit |
| :---: | :---: | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Power consumption | 10 | mA |
|  | Max. switch-on current per output for approx. 40 ms | 600 | mA |
|  | Outputs | Excess load and short-circuit proof |  |
|  | Inputs/outputs | Low-active |  |
|  | Length $\times$ width $\times$ height | $98.5 \times 71 \times 20$ | mm |
|  | Temperature range |  |  |
|  | Storage / transport | $-20-+70$ | ${ }^{\circ} \mathrm{C}$ |
|  | Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
|  | Relative humidity |  |  |
|  | Storage / transport | 5-95 | \% |
|  | Operation | 15-85 | \% |



Fig. 4.8 FPE car control panel extension module

The colour code in the following table corresponds to the 50-pin standard cable for wiring the in-car control panel. Individual systems can use different colour codes.

Terminals and plugs

| FPE: <br> X2 | Colour <br> code | In-car control panel signals in <br> "single door mode"" | Input/ <br> output |
| :---: | :---: | :--- | :---: |
| 1 | WH | Output: +24V | A |
| 2 | BR | In-car button 61 | I/O |
| 3 | GN | In-car button 58 | I/O |
| 4 | YE | In-car button 55 | I/O |
| 5 | GY | In-car button 52 | I/O |
| 6 | PK | In-car button 49 | I/O |
| 7 | BU | In-car button 46 | I/O |
| 8 | RD | In-car button 43 | I/O |
| 9 | BL | In-car button 40 | I/O |
| 10 | VT | In-car button 37 | I/O |
| 11 | GY PK | In-car button 34 | I/O |
| 12 | RD BU | In-car button 31 | I/O |
| 13 | WH GN | In-car button 28 | I/O |
| 14 | BR GN | In-car button 25 | I/O |


| $\begin{aligned} & \text { FPE: } \\ & \text { X2 } \end{aligned}$ | Colour code | In-car control panel signals in "single door mode" | Input/ output |
| :---: | :---: | :---: | :---: |
| 15 | WH YE | In-car button 22 | I/O |
| 16 | YE BR | In-car button 19 | I/O |
| 17 | WH GY | In-car button 16 | I/O |
| 18 | GY BR | In-car button 62 | I/O |
| 19 | WH PK | In-car button 59 | I/O |
| 20 | PK BR | In-car button 56 | I/O |
| 21 | WH BU | In-car button 53 | I/O |
| 22 | BR BU | In-car button 50 | I/O |
| 23 | WH RD | In-car button 47 | I/O |
| 24 | BR RD | In-car button 44 | I/O |
| 25 | WH BL | In-car button 41 | I/O |
| 26 | BR BL | In-car button 38 | I/O |
| 27 | GY GN | In-car button 35 | I/O |
| 28 | YE GY | In-car button 32 | I/O |
| 29 | RD GN | In-car button 29 | I/O |
| 30 | YE PK | In-car button 26 | I/O |
| 31 | GN BU | In-car button 23 | I/O |
| 32 | YE BU | In-car button 20 | I/O |
| 33 | GN RD | In-car button 17 | I/O |
| 34 | YE RD | In-car button 63 | I/O |
| 35 | GN BL | In-car button 60 | I/O |
| 36 | YE BL | In-car button 57 | I/O |
| 37 | GY BU | In-car button 54 | I/O |
| 38 | RD BU | In-car button 51 | I/O |
| 39 | GY RD | In-car button 48 | I/O |
| 40 | PK RD | In-car button 45 | I/O |
| 41 | GY BL | In-car button 42 | I/O |
| 42 | PK BL | In-car button 39 | I/O |
| 43 | BU BL | In-car button 36 | I/O |
| 44 | RD BL | In-car button 33 | I/O |
| 45 | WH BR BL | In-car button 30 | I/O |
| 46 | YE GN BL | In-car button 27 | I/O |
| 47 | PK GR BL | In-car button 24 | I/O |
| 48 | BL BU RD | In-car button 21 | I/O |
| 49 | WH GN BL | In-car button 18 | I/O |
| 50 | GN BR BL | Output: +24V | A |


| $\begin{aligned} & \text { FPE: } \\ & \text { X2 } \end{aligned}$ | Colour code | In-car button panel in "dual door mode" | Input/ output |
| :---: | :---: | :---: | :---: |
| 1 | WH | Output: +24V | A |
| 2 | BR | In-car button 29, door side B | I/O |
| 3 | GN | In-car button 26, door side B | I/O |
| 4 | YE | In-car button 31, door side A | I/O |
| 5 | GY | In-car button 28, door side A | I/O |
| 6 | PK | In-car button 25, door side A | I/O |
| 7 | BU | In-car button 22, door side B | I/O |
| 8 | RD | In-car button 19, door side B | I/O |
| 9 | BL | In-car button 16, door side B | I/O |
| 10 | VT | In-car button 21, door side A | I/O |
| 11 | GY PK | In-car button 18, door side A | I/O |
| 12 | RD BU | In-car button 15, door side B | I/O |
| 13 | WH GN | In-car button 12, door side B | I/O |
| 14 | BR GN | In-car button 09, door side B | I/O |
| 15 | WH YE | In-car button 14, door side A | I/O |
| 16 | YE BR | In-car button 11, door side A | I/O |
| 17 | WH GY | In-car button 08, door side A | I/O |
| 18 | GY BR | In-car button 30, door side B | I/O |
| 19 | WH PK | In-car button 27, door side B | I/O |
| 20 | PK BR | In-car button 24, door side B | I/O |
| 21 | WH BU | In-car button 29, door side A | I/O |
| 22 | BR BU | In-car button 26, door side A | I/O |
| 23 | WH RD | In-car button 23, door side B | I/O |
| 24 | BR RD | In-car button 20, door side B | I/O |
| 25 | WH BL | In-car button 17, door side B | I/O |
| 26 | BR BL | In-car button 22, door side A | I/O |
| 27 | GY GN | In-car button 19, door side A | I/O |
| 28 | YE GY | In-car button 16, door side A | I/O |
| 29 | RD GN | In-car button 13, door side B | I/O |
| 30 | YE PK | In-car button 10, door side B | I/O |
| 31 | GN BU | In-car button 15, door side A | I/O |
| 32 | YE BU | In-car button 12, door side A | I/O |
| 33 | GN RD | In-car button 09, door side A | I/O |
| 34 | YE RD | In-car button 31, door side B | I/O |
| 35 | GN BL | In-car button 28, door side B | I/O |
| 36 | YE BL | In-car button 25, door side B | I/O |
| 37 | GY BU | In-car button 30, door side A | I/O |
| 38 | RD BU | In-car button 27, door side A | I/O |
| 39 | GY RD | In-car button 24, door side A | I/O |
| 40 | PK RD | In-car button 21, door side B | I/O |
| 41 | GY BL | In-car button 18, door side B | I/O |
| 42 | PK BL | In-car button 23, door side A | I/O |
| 43 | BU BL | In-car button 20, door side A | I/O |
| 44 | RD BL | In-car button 17, door side A | I/O |


| FPE: <br> X2 | Colour <br> code | In-car button panel in "dual door <br> mode" | Input/ <br> output |
| :---: | :---: | :--- | :---: |
| 45 | WH BR BL | In-car button 14, door side B | I/O |
| 46 | YE GN BL | In-car button 11, door side B | I/O |
| 47 | PK GR BL | In-car button 08, door side B | I/O |
| 48 | BL BU RD | In-car button 13, door side A | I/O |
| 49 | WH GN BL | In-car button 10, door side A | I/O |
| 50 | GN BR BL | Output: +24V | A |


| FPE: X3 | Colour <br> code | car call button extension |
| :--- | :---: | :---: |
| See FPM: X3 page 69 |  |  |

### 4.8 FPA car control panel adapter

The FPA car control panel adapter provides spring terminals for all in-car panel signals of FPM plug X4. It replaces the round 50-pin cable for wiring the in-car control panel.

The FPA is connected to plug X4 of the in-car control panel with the 50-pin plug X4.

Switching from "single door mode" to "dual door mode" is done with jumper J2 of the assigned FPM (see "Jumpers" on page 66).

Technical Data See FPM


Fig. 4.9 FPA car control panel adapter

## Terminals and plugs

| FPA: X4 | Function |
| :--- | :--- |
| See FPM: X4 page 69 |  |


| $\begin{aligned} & \text { FPA: } \\ & \text { X5 } \end{aligned}$ | In-car control panel signals | Input/ output |
| :---: | :---: | :---: |
| 1 | In-car button 00 (00 door side A in dual door mode) | I/O |
| 2 | In-car button 01 (01 door side A in dual door mode) | I/O |
| 3 | In-car button 02 (02 door side A in dual door mode) | I/O |
| 4 | In-car button 03 (03 door side A in dual door mode) | I/O |
| 5 | In-car button 04 (04 door side A in dual door mode) | I/O |
| 6 | In-car button 05 (05 door side A in dual door mode) | I/O |
| 7 | In-car button 06 (06 door side A in dual door mode) | I/O |
| 8 | In-car button 07 (07 door side A in dual door mode) | I/O |
| 9 | In-car button 08 (00 door side B in dual door mode) | I/O |
| 10 | In-car button 09 (01 door side B in dual door mode) | I/O |
| 11 | In-car button 10 (02 door side B in dual door mode) | I/O |
| 12 | In-car button 11 (03 door side B in dual door mode) | I/O |
| 13 | In-car button 12 (04 door side B in dual door mode) | I/O |
| 14 | In-car button 13 (05 door side B in dual door mode) | I/O |
| 15 | In-car button 14 (06 door side B in dual door mode) | I/O |
| 16 | In-car button 15 (07 door side B in dual door mode) | I/O |
| 17 | Secondary in-car call button enable (only active with a card reader in the car) | A |
| 18 | GND | A |
| 19 | Floor display 0 (LSB) | A |
| 20 | Floor display 1 | A |
| 21 | Floor display 2 | A |
| 22 | Floor display 3 | A |
| 23 | Floor display 4 | A |
| 24 | Floor display 5 | A |
| 25 | Floor display 6 | A |
| 26 | Floor display 7 (MSB) | A |
| 27 | +24V | A |


| FPA: <br> X6 | In-car control panel signals | Input/ <br> output |
| :---: | :--- | :---: |
| 1 | In-car button enable call 00 | A |
| 2 | In-car button enable call 01 | A |
| 3 | In-car button enable call 02 | A |
| 4 | In-car button enable call 03 | A |
| 5 | In-car button enable call 04 | A |
| 6 | In-car button enable call 05 | A |
| 7 | In-car button enable call 06 | A |


| FPA: <br> X6 | In-car control panel signals | Input/ <br> output |
| :---: | :--- | :---: |
| 8 | In-car button enable call 07 | A |
| 9 | In-car button enable call 08 | A |
| 10 | In-car button enable call 09 | A |
| 11 | In-car button enable call 10 | A |
| 12 | In-car button enable call 11 | A |
| 13 | In-car button enable call 12 | A |
| 14 | In-car button enable call 13 | A |
| 15 | In-car button enable call 14 | A |
| 16 | In-car button enable call 15 | A |
| 17 | GND | A |
| 18 | GND | A |
| 19 | GND | A |
| 20 | GND | A |
| 21 | GND | A |
| 22 | GND | A |
| 23 | GND | A |
| 24 | GND | A |
| 25 | +24 V | A |
| 26 | $+24 V$ | A |
| 27 | $+24 V$ | A |
| 28 | $+24 V$ | A |
| 29 | $+24 V$ | A |
| 30 | $+24 V$ | A |


| FPA: <br> X7 | In-car control panel signals | Input/ <br> output |
| :---: | :--- | :---: |
| 1 | +24 V call acknowledge 00 | A |
| 2 | +24 V call acknowledge 01 | A |
| 3 | +24 V call acknowledge 02 | A |
| 4 | +24 V call acknowledge 03 | A |
| 5 | +24 V call acknowledge 04 | A |
| 6 | +24 V call acknowledge 05 | A |
| 7 | +24 V call acknowledge 06 | A |
| 8 | +24 V call acknowledge 07 | A |
| 9 | +24 V call acknowledge 08 | A |
| 10 | +24 V call acknowledge 09 | A |
| 11 | +24 V call acknowledge 10 | A |
| 12 | +24 V call acknowledge 11 | A |
| 13 | +24 V call acknowledge 12 | A |
| 14 | +24 V call acknowledge 13 | A |
| 15 | +24 V call acknowledge 14 | A |
| 16 | +24 V call acknowledge 15 | A |


| FPA: <br> X7 | In-car control panel signals | Input/ <br> output |
| :---: | :--- | :---: |
| 17 | Button "Open Door B" or "divider door" (see "Divider- <br> Door" on page 123) | E |
| 18 | Button "Close Door B" | E |
| 19 | Button "Open Door A" | E |
| 20 | Button "Close Door A" | E |
| 21 | Landing control OFF or button "Ioading function" (see <br> "Pin-34 Functn" on page 123) | E |
| 22 | Button "Ventilator ON/OFF" | E |
| 23 | Key switch for Fireman Mode | E |
| 24 | Key switch for priority car | E |
| 25 | Direction display "UP" | A |
| 26 | Direction display "DOWN" | A |
| 27 | Overload indicator | A |
| 28 | Display-0 | A |
| 29 | Display-1 | A |
| 30 | Display-2 | A |

### 4.9 ADM landing button module

The ADM landing button module forms the interface between landing button panel and FST-Controller. The ADM is connected to the FST via the LON bus.

The ADM is delivered either pre-wired and installed in the landing panel or as a separate component (for installation in the shaft).

| Technical Data | Description | Value | Unit |
| :---: | :---: | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Power consumption | 50 | mA |
|  | Max. switch-on current per output for approx. 40 ms | 600 | mA |
|  | Outputs | Excess load and short-circuit proof |  |
|  | Inputs/outputs |  |  |
|  | Length $\times$ width $\times$ height | $54 \times 50 \times 17.5$ | mm |
|  | Temperature range |  |  |
|  | Storage / transport | $-20-+70$ | ${ }^{\circ} \mathrm{C}$ |
|  | Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
|  | Relative humidity |  |  |
|  | Storage / transport | 5-95 | \% |
|  | Operation | 15-85 | \% |



Fig. 4.10 Landing button module ADM

## Jumper Unused jumpers

- J1 (service jumper)

| LED | Colou <br> $\mathbf{r}$ | State | Description |
| :---: | :---: | :---: | :--- |
| LD1 | yellow | flashing <br> briefly | ADM ready |
|  |  | flashing or <br> permanent <br> ly on | Hardware error |

Terminals and plugs

| ADM: X1 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |


| ADM: X2 | Colour <br> code | LON bus |
| :---: | :---: | :---: |
| See LON-Bus page 93. |  |  |

The landing button module is available with three different software versions:

- ADM-S ("Single") for single lifts
- ADM-D ("Double") for grouped lifts
- ADM-E ("EAZ") for position indicators

Terminals $1 . .20$ of terminal strip X3 are assigned differently depending on the software version.

| ADM-X3 | Function ADM-S | Function ADM-D | Function ADM-E |
| :---: | :---: | :---: | :---: |
| 1 | +24V | +24V | +24V |
| 2 | Landing call UP | Landing call UP |  |
| 3 | Landing call DOWN | Landing call DOWN |  |
| 4 | Landing call enable | Landing call enable | Chime trigger |
| 5 | +24V | +24V | +24V |
| 6 | Occupied or out of order indicator | Occupied or out of order indicator (left lift) | Occupied or out of order indicator |
| 7 | - Display "Special Drive" <br> - Chime trigger | - Display "Special Drive" <br> - Chime trigger (left lift) <br> - Special Display 0 ("custom 0" | Floor display 5 |
| 8 | Direction UP | Direction UP (left lift) | Direction UP |
| 9 | Direction DOWN | Direction DOWN (left lift) | Direction DOWN |
| 10 | GND | GND | GND |
| 11 | GND | GND | GND |
| 12 | Key switch 1 | Key switch 1 |  |
| 13 | Key switch 2 | Key switch 2 |  |
| 14 | - Special Display 0 ("custom 0" <br> - Floor display 4 |  | Floor display 4 |
| 15 | +24V | +24V | +24V |
| 16 | Floor display 0 | Direction DOWN (right lift) | Floor display 0 |
| 17 | Floor display 1 | Direction UP (right lift) | Floor display 1 |
| 18 | Floor display 3 | Occupied or out of order indicator (right lift) | Floor display 3 |
| 19 | Floor display 2 | Chime trigger (right lift) | Floor display 2 |
| 20 | GND | GND | GND |

The values in the table are the factory default settings. The functions of individual systems can differ from those in the table. Please see the system specific wiring diagrams.

Terminals for which more than one function is listed can be set to one of these functions in the factory. The function "Direction" can be configured as output for the direction of travel or as departure direction output in the FST Menu.
The terminals labelled key switch 1 and 2 can be set to fire signal, smoke detector, remote shutdown and priority landing.

### 4.10 RIO-ADM remote I/O module

The RIO-ADM remote I/O module provides 12 programmable inputs/ outputs at any position of the LON bus. The RIO-ADM is connected to the FST via the LON bus.

One controller can be equipped with up to six RIO-ADMs at different locations.

| Number | Description | Ports |
| :---: | :--- | :--- |
| 1 | RIO-ADM 8 .. 19 | Port[8] .. Port[19] |
| 2 | RIO-ADM 20 .. 31 | Port[20] .. Port[31] |
| 3 | RIO-ADM 32 .. 43 | Port[32] .. Port[43] |
| 4 | RIO-ADM 44 .. 55 | Port[44] .. Port[55] |
| 5 | RIO-ADM 56 .. 67 | Port[56] .. Port[67] |
| 6 | RIO-ADM 68 .. 79 | Port[68] .. Port[79] |

Technical Data

| Description | Value | Unit |
| :--- | :---: | :---: |
| Supply voltage | $24 \pm 10 \%$ | V DC |
| Power consumption | 50 | mA |
| Max. switch-on current per output for <br> approx. 40 ms | 600 | mA |
| Outputs | Excess load and short-circuit proof |  |
| Inputs/outputs | Low-active |  |
| Length $\times$ width $\times$ height | $54 \times 50 \times 17.5$ | mm |
| Temperature range <br> $\frac{\text { Storage } / \text { transport }}{\text { Operation }}$ <br> Relative humidity <br> Storage $/$ transport <br> Operation |  |  |



Fig. 4.11 RIO-ADM remote I/O module

## Jumper Unused jumpers

- J1 (service jumper)

| LED | Colou <br> $\mathbf{r}$ | State | Description |
| :---: | :---: | :---: | :--- |
| LD1 | yellow | flashing <br> briefly | RIO-ADM ready |
|  |  | flashing or <br> permanent <br> ly on | Hardware error |

Terminals and plugs

| RIO-ADM: X1 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |


| RIO-ADM: X2 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |


| $\begin{gathered} \text { RIO-ADM- } \\ \text { X3 } \end{gathered}$ | $\begin{gathered} \text { RIO-ADM } \\ 8 . .19 \end{gathered}$ | $\begin{gathered} \text { RIO-ADM } \\ 20 \text {.. } 31 \end{gathered}$ | $\begin{gathered} \text { RIO-ADM } \\ 32 \text {.. } 43 \end{gathered}$ | $\begin{gathered} \text { RIO-ADM } \\ 44 . .55 \end{gathered}$ | $\begin{gathered} \text { RIO-ADM } \\ 56 \text {.. } 67 \end{gathered}$ | $\begin{gathered} \text { RIO-ADM } \\ 68 \text {.. } 79 \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | +24V | +24V | +24V | +24V | +24V | +24V |
| 2 | Port[8] | Port[20] | Port[32] | Port[44] | Port[56] | Port[68] |
| 3 | Port[9] | Port[21] | Port[33] | Port[45] | Port[57] | Port[69] |
| 4 | Port[12] | Port[24] | Port[36] | Port[48] | Port[60] | Port[72] |
| 5 | +24V | +24V | +24V | +24V | +24V | +24V |
| 6 | Port[13] | Port[25] | Port[37] | Port[49] | Port[61] | Port[73] |
| 7 | Port[19] | Port[31] | Port[43] | Port[55] | Port[67] | Port[79] |
| 8 | Port[11] | Port[23] | Port[35] | Port[47] | Port[59] | Port[71] |
| 9 | Port[10] | Port[22] | Port[34] | Port[46] | Port[58] | Port[70] |
| 10 | GND | GND | GND | GND | GND | GND |
| 11 | GND | GND | GND | GND | GND | GND |
| 12 |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |
| 14 | Port[18] | Port[30] | Port[42] | Port[54] | Port[66] | Port[78] |
| 15 | + 24V |  |  |  |  |  |
| 16 | Port[14] | Port[26] | Port[38] | Port[50] | Port[62] | Port[74] |
| 17 | Port[15] | Port[27] | Port[39] | Port[51] | Port[63] | Port[75] |
| 18 | Port[17] | Port[29] | Port[41] | Port[53] | Port[65] | Port[77] |
| 19 | Port[16] | Port[28] | Port[40] | Port[52] | Port[64] | Port[76] |
| 20 | GND | GND | GND | GND | GND | GND |

### 4.11 RIO-FPM remote I/O module

The RIO-FPM remote I/O module provides 40 programmable inputs/ outputs at any position of the LON bus. The RIO-FPM is connected to the FST via the LON bus.

One controller can only be equipped with one RIO-FPM.

| Technical Data | Description | Value | Unit |
| :---: | :---: | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Power consumption | 10 | mA |
|  | Max. switch-on current per output for approx. 40 ms | 600 | mA |
|  | Outputs | Excess load and short-circuit proof |  |
|  | Inputs/outputs | Low-active |  |
|  | Length $\times$ width $\times$ height | $98.5 \times 71 \times 20$ | mm |
|  | Temperature range |  |  |
|  | Storage / transport | -20-+70 | ${ }^{\circ} \mathrm{C}$ |
|  | Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
|  | Relative humidity |  |  |
|  | Storage / transport | 5-95 | \% |
|  | Operation | 15-85 | \% |



Fig. 4.12 RIO-FPM remote I/O module

Jumper Unused jumpers

- J1 (service jumper)

All other jumpers of the RIO-FPM are currently not assigned.

LED

| LED | Colou <br> $\mathbf{r}$ | State | Description |
| :---: | :---: | :---: | :--- |
| LD1 | yellow | flashing <br> briefly | RIO-FPM ready |
|  | flashing or <br> permanent <br> ly on | Hardware error |  |

Terminals and plugs

| RIO-FPM: X1 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |


| RIO-FPM: X2 | Colour <br> code | LON bus |
| :--- | :---: | :---: |
| See LON-Bus page 93. |  |  |

The colour code in the following table corresponds to the 50-pin standard cable for wiring the in-car control panel. Individual systems can use different colour codes.

| RIO-FPM: X4 | Colour code | Function |
| :---: | :---: | :---: |
| 1 | WH | Port[13] |
| 2 | BR | Port[15] |
| 3 | GN | Port[9] |
| 4 | YE | Port[11] |
| 5 | GY | Port[45] |
| 6 | PK | Port[42] |
| 7 | BU | Port[44] |
| 8 | RD | + 24V |
| 9 | BL | Port[38] |
| 10 | VT | Port[35] |
| 11 | GY PK | Port[32] |
| 12 | RD BU | Port[31] |
| 13 | WH GN | Port[28] |
| 14 | BR GN | Port[25] |
| 15 | WH YE | Port[22] |
| 16 | YE BR | Port[19] |
| 17 | WH GY | Port[16] |
| 18 | GY BR | OV / GND |
| 19 | WH PK | OV / GND |
| 20 | PK BR | OV / GND |
| 21 | WH BU | OV / GND |
| 22 | BR BU | $+24 \mathrm{~V}$ |
| 23 | WH RD | + 24 V |
| 24 | BR RD | + 24 V |
| 25 | WH BL | Port[39] |
| 26 | BR BL | Port[36] |
| 27 | GY GN | Port[33] |
| 28 | YE GY | Port[40] |
| 29 | RD GN | Port[29] |


| RIO-FPM: X4 | Colour code | Function |
| :---: | :---: | :--- |
| 30 | YE PK | Port[26] |
| 31 | GN BU | Port[23] |
| 32 | YE BU | Port[20] |
| 33 | GN RD | Port[17] |
| 34 | YE RD | Port[12] |
| 35 | GN BL | Port[14] |
| 36 | YE BL | Port[8] |
| 37 | GY BU | Port[10] |
| 38 | RD BU | Port[46] |
| 39 | GY RD | Port[47] |
| 40 | PK RD | Port[43] |
| 41 | GY BL | OV / GND |
| 42 | PK BL | Port[37] |
| 43 | BU BL | Port[34] |
| 44 | RD BL | Port[41] |
| 45 | WH BR BL | Port[30] |
| 46 | YE GN BL | Port[27] |
| 47 | PK GR BL | Port[24] |
| 48 | BL BU RD | Port[21] |
| 49 | WH GN BL | Port[18] |
| 50 | GN BR BL | $+24 V$ |

### 4.12 LON bus

The FST-Controller is connected to the FST components via the LON bus. The number of LON bus cables depends on the number of electronics modules.

All bus inputs and outputs not in use must be equipped with a terminal resistance (terminator).

All bus cables of the FST-Controller must be installed with sufficient strain relief.

Bus cables must only be connected or disconnected when they are not live!

| Technical Data | Description | Value | Unit |
| :--- | :--- | :---: | :---: |
|  | Supply voltage | $24 \pm 10 \%$ | V DC |
|  | Temperature range |  | $-20-+70$ |
| Storage / transport | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |  |
| Operation | C |  |  |
|  | Relative humidity | $5-95$ | $\%$ |
| Storage / transport | $15-85$ | $\%$ |  |
|  | Operation | 0,072 | $\mathrm{~kg} / \mathrm{m}$ |
|  | Weight | 1000 | m |



Fig. 4.13 LON bus components

## Colour code heat-shrinkable

 sleeve| Colour | Length of bus cable |
| :---: | :--- |
| BL | 0.5 m |
| RD | 1.0 m |
| WH | 3.0 m |
| YE | 5.0 m |
| BU | 7.0 m |
| GN | 10.0 m |
| BL | 15.0 m |
| RD | 20.0 m |


| Plugs | Colour <br> code | LON bus plugs |
| :---: | :---: | :--- |
| 1 | BL | Bus signal "A" |
| 2 | WH | Bus signal "B" |
| 3 | RD | $+24 \mathrm{~V} / 4 \mathrm{~A}$ |
| 4 | VT | $0 \mathrm{~V} / \mathrm{GND}$ |

### 4.13 Trailing cable

The FST-Controller is connected to the electronics modules of the car via the trailing cable. The trailing cable also powers to the car components and transmits safety relevant signals.

Plugs of the trailing cable must only be connected or disconnected when they are not live!

The trailing cable is available in two versions.

## Version 1:

- Halogen free sheath
- With wires for absolute value encoder signals (X3), absolute value encoder installed on car roof.


## Version 2:

- Standard sheath
- No wires for absolute value encoder signals, absolute value encoder installed in shaft.

Technical Data

| Description | Value | Unit |
| :---: | :---: | :---: |
| Supply voltage | $24 \pm 10 \%$ | V DC |
|  | $230 \pm 10 \%$ | V AC |
| Temperature range |  |  |
| Storage / transport | $-20-+70$ | ${ }^{\circ} \mathrm{C}$ |
| Operation | $\pm 0-+60$ | ${ }^{\circ} \mathrm{C}$ |
| Relative humidity |  |  |
| Storage / transport | 5-95 | \% |
| Operation | 15-85 | \% |
| Weight | Version 1: 0,8 Version 2: 0,7 | kg/m |
| Max. free suspension height | Version 1: 110 Version 2: | m |
| Min. bending radius (movable) | 0.5 | m |



Fig. 4.14 Trailing cable version 1


Fig. 4.15 Trailing cable version 2

Terminals and plugs

FST: X4 / FSM: X1 Car bus
See "FST: X 4 " on page 46 or "FSM: X 1 " on page 61 .

| VSM: X8 / FSM: X13 | Trailing cable |
| :---: | :---: |
| See "VSM: X8" on page 53 or "FSM: X13" on page 64. |  |

See "FST: X2" on page 46 (only available with version 1).

| X102 | Terminal | Safety circuit car <br> (controller side) |
| :---: | :---: | :--- |
| 1 | 41 | Input SCCT car |
| 2 | 43 | Input SCCT remote control unit |
| 3 | 55 | Output SCCT car in normal mode |
| 4 | 51 | Output SCCT car in inspection mode UP |
| 5 | 45 | Input SCCT car door B |
| 6 | 47 | Input SCCT car door A |
| 7 | 49 | Output SCCT car door A |
| 8 | 53 | Output SCCT car in inspection mode <br> DOWN |

SCCT stands for "Safety Circuit"

| X202 | Terminal | Safety circuit car <br> (car side) |
| :---: | :---: | :--- |
| 1 | 42 | Input SCCT car |
| 2 | 44 | Input SCCT remote control unit |
| 3 | 56 | Output SCCT car in normal mode |
| 4 | 52 | Output SCCT car in inspection mode UP |
| 5 | 46 | Input SCCT car door B |
| 6 | 48 | Input SCCT car door A |
| 7 | 50 | Output SCCT car door A |
| 8 | 54 | Output SCCT car in inspection mode <br> DOWN |

SCCT stands for "Safety Circuit"

| X101 | Terminal | Car power supply <br> (controller side) |
| :---: | :---: | :--- |
| 1 | PE | Ground car |
| 2 | L4A | 230V AC car light |
| 3 | N2 | Zero conductor car light |
| 4 | 87 | Switch signal for shaft light |
| 5 | L3 | Three-phase supply car L3 |
| 6 | L2 / | Three-phase supply car L2 / <br> 230V for car door drive |
| 7 | L9A | Three-phase supply car L1 |
| 8 | N / <br> L9A | Zero conductor car door drive / <br> 230V for car door drive |


| X201 | Terminal | Car power supply <br> (car side) |
| :---: | :---: | :--- |
| 1 | PE | Ground car |
| 2 | L4B | 230V AC car light |
| 3 | N2B | Zero conductor car light |
| 4 | 87 | Switch signal for shaft light |
| 5 | L3 | Three-phase supply car L3 |
| 6 | L2 / | Three-phase supply car L2 / <br> 230V for car door drive |
| 7 | L9B | Three-phase supply car L1 |
| 8 | N/ | Zero conductor car door drive / <br> 230V for car door drive |

The signals of plugs X100/101/102 and X200/201/202 can differ from those in the table. Please see the system specific wiring diagrams.

## 1 Menu tree

### 1.1 General

FST software parameters are set using the FST user interface or the HHT handheld terminal together with the FST Menu. The FST Menu is displayed as a menu tree divided into submenus and menu items.

Security levels NEW LIFT has divided the menu items in three security levels.

| Level | Access | Activity |
| :---: | :---: | :---: |
| high | unlimited | Commissioning |
| medium | limited | Customer service |
| low | menus not editable | Maintenance |

Setting passwords Each security level can be protected with a four digit password. With the password for the high security level the menu items of the lower levels can be accessed as well. The test menu can be accessed at any time.

The default setting for the password is "BEDE".

Menu tree All functions and settings of the menu tree are explained below.
Actions are marked with $\zeta$ ) in the column "setting range".

Optional Parametrising can also be done using the FST-Editor via the serial interface or via remote data transmission.


Fig. 1.1 FST-Controller menu tree (part 1)


Fig. 1.2 FST-Controller menu tree (part 2)


Fig. 1.3 FST-Controller menu tree (part 3)


Fig. 1.4 FST-Controller menu tree (part 4)

Fig. 1.5 FST-Controller menu tree (part 5)


Fig. 1.6 FST-Controller menu tree (part 6)


Fig. 1.7 FST-Controller menu tree (part 7)


Fig. 1.8 FST-Controller menu tree (part 8)

## TEST MENU

|  |
| :---: |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Fig. 1.9 FST-Controller menu tree (part 9)

### 1.2 MAIN MENU - Service

All menu items with adjustable values can be deactivated by entering the value " 0 ".

| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Error List | Displays the last 100 error messages (see Chapter 8). |  |
| Clear Error List | Delete entries in the error list. | $\begin{gathered} \leftrightharpoons \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Service-Counters Clear All Counters | The controller has three internal service counters for drives, motor hours and door movements. A service interval can be allocated to each counter so that a due service is signalled via a programmable input/output. The current counter values for Motor Hour br ives and Dog Movement can be reset here (e.g. after a service). | $\begin{gathered} \square \mathrm{YES} \\ \text { NO } \end{gathered}$ |
| Service-Counters Set Interval | Overwrite counter values To Service with the values of the Intervel counters (e.g. after a service). | $\begin{gathered} \square \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Service-Counters -Motor-Hours Since Day1 | Motor hours since commissioning of the FST-Controller. This value cannot be reset. | Read only |
| Service-Counters -Motor-Hours Current | Motor hours since lastieme mi Gontere. | Read only |
| Service-Counters -Motor-Hours To Service | Motor hours remaining until the next service. | Read only |
| Service-Counters -Motor-Hours Interval | Motor hours of the maintenance interval. | $0 . . .9999$ h |
| Service-Counters Drives Since Day 1 | Drives since commissioning of the FST-Controller. This value cannot be reset. | Read only |
| Service-Counters Drives Current | Drives since lastiemr hi Conters. | Read only |
| Service-Counters Drives To Service | Drives remaining until the next service. | Read only |
| Service-Counters Drives Interval | Drives of the maintenance interval. | 0 ... 99999 |
| Service-Counters Door Movements Since Day 1 | Door movements since commissioning of the FST-Controller. This value cannot be reset. | Read only |
| Service-Counters Door Movements Current | Door movements since last Cleme hi Gomiers. | Read only |
| Service-Counters Door Movements To Service | Door movements remaining until the next service. | Read only |


| Menu item | Description | Setting range |
| :--- | :--- | :--- |
| Service-Counters - <br> Door Movements - <br> Interval | Door movements of the maintenance interval. | $0 \ldots 99999$ |
| Statistik RESET | Reset the internal drive and call statistics of the FST. | G YES <br> NO |
| Statistics | At present, the statistic functions can only be accessed via <br> remote data transmission. |  |
| Error Messages | Enable output of error messages (programmable inputs/ <br> outputs, modem, PAM, fax) | ON <br> OFF |
| after Error: LED... | Function of the error LED on the FST board after adding a new <br> entry to the error list. | FLASHING <br> OFF |

### 1.3 MAIN MENU - Drive

All menu items with adjustable values can be deactivated by entering the value " 0 ".

| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Start Monitoring | Maximum time permitted between pre-selection of the drive and leaving the levelling position. If the car does not leave the levelling position during the set time the system will be shut down with DRE-GTRET FROELEM (see "DED-STRET FकठLEIt" on page 154). | $0 \ldots 30 \mathrm{sec}$ |
| Drive type | Drive type used. Can be selected from a list with all common drive types. |  |
| Brake Monitoring | Monitoring of the drive brake (brake bleed contact) via terminal VSM X4.7. When starting input VSM X4.7 must be activated during the set Ereme Deley ( +24 V ). When stopping the input must be deactivated during the set Ereme Del.en. If this fails the system will be shut down with DetiERGE FGTLUE (see "DRH-DemE FGTuPE" on page 155). | $\begin{aligned} & \hline \text { YES } \\ & \text { NO } \end{aligned}$ |
| Brake Delay | Maximum permitted time between activation of the drive brake and confirmation from the brake bleed contact on terminal VSM X4.7 (see Eryen Monitorime). | $0 \ldots 9999 \mathrm{~ms}$ |
| Drive Speeds Possible | Possible drive speeds V8...V1 of the set drive ("1" stands for speed possible). | Read only |
| Drive Speeds Enabled | Enabled drive speeds V8...V1 of the set drive ("1" stands for speed enabled). Only speeds displayed with " 1 " in Foscible can be enabled! | $\begin{aligned} & 00000000 \ldots \\ & 11111111 \end{aligned}$ |
| Drive Speeds Calibrated | Drive speeds V8...V1 successfully measured during the calibration run (" 1 " stands for speed calibrated). After a successful calibration run all speeds displayed with " 1 " in Enemiled must be displayed with " 1 " in Celi ibreted | Read only |
| Motor Monitoring | Monitoring of the motor temperature via terminal VSM X4.5. If the terminal is activated $(+24 \mathrm{~V})$ the system will be shut down with <br>  page 155). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Motor Run-on | Run-on time of the drive after the levelling position has been reached. Only required for improving the performance of unregulated drives. | $0 \ldots 2 \mathrm{sec}$ |
| Relevelling | Adjusting with car and shaft doors open. This parameter must only be activated when using the A6 Safety Circuit! The following steps are required to deactivate an integrated A6 Safety Circuit: <br> - SetPrenpenime = W0 <br> - Set Televelime = W0 <br> - Disconnect power supply of the safety circuit (terminals 518, 519) | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Relevelling Delay | Delay between recognising that the car is not levelled and starting relevelling. This parameter guarantees smooth relevelling for swaying cars. | $0 \ldots 9999 \mathrm{msec}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Speed correction function | If the drive is equipped with a speed correction function, this parameter can be activated to optimise floor to floor travel (see page 115). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Emergency Stop: In-car calls | Handling of pending in-car calls after a safety circuit interruption in the emergency stop area (before terminal 33) while the car is moving. | KEEP DELETE |
| Emergency Stop: Stop | Handling of landing calls after a safety circuit interruption in the emergency stop area (before terminal 33) while the car is moving. <br> - Yes: Landing calls are blocked. The car can only be moved with in-car commands. <br> - NO: Pending landing calls are deleted. Landing calls will be enabled again after the safety circuit has been closed. | $\begin{aligned} & \hline \text { YES } \\ & \text { NO } \end{aligned}$ |
| Homing Time | Maximum time without a car call before an hydraulic lift automatically travels to the lowest floor. | $0 \ldots 15 \mathrm{~min}$ |
| Contactor Monitoring | Monitoring of the main contactors on terminal VSM X4.6 via auxiliary contacts (normally closed). When stopping input VSM X4.6 must be deactivated during the set Cont mem Wione Time. If this fails the system will be shut down with <br>  MUNTTUETWe" on page 156). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Contactor Mon. Time | Delay between stopping and reaction of the contactor monitoring function. | $0 \ldots 9999 \mathrm{msec}$ |
| Start Method | Start methods with hydraulic pumps | STAR/DELTA SOFT-START |
| Star / Delta | Delay when starting an hydraulic lift (either due to switching time from star to delta or by delayed opening of the valve). | $0 \ldots 5 \mathrm{sec}$ |
| End-Sw.Speed Mon. | Monitoring of drive speed when approaching the top or bottom limit. If the speed is too high when the car approaches a limit it will be stopped immediately and shut down with DRE-ELD Si. SFED WH. (see "V80\%-SpeedMon" on page 134 and "DRT-ELD Fiwes SEEE" on page 155). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Change Time | Minimum delay when switching the main contactors (fast to slow) of unregulated lift motors. | $0 \ldots 0.5 \mathrm{sec}$ |
| Stop Max | Maximum number of door contacts or locking device interruptions (terminals 37 and 40) during a run before all calls will be deleted (see "जिए DUサe Luek" on page 153). This system will not be shut down. It will wait for new calls. | $0 \ldots 10$ |
| Holding device | Controlling a holding device for hydraulic lifts (see System description - Holding device). | $\begin{aligned} & \hline \text { YES } \\ & \text { NO } \end{aligned}$ |
| Warm-up drive | Automatic warm-up drive to the top landing. This function prevents cooling of the hydraulic oil. The timer starts after the homing drive is completed. | $0 \ldots 9999$ min |
| Special Params -Time-1 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $0 \ldots 65535 \mathrm{msec}$ |
| Special Params -Time-2 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $0 \ldots 65535 \mathrm{msec}$ |
| Special Params -Time-3 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $0 \ldots 65535 \mathrm{msec}$ |
| Special Params -Time-4 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $0 \ldots 65535 \mathrm{msec}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Special Params -Time-5 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | 0 ... 65535 msec |
| Special Params -Time-6 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | 0... 65535 msec |
| Special Params -Switch-1 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $\begin{gathered} \Rightarrow \text { ON } \\ \text { OFF } \end{gathered}$ |
| Special Params -Switch-2 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $\begin{gathered} \square \mathrm{ON} \\ \mathrm{OFF} \end{gathered}$ |
| Special Params -Switch-3 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $\begin{gathered} \Rightarrow \text { ON } \\ \text { OFF } \end{gathered}$ |
| Special Params -Switch-4 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $\begin{array}{\|c} \hline>\mathrm{ON} \\ \text { OFF } \end{array}$ |
| Special Params -Switch-5 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $\begin{array}{\|c} \hline \Rightarrow \text { ON } \\ \text { OFF } \end{array}$ |
| Special Params -Switch-6 | Special parameters for drive specific programming. Only change this value after consulting NEW LIFT! | $\begin{array}{\|c} \hline \boldsymbol{O} \text { ON } \\ \text { OFF } \end{array}$ |

## Speed correction function

After a successful calibration drive the FST-Controller knows the acceleration and deceleration characteristics for each drive speed. This enables the controller to select the optimum drive speed for the distance to be covered.
The parameter 5eed correction funt ion determines if the maximum selected drive speed must be reached during each drive (travel distance > acceleration distance + braking distance + crawling distance), or if the drive has a speed correction function to optimise the drive curve without reaching the maximum speed (travel distance > deceleration distance + crawling distance).

## Example: Travel from floor A to floor B (distance between floors: 2.6m)

- Nominal speed V2: Braking distance: 2m, acceleration distance: 2m
- Intermediate speed V1: Braking distance: 1 m , acceleration distance: 1 m
- Crawling distance: 0.05m

Drive from A to B without speed correction:

Speed V1 is selected, because $2.6 \mathrm{~m}>1 \mathrm{~m}+1 \mathrm{~m}+0.05 \mathrm{~m}$


Fig. 1.10 Drive without speed correction

## Drive from A to B with speed correction function enabled:

Speed V2 is selected, because $2.6 m>2 m+0.05 m$


Fig. 1.11 Drive with speed correction

### 1.4 MAIN MENU - Config

All menu items with adjustable values can be deactivated by entering the value " 0 ".

| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Commissioning Calibration drive | Carry out calibration drive. During a calibration drive four measuring drives are required for each drive speed. The acceleration and braking behaviour for each speed is determined automatically. The controller uses this information to select the optimum speed and the correct braking point for each drive. | $\begin{gathered} \leftrightarrows \text { YES } \\ \text { NO } \end{gathered}$ |
| Commissioning Learn drive | Carry out learn drive. During the learn drive, the car automatically travels upwards through the entire shaft at inspection speed. The controller determines the exact position of the solenoids for solenoid switches "ZoneB", "Corr.Bottom" and "Corr.Top". The levelling 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. | $\begin{gathered} \square>Y E S \\ N O \end{gathered}$ |
| Commissioning - <br> Set Floor [n] | The current position of the car is entered as a point of reference for the entire shaft. The levelling positions of the remaining floors are adjusted to the current position of the car. | 0 ... top floor |
| Commissioning -Correct-levelling | Correction of the levelling position on the floor where the car is currently located. The measured value must be entered (car is too high: positive sign + ; car is too low: negative sign - ). | -250 ... 250 mm |
| Commissioning Cal. V-tolerance | Measuring tolerance when measuring the speed of the calibration run. The set value should only be changed after consulting NEW LIFT. The calibration results are influenced by the measuring tolerance. | $1 . .100 \%$ |
| Commissioning Installation Mode | Suppresses error messages that would prevent installation drives if the controller has not yet been fully commissioned. Enables installation drives using the inspection and auxiliary controls without connecting the sensor and the car control module. | ON OFF |
| Prio-Landing/Car Landing Prio. Type | Activation type "Priority Landing". <br> - Hard: All in-car and landing calls are deleted. <br> - Soft: In-car calls remain, landing calls are deleted. | Hard Soft |
| Prio-Landing/Car Landing Prio. Time | Delay for switching off "Priority landing" after reaching the target floor. | $0 \ldots 999 \mathrm{sec}$ |
| Prio-Landing/Car Landing Prio. Prog. | Variations of "Priority landing": <br> - Auto 1: after reaching the target floor the "Priority landing" state remains active until the next in-car call. <br> - Auto 2: after reaching the target floor "Priority in-car" is activated automatically. <br> - Standard: when reaching the target floor the system switches to normal operation after the "Limitem Fr ig" Time" has elapsed. | Auto 1 <br> Auto 2 <br> Standard |
| Prio-Landing/Car Car Prio. Type | Activation type "Priority car" <br> - Hard: All in-car and landing calls are deleted. <br> - Soft: In-car calls remain, landing calls are deleted if Keep mmine mate $=0$ is set. | Hard Soft |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Prio-Landing/Car Keep landing calls | After activating "soft" priority car, landing calls will also be kept. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Park Drive Enable | Enable park drive program. | $\begin{aligned} & \hline \text { YES } \\ & \text { NO } \end{aligned}$ |
| Park drive Program | Parking drive characteristics of the lift system (see "Park Drive Programs" on page 126). |  |
| Auto Test Drive Mode | Automatic call generation for testing purposes. Drive characteristics of the Auto Test Drive: <br> - Sequence: floors are approached sequentially $(0,1,2,3,2,1,0,1, \ldots)$ <br> - Shuttle: car shuttles between "Lo-Limit" and "Hi-Limit". <br> - Random: floors are approached in a random sequence. | Sequence <br> Shuttle <br> Random |
| Auto Test Drive -In-car calls | Automatically generated in-car calls during the auto test drive. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Auto Test Drive Landing calls | Automatically generated landing calls during the auto test drive. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Auto Test Drive Doors | Enables the car doors during the auto test drive. The set value corresponds to the following bit mask: | $0 \ldots 7$ |
| Auto Test Drive -Floor-Limit | When activated only floors between Liemite and HiLimit will be approached. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Auto Test Drive -Lo-Limit | Lowest floor of the auto test drive. | 0 ... top floor |
| Auto Test Drive -Hi-Limit | Highest floor of the auto test drive. | 0 ... top floor |
| Auto Test Drive -Time-Limit | The auto test drive will be disabled automatically after two hours. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Auto Test Drive Interval | Time between two commands during the auto test drive. | $0 \ldots 255 \mathrm{sec}$ |
| LON Configuration Search LON Modules | A bus scan is carried out to determine the modules connected to the bus. All LON modules connected to the bus will be entered in a table that can be displayed with him Limd Modules. | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| LON Configuration Show LON Modules | Displays all LON modules connected to the bus The list of LON modules is generated/updated with the menu item Gexth Lon modules. See "Show LON Module" on page 127. | Read only |
| Modem / Fax / LMS LMS floor-locking | Enable external floor-locking via remote data transmission (LMS Lift Monitoring System). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Modem / Fax / LMS FST FAX Enable | Enables all fax functions (see Installation \& Commissioning Fax modem). | $\begin{aligned} & \hline \text { OFF } \\ & \text { ON } \end{aligned}$ |
| Modem / Fax / LMS <br> Tel. Number FST | Phone number of the FST modem (see Installation \& Commissioning - Fax modem). | ASCII |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Modem / Fax / LMS Modem Number 1 | 1. Phone number for a modem connection (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS Modem Number 2 | 2. Phone number for a modem connection (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS <br> FAX Number 1 | First phone number for a fax connection (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS FAX Number 2 | Second phone number for a fax connection (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS Dial prefix | Type of telephone network (see Installation \& Commissioning - Fax modem). | Tone-dial Pulse-dial ISDN |
| Modem / Fax / LMS Modem InitString 1 | Initialisation of modem 1, ASCII string according to modem documentation (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS Modem InitString 2 | Initialisation of modem 2, ASCII string according to modem documentation (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS FAX InitString 1 | Initialisation of fax 1, ASCII string according to modem documentation (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS FAX InitString 2 | Initialisation of fax 2, ASCII string according to modem documentation (see Installation \& Commissioning - Fax modem). | ASCII |
| Modem / Fax / LMS Dial Attempts FAX | Dialling attempts to establish a fax connection (see Installation \& Commissioning - Fax modem). | 0 ... 10 |
| Modem / Fax / LMS Pause between Dial | Time between two dial attempts of the modem (see Installation \& Commissioning - Fax modem). | $0 \ldots 1000 \mathrm{sec}$ |
| Modem / Fax / LMS Fax Numbers Used | Enables fax numbers (see Installation \& Commissioning - Fax modem). | $0 \ldots 2$ |
| Modem / Fax / LMS FAX Auto Send | Time between two automatic fax reports (see Installation \& Commissioning - Fax modem). | OFF every Hour every Day every Week every Month |
| Modem / Fax / LMS FAX Control | See Installation \& Commissioning - Fax modem. | 0000000000000000 .. <br> 111111111111111 |
| Modem / Fax / LMS Send Test Fax | See Installation \& Commissioning - Fax modem. | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \text { NO } \end{gathered}$ |
| I/O Configuration I/O Ports RAW | Configure programmable inputs/outputs. | $\begin{aligned} & 00000000 \ldots \\ & 11111111 \end{aligned}$ |
| I/O Configuration I/O Flags Delay | Delay of inputs and outputs . <br> Depending on Bit1 of menu item CTEL seconds or switching operations must be set. | 0 ... 9999 |
| I/O Configuration I/O Flags MASK | System state where an input/output changes to active. | $00000000 \text {... }$ <br> FFFFFFFF |
| I/O Configuration I/O Flags Ctrl. | Flag Check. | $00 \ldots \mathrm{FF}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| I/O Configuration I/O Error ID | Error type to activate error output. | NO ERROR ... CAR LIGHT FAILURE |
| I/O Configuration I/O Error CTRL. | Configuration of error output. | 00 ... FF |
| EAZ Configuration Use Text | Enable user defined floor names. <br> - YES: A two-digit floor name can be entered in ERE Text for each floor This name will be used by the FST display and by all LON floor displays. <br> - NO: Floor names $0,1,2, \ldots$ will be used by the FST display and by all LON floor displays. | YES NO |
| EAZ Configuration EAZ Text | Two-digit name for each floor (see Use Text.). | 2-digit ASCII |
| EAZ Configuration Bottom Flr. Car | Initial value for the position indicator code issued by FPM X4. <br> - 0: code starts at bottom floor with "00000000". <br> - 1: code starts at bottom floor with "00000001". <br> The type of position indicator code can be set in ERZ tyFe (see "Car-Operate-Panel -" on page 122). | $0 \ldots 1$ |
| EAZ Configuration Bottom FIr. Hall | Initial value for the position indicator code issued by ADM X3. <br> - 0: code starts at bottom floor with "00000". <br> - 1: code starts at bottom floor with "00001". <br> The type of position indicator code can be set in GDT-EGZ thre (see "ADM-EAZ type" on page 125). | $0 \ldots 1$ |
| EAZ Configuration -Target-Floor Car | Activation of the position indicator at the braking point when approaching a floor. <br> - Show Target Floor: The target floor is displayed at the braking point already. As a consequence, floor names could be skipped if the deceleration distance covers multiple floors. <br> - Show Physical Floor: The target floor is displayed after reaching the levelling position. | Show Target Floor Show Physical Floor |
| EAZ Configuration -LON-EAZ type | Type of connected LON position indicators. Depending on the type the options set in ERY Gotis have different meanings (see description of the position indicator). | $\begin{aligned} & \hline \text { EAZ-256 } \\ & \text { EAZ-40/64 } \\ & \text { EAZ-VFD/LCD } \end{aligned}$ |
| EAZ Configuration -LON-EAZ Number | LON position indicator selected for parametrising. Each LON position indicator has a unique number (0...255). If 255 is set, the settings apply to all connected LON indicators. | $0 \ldots 255$ |
| EAZ Configuration -LON-EAZ Config. | Options for the connected LON position indicator. Depending on the Lidfre thee the options set here have different meanings (see description of the position indicator). | $\begin{aligned} & \hline 00000000 \ldots \\ & 11111111 \end{aligned}$ |
| EAZ Configuration -LON-EAZ Download | Transfer a configuration file from a PC-Card to the LON <br>  | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \text { NO } \end{gathered}$ |
| EAZ Configuration -IRT-code | Access code for the remote function. With indicator types EAZ-VFD and EAZ-LCD the FST-Controller can be parametrised from the indicator using the FST-IRT infrared remote control. This requires entering the access code set here (see Quick Guide - FST-IRT Remote Control). | 00000 ... 99999 |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| EAZ Configuration Display Dimming | Dimming the LON display EAZ-256 when the car light is off to reduce energy consumption. This function can be activated separately for in-car and landing indicators. <br> - 00000000: Dimming function off. <br> - 00000001: Only in-car indicators are dimmed. <br> - 00000010: Only landing indicators are dimmed. <br> - 00000011: All indicators (in-car and landing) are dimmed. | $\begin{aligned} & \hline 00000000 \ldots \\ & 11111111 \end{aligned}$ |
| Chime Functions Chimes Enabled | Chime sounds for car and/or landing calls. | $\begin{aligned} & \hline \text { YES } \\ & \text { NO } \end{aligned}$ |
| Chime Functions Chime Duration | Impulse length of the chime trigger signal. | $0 \ldots 5 \mathrm{sec}$ |
| Chime Functions Chime Trigger | Distance of the car from the levelling position of the target floor that triggers the chime. | $0 \ldots 9999 \mathrm{~mm}$ |
| Chime Functions Chime when in floor | The chime also sounds when the car doors are closed and the car is already at the target floor when the lift is called with a landing call. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Chime Functions Landing Chimes | Chimes sounds for landing and/or in-car calls. | Landing calls Car+Landing calls |
| ID Lift ID-Number | Identifies the FST-Controller in group operation. <br> The setting must correspond to the jumper settings (JK1, JK2 and JK4) on the FSM Car Control Module (see "Jumpers" on page 59) and the FPM Car-Operate-Panel ("Jumpers" on page 66)! If this fails the system will be shut down with Deti- <br>  page 155). Single lifts are always set to Lift A. | A ... H |
| ID - <br> Lift ID-Name | Location, identification of the FST-Controller for modem, remote data transmission and PAM (LMS). | 20-digit ASCII |
| ID - <br> NEW-Factory No. | NEW LIFT factory number of the FST-Controller (set in the factory). | 20-digit ASCII |
| ID Lift factory no. | Lift manufacturer's factory number of the system. | 20-digit ASCII |
| ID -Project-Code | Code number of a project specific software version. Only issued for special projects, do not change! | $\begin{aligned} & \hline 000000 \ldots . . \\ & 999999 \\ & \hline \end{aligned}$ |
| Group Settings -GST-Menu | See GST Manual. |  |
| Group Settings Lift ID-Number | See ifte ib-humber. | A ... H |
| Group Settings Group Member | Integrate FST-Controller in a GST Group Controller (see GST Manual). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Group Settings Group Floor Offset | Floor offset in relation to the lowest floor in the group (see GST Manual). | $0 \ldots 15$ |
| Group Settings - <br> Flr Offset-Car | The value set in Graf Floor itet is the lowest floor for the position indicator in the car (if not set the value „0" will be used, see GST Manual). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Group Settings Flr Offset-Landing | The value set in Grof Floor itet is the lowest floor for the landing position indicators (if not set the value „0" will be used, see GST Manual). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Group Settings -ADM-Bus Mask-1 | Allocation of the FST to the individual bus lines of the group in normal mode (see "ADM-Bus Masks" on page 127 and the GST Manual). | $00 \ldots \mathrm{FF}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Group Settings -ADM-Bus Mask-2 | Allocation of the FST to the individual bus lines of the group in simplex mode ("separated group mode", see GST Manual). | 00 ... FF |
| Anti Nuisance Maximum Car Calls | Maximum permitted number of accepted in-car calls. This parameter helps avoid unnecessary drives caused by in-car calls. A reasonable number is the maximum number of passengers. | 0 ... 63 |
| Anti Nuisance Stops w/o Exit | All in-car calls will be cleared if the photocell does not trigger for the set number of stops. This parameter helps avoid unnecessary drives caused by in-car calls. | $0 \ldots 63$ |
| Anti Nuisance Empty Car Sense | If the input "Empty Car Sense" is activated, no more in-car calls will be accepted (see "FSM: X11" on page 63). This parameter helps avoid unnecessary drives caused by in-car calls. Only activate this function if the weight sensor is equipped with a "Empty Car Sense" (Level-Empty) contact and this contact is connected to the FSM! | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Anti Nuisance Call Direction | All in-car calls against the current direction of travel will be cleared when changing direction (e.g. when reaching a top or bottom limit. This parameter helps "educate" passengers to use the two button control correctly. Only activate when using a two button contro!! | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Anti Nuisance Always Clear Up/Dn | When approaching the target floor both landing calls (up and down) will be deleted. This parameter helps avoid unnecessary drives caused by "double calls" from one passenger when using a two button control. Only activate when using a two button control! | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car Ventilator Control Mode | Control modes for the Car Ventilator (see "Car ventilator" on page 128). | Switched Off <br> Manual On/Off <br> Manual+Off-Delay <br> Automatic+Off-Delay |
| Car Ventilator Vent. Off Delay | Run-on time of the car ventiator in modes mander <br>  | 0 ... 250 sec |
| Car Light Car Light Off Delay | Automatic deactivation of the car light after each drive after the set time. | 0 ... 250 sec |
| Car Light Monitoring | Monitoring the car light with a current sensor (FSM X14). If this parameter is activated the function of the car light is monitored with a current sensor. The system will be shut down with The LTGHT FGTLiEE if the car light fails (see "CAR LIGHT FAILURE" on page 157). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car Light Evac. - Light Off | Switch off the car light after an evacuation drive. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel EAZ type | Position indicator code issued by FPM X4. <br> - HEX: Binary code <br> - 1-of-N: Separate signal for each floor (only possible up to a maximum of eight floors) <br> - GRAY: Gray Code <br> The initial value for the bottom floor can be set in Eet tom <br> Flr : CIr (see "Bottom Flr. Car" on page 120). | HEX 1-of-N GRAY |
| Car-Operate-Panel Lamp type | Type of lamp for in-car acknowledgement (important to avoid flickering). | LED Filamt |
| Car-Operate-Panel -Display-0 | Function of pin X4.39 on the FPM Car-Operate-Panel. See "Display-0 ... 2" on page 128. | $\begin{aligned} & 00000000 \ldots . \\ & 11111111 \end{aligned}$ |
| Car-Operate-Panel -Display-1 | Function of pin X4.38 on the FPM Car-Operate-Panel. See "Display-0 ... 2" on page 128. | $\begin{aligned} & \hline 00000000 \ldots \\ & 11111111 \end{aligned}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Car-Operate-Panel -Display-2 | Function of pin X4.5 on the FPM Car-Operate-Panel. See "Display-0 ... 2" on page 128. | $\begin{aligned} & 00000000 \ldots \\ & 11111111 \end{aligned}$ |
| Car-Operate-Panel - OPEN = A+B | The door open signal (FPM X4.35 or X4.36) is active for all car doors. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel - $\text { CLOSE }=A+B$ | The door close signal (FPM X4.2 or X4.3) is active for all car doors. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel OPEN = last | The door open signal (FPM X4.35 or X4.36) is only active for the car door last opened. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel -Divider-Door | Car door control for lifts with a too large footprint of the car. This parameter must only be activated if there is a car door. If this parameter is activated the FPM input "Door A Open" (X4.35) is used to query the door divider contact (normally closed)! If the divider door is open the input is activated and the car will be shut down on the current floor with "OVERLOAD". The "OVERLOAD" state can be reset with the input "CAR PRIORITY" on the FPM (key switch on the inside panel, X4.37). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel Card Reader | Control of a card reader to enable in-car calls. Only activate after consulting NEW LIFT. This requires a modification of the system specific wiring! If this parameter is activated, no in-car calls can be placed without a card reader! | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel - <br> -"- Clear Opt | Delete pending in-car calls when activating the card reader. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel -Chime-Roof | Separate landing chime for upward travel installed on the car roof. The chime signal is issued on FPM output „Display-1", if parameter DisFly $\mathrm{I}=\mathrm{BEDEDED}$ is set (see "Display-0 ... 2" on page 128). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel -Chime-Floor | Separate landing chime for downward travel installed below the car floor. The chime signal is issued on FPM output <br>  (see "Display-0 ... 2" on page 128). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel DoorOpen NC | Interpret the door open signal (FPM X4.35 or X4.36) as normally closed contact. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel -O-Load Blink | Activate flashing mode of the overload display (FPM X4.6). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Car-Operate-Panel -Pin-34 Functn | Function of input X4.34 of the FPM (see "Pin-34 Functn" on page 129). | $0 . .99$ |
| Car-Operate-Panel $3 \times$ Call=Clear | An already acknowledged in-car call can be deleted by placing the call another three times. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Fireman Options Fire Standards | Fire standard the fireman mode complies to (see Manual for Fireman Mode). | TRA-266 AS-1735 (Australia) HongKong SIA |
| Fireman Options Fire->Fireman (ADM) | A fire signal issued through an ADM landing button module automatically activates the fireman mode after reaching the floor with the fire (see Manual for Fireman Mode). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Fireman Options Fire $->$ Fireman (I/O) | A fire signal issued through a programmable input/output automatically activates the fireman mode after reaching the floor with the fire (see Manual for Fireman Mode). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Fireman Options Off only in M-Flr | The fireman mode can only be deactivated on the main floor (see Manual for Fireman Mode). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Fireman Options Door Open in M-Fir | Default position of the car doors on the main floor in case of fire (see Manual for Fireman Mode). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Fireman Options Fire Main Floor | Target floor of the evacuation drive in case of fire (see Manual for Fireman Mode). | 0 ... 63 |
| Fireman Options Fire MainFlr Doors | Control of the car doors after reaching the fire main floor (see Manual for Fireman Mode). | All doors <br> Door A only <br> Door B only <br> Door C only |
| Fireman Options Smoke Evac. Plan | The fire input is interpreted as a smoke detector signal (see Manual for Fireman Mode). | On Floor Above Floor Below Floor |
| Fireman Options Fire sig. Pulsed | The fire input is interpreted as a pulse and must be reset (see Manual for Fireman Mode). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Fireman Options Fireman Mode Reset | Reset the fireman mode completely. This should always be done after changing the settings of the fireman mode (see Manual for Fireman Mode). | $\begin{array}{r} \square \text { YES } \\ \text { NO } \end{array}$ |
| Weight Sensor Sensor-Type | Operating principle of the weight sensor. <br> - ANALOGUE: An analogue weight sensor with a separate bus connection displays the load of the car as a percentage. The switching levels for empty, full and overload must be set in buel frim, bevelfull and buel huer. <br> - DIGITAL: A digital weight sensor with separate outputs for empty, full and overload is connected to the terminals of the FSM Car Control Module (see "FSM: X11" on page 63). The switching levels are set directly on the weight sensor. | ANALOGUE DIGITAL |
| Weight Sensor Level-Empty | Level for the empty state when using an analogue weight sensor. | $000 . . .200 \%$ |
| Weight Sensor Level-Full | Level for the full state when using an analogue weight sensor. | 000 ... 200 \% |
| Weight Sensor Level-OverL | Level for the overload state when using an analogue weight sensor. | $000 . . .200 \%$ |
| Speech Output Activated | Activates control of a speech processor using an additional SPK Module (see System description - Speech Output). | $\begin{aligned} & \mathrm{ON} \\ & \mathrm{OFF} \end{aligned}$ |
| Speech Output Output-type | Encoding of the SPK Module's output. <br> - HEX: Binary code <br> - 1-of-N: Separate signal for each output <br> - GRAY: Gray Code <br> See System description - Speech Output. | $\begin{aligned} & \text { HEX } \\ & \text { 1-of-N } \\ & \text { GRAY } \end{aligned}$ |
| Speech Output Speech-Codes Speech-Codes | Allocation of the speech output encoding (see System description - Speech Output). | 0 ... 255 |
| Project-Config Basis | Basic options for project specific software versions. Only change after consulting NEW LIFT! | 0 ... 9999 |
| Project-Config LON Modules | LON options for project specific software versions. Only change after consulting NEW LIFT! | 0 ... 255 |
| Landing buttons Landing Call Enable | Delay when enabling landing calls again after special drives. This prevents immediate starting of the car, e.g. when switching off inspection control. | 0 ... 30 sec |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Landing buttons ADM-EAZ type | Position indicator code issued by ADM X3. <br> - HEX: Binary code <br> - 1-of-N: Separate signal for each floor (only possible up to a maximum of five floors) <br> - GRAY: Gray Code <br> The initial value for the bottom floor can be set in Eotiom FIr: Hill (see "Bottom Flr. Hall" on page 120). | HEX <br> GRAY <br> 1-of-N |
| Landing buttons Special Display 0 | Function of terminal 14 of the ADM-S landing button module (the function of terminal 14 must be set to "Soft-1" in the FSTEditor). <br> 0: No function <br> 1: "Door open" display for revolving doors <br> 2: Fireman Mode active <br> 3: Priority car or landing active <br> 4: Fireman Mode or fire signal active <br> 5: Out-of-use (display only when the system is shut down) <br> 6: Priority car active | 0 .. 255 |
| Landing buttons Special Display 1 | No function at present | 0 .. 255 |
| Lift-Off <br> Lift-Off Program | There can be more than one input for remote shutdown. <br> - FST X7. 14 <br> - ADM X3 <br> - RIO Module <br> - GST (see GST Manual) <br> After activating one of the inputs the controller triggers a "hard" or "soft" remote shutdown drive to the remote shutdown floor. <br> Then the car light is switched off and the system is shut down. <br> The door open button on the in-car panel remains active! <br> - HARD: All in-car and landing calls are deleted. <br> - SOFT: In-car calls remain, landing calls are deleted. | HARD SOFT |
| Lift-Off Lift-Off Floor | Target floor of the remote shutdown drive. | 0... 63 |
| Lift-Off <br> Lift-Off Doors | The door set here will be opened and closed again after the remote shutdown drive before the car light is switched off. | All doors Door A only Door B only Door C only |
| Special Functions Loading Function | Activate the special "Loading Function" (see "Loading Function" on page 129). |  |
| Special Functions Lobby-Stop | Activate the special function "Lobby-Stop" (see "Lobby-Stop" on page 130). |  |
| Special Functions Attika Control | Activate the special function "Attika Control" (see System description - Attika Control). |  |
| Special Functions Bank-Control | Activate the special function "Bank-Control" (see System description - Bank-Control). |  |
| Special Functions Ramp-Drive | Activate the special function "Ramp-Drive" (see System description - Ramp-Drive). |  |
| Blinking Approach | The indicator lights for in-car and landing calls flash when approaching the target floor. | $\begin{aligned} & \mathrm{YES} \\ & \mathrm{NO} \end{aligned}$ |
| Insp. Door Test | Enable door open/door close buttons (see "FPM: X4" on page 69) for moving the doors in dead man control. Door open/door close buttons can be installed on the car roof and wired parallel to the buttons of the in-car panel. | YES NO |


| Menu item | Description | Setting range |
| :--- | :--- | :--- |
| Direction | Priority of the current direction of travel before changing <br> direction. Important parameter for collective control: The time <br> must be set at least so that passengers calling the car with a <br> landing call have ample time to enter the car and issue a <br> command for the current direction of travel (at least 5 ...15 <br> sec, depending on the size of the car). If the delay is too short <br> the car can be "snatched away" by a landing call in the <br> opposite direction before the in-car call has been placed. | $0 \ldots 30$ sec |
| Departure Arrows | Mode of the departure arrow outputs ADM X3.8 and X3.9 on <br> the landing button module: <br> "YES": Display of direction with departure arrows <br> "NO": Display of direction with direction arrows <br> "Only when door open": Display of direction as departure <br> arrow only when car door is open | Yes <br> No <br> only when door open |
| Depart.Arrows Max | Maximum on-time of departure arrows when the car is not <br> moving. | $0 \ldots 9999$ sec |
| DoorC=Emerg-EndSw. | Door C input VSM X1.5 on the pre-control module is <br> interpreted and stored as a top emergency limit switch with <br> hydraulic lifts, according to EN 81. | YES <br> NO |

Park Drive Programs The FST-Controller has a scheduler (calendar) that enables time- and daydependant park drive programs. Each day of the week (SU - SA) can de divided in three time zones. Different park drive programs (park floor and waiting period) can be set for each of these time zones.

| Code | Description | Setting range |
| :---: | :---: | :---: |
| De: | Weekday | SU ... SA |
| +mm | Start time of the time zone | 0:00 ... 23:45 |
| to | End time of the time zone | 0:00 ... 23:45 |
| Pre | Program $1 . . .3$ (for time zone 1... 3) | 0 ... 2 |
| Flogr | Floor: park floor | 0 ... top floor |
| W-Time | Waiting period before starting the park drive. | $0 \ldots 60$ min |

Show LON Module After completing the "Search LON Modules" function the FST provides a list with all LON Modules connected to the LON bus.

The list is structured as follows:

```
LDN Todule [bul/beg
```



```
TD:01 00 उ0 49 69 00
[00] [00] [00] [00]
```

| A | The first LON Module of five total is displayed. |
| :---: | :--- |
| B | Module Type "FSM" with software version "00117", appendix "010/ <br> $002 "$. |
| C | LON-ID of the module: „010030496900" |
| D | First four configuration bytes of the module. |


| T/ $\downarrow$ | Switch to configuration bytes $5 . .12$ |
| :---: | :---: |
| [ + +1 | Show next LON Module. |
| [s+ $+\sqrt{1}$ | Show last LON Module. |
| $\theta$ | Toggle line C of ADM Modules. |


|  |  |  |  |
| :---: | :---: | :---: | :---: |
| [6®] | E0 | 16 | [60] |
| [0¢] | [0¢] | [6®] | [60] |
| ए-¢] | [6®] | [60] | [60] |


| A |  |
| :--- | :--- |
| B | Configuration bytes $1 \ldots 4$ of the module. |
| C | Configuration bytes $5 \ldots 8$ of the module. |
| D | Configuration bytes $9 \ldots 12$ of the module. |

Lon Todule [064/005]
Frempebelt2 bubeb
Flourne bour $\mathrm{EO}=0$
T60] [60] $\mathrm{EQ日} \mathrm{TEOI}$

| A |  |
| :--- | :--- |
| B |  |
| C | Landing button module on floor 02, door side A and bus line 0. |
| D |  |

ADM-Bus Masks The bus masks are two-digit hex values.


Fig. 1.12 Function of the individual bits

Car ventilator

| Setting | Description |
| :---: | :---: |
| Guithed Oft | The car ventilator is switched off. |
| Mnema On¢ | The car ventilator is switched on and off with a button on the in-car panel (input FPM X4.1). |
| MantiontDely | The car ventilator is switched on with a button on the in-car panel (input FPM X4.1) and switched off after an adjustable delay (see Vent.: Dit Delem). |
| Humetictort Deler | The car ventilator is switched on automatically for each drive and switched off after an adjustable delay (see Dent. bft Deleni). |

Display-0 ... 2 The FPM outputs "Display-0 ... 2" can display various operating states of the system. The states to be displayed are set to "1" in the respective control register according to the following diagram.


Fig. 1.13 Function of the individual bits

If no operating states are selected in the control register ("00000000") the outputs "Display-1" and "Display-2" can have the following functions:

## Display-1

- Issue "Chime-Roof" signal if Chime-roteve is set (see "ChimeRoof" on page 123).
- Load display for "Loading Function" (see "Loading Function" on page 129).
- Lift-Boy Mode buzzer (see "Lift-Boy Mode" on page 139).


## Display-2

- Issue "Chime-Floor" signal if Chime-faor yES is set (see "ChimeFloor" on page 123).

Pin-34 Functn The input "Loading Button" (FPM X4.34) can have the following functions:

| Setting | Function |
| :---: | :--- |
| $\mathbf{i}$ | Loading Button (see "Loading Function" on page 129) |
| $\mathbf{1}$ | Landing Calls ON/OFF |
| 2 | Lift-Boy Mode ON/OFF (see "Lift-Boy Mode" on page 140) |
| 3 | V.I.P. Mode 2 with "multiple call" ON/OFF |
| 4 | V.I.P. Mode 2 with "single call" ON/OFF |
| $\overline{5}$ | Start button for Fireman Mode (Australia) |
| 6 | Bank-Control OFF/ON |

Loading Function The loading function is activated with the input "Loading button" (FPM X4.34) and is used for loading the car. The car door is kept open until

- the door close button is pressed.
- the maximum loading time Lime Time-men has elapsed.

The loading function provides the following options:

## Loading Program

Two loading programs can be selected in Fremern .

| Setting | Function |
| :---: | :--- |
| E | - Loading button can be operated with the car door closed, <br> the car door opens after pressing the button. <br> - Pressing the loading button again cancels the loading <br> function. |
| $\mathbf{I}$ | - The loading button can only be operated with the car door <br> open, the loading button does not work with the doors <br> closed. <br> - Pressing the loading button again resets the maximum <br> loading time. <br> - Issuing an in-car call cancels the loading function. |

## Maximum loading time

The maximum loading time in seconds can be set in lime Time-men.

## Load-Sw.Disp

FPM output "Display-1" (X4.38) can display the loading function if LiedGubise = YES. The display starts flashing 20 sec before the maximum loading time has elapsed (see "Display-0 ... 2" on page 128).

Lobby-Stop With the function "Lobby-Stop" enabled the car does not pass the selectable "Lobby" floor. The car always stops so the employees have the possibility to look in the car.

This function provides the following options:

## Enable

The function "Lobby-Stop" is activated in Eneble.
Floor
The "Lobby" floor is set in Fine.

## Doors

The car doors to be opened in the "Lobby" floor are set in Denes.
V.I.P. Mode The V.I.P. Mode can be used the dedicate a car to "very important people". There are two V.I.P Modes:

- V.I.P. Mode 1 : Triggered by the LMS or a programmable input/output. Sets all call buttons to "dead man mode".
- V.I.P. Mode 2 : Triggered by FPM input X4.34 (key switch in the car), has the functions described below.


## V.I.P. Mode 2

- Triggered by an impulse on FPM input X4.34 (key switch or card reader).
- All pending landing calls are deleted and the landing control is locked.
- Group operation: the lift is removed from the group and returns all pending landing calls to the group control.
- An in-car call must be placed within ten seconds of activation, otherwise the lift will return to normal mode.
- All in-car calls already registered at the time of activation will be executed as usual.
- In "multiple call" mode an unlimited number of in-car calls can be placed (see "Pin-34 Functn" on page 129). This way the V.I.P. Mode can be
extended.
- In "single call" mode (see "Pin-34 Functn" on page 129) only one in-car call can be placed. Further in-car calls can only be placed after activating FPM input X4.34 again.


### 1.5 MAIN MENU - Positioning

All menu items with adjustable values can be deactivated by entering the value " 0 ".

| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Floor Position ABS | Absolute levelling position of a floor. Do not change this value (see Installation \& Commissioning). | 0 ... 9999999 mm |
| Floor Position REL | Levelling position of a floor relative to the bottom floor. This value is entered for each floor according to the system drawing or determined automatically during the learn drive (see Installation \& Commissioning). | -2500 ... 250000 mm |
| Floor Level UP | Switch-on point for the internal levelling signal below the actual levelling position when moving up. This value corresponds to the braking distance of the crawling speed upwards and is determined automatically during the calibration drive (see Installation \& Commissioning). | 0 ... 5000 mm |
| Floor Level DOWN | Switch-on point for the internal levelling signal above the actual levelling position when moving down. This value corresponds to the braking distance of the crawling speed downwards and is determined automatically during the calibration drive (see Installation \& Commissioning). | $0 \ldots 5000 \mathrm{~mm}$ |
| Floor Zone Sw.UP | Switch-on point for the internal door zone signal above the actual levelling position. <br> Linear positioning: Set value to 200 mm ! Incremental positioning: Do not change value determined automatically during the learn drive! (See Installation \& Commissioning.) | $0 . . .2500 \mathrm{~mm}$ |
| Floor Zone Sw.DOWN | Switch-on point for the internal door zone signal below the actual levelling position. <br> Linear positioning: Set value to 200 mm ! Incremental positioning: Do not change value determined automatically during the learn drive! (See Installation \& Commissioning.) | $0 \ldots 2500 \mathrm{~mm}$ |
| Landing Landing UP | Approach distance of the different drive speeds V1 ... V8 when moving upwards. The values correspond to the braking distance for each speed when moving up. The values are determined automatically during the calibration drive. (See Installation \& Commissioning.) | 0 ... 99999 mm |
| Landing Landing DOWN | Approach distance of the different drive speeds V1 ... V8 when moving upwards. The values correspond to the braking distance for each speed when moving down. The values are determined automatically during the calibration drive. (See Installation \& Commissioning.) | $0 \ldots 99999$ mm |
| Global Resolutn. | Resolution of the absolute value encoder. This value determines how many bits are sent by the encoder for each millimetre of car movement. If this value is set incorrectly the distances between floors are wrong and the car can hit the limit switch at full speed during the calibration drive (see Installation \& Commissioning). | 0 ... 999,9999 bit/mm |
| Global Direction | Direction of rotation of the absolute value encoder. | Left Right |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Global Encoder type | Type of shaft positioning: <br> - Absolute: Linear positioning with absolute value encoder and tooth belt. <br> - Incremt.: Incremental positioning with incremental encoder on motor or speed limiter. | Absolute Incremt. |
| Global Max.Floor | Number of floors of the lift system, starting with zero. (Example: 8 floors $\rightarrow$ Setting = 7) | $0 \ldots 63$ |
| Global Crawl Distance | Length of desired crawling distance. The set value is added to the approach distance for each speed (V1 ... V8) determined during the calibration drive. <br> (Setting = $0 \rightarrow$ Direct approach) | -500 .. 500 mm |
| Global Insp.FAST | Measured deceleration distance of fast inspection speed. The set value shows the deceleration points of the fast inspection drive before the levelling position of the top and bottom landings. If this distance is set too short the car can run into the limit switch. This value should always be checked after a calibration drive and extended if necessary. | 0 .. 5000 mm |
| Global Insp.UP | Measured deceleration distance of slow inspection speed when moving up. The set value shows the switch-off point of the inspection drive before the levelling position of the top landing. If this distance is set too short the car can run into the limit switch. This value should always be checked after a calibration drive and extended if necessary. | $-5000 \ldots 5000 \mathrm{~mm}$ |
| Global Insp.DOWN | Measured deceleration distance of slow inspection speed when moving down. The set value shows the switch-off point of the inspection drive before the levelling position of the bottom landing. If this distance is set too short the car can run into the limit switch. This value should always be checked after a calibration drive and extended if necessary. | $-5000 \ldots 5000 \mathrm{~mm}$ |
| Global ZoneB Output | - Output of the internally generated encoder-B signal (also see "Output encoder-B simulation" on page 42). The output is 0 V if the car is outside the door zone. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Global ZoneB Out.Inv. | Inverts the output of the internally generated encoder-B signal (also see "Output encoder-B simulation" on page 42). <br> - YES: The output is 0 V if the car is in the door zone. <br> - NO: The output is 0 V if the car is outside the door zone. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Global Virt.Zone | Determines whether the values set in Feitionime Fhor - zone Gu, ipentim are real or virtual zone signals. With linear positioning this parameter should always be set to YEE, with incremental positioning always to Incorrect setting of this value can lead to problems with door control and levelling positions after adjusting the levelling! | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Relevel. Limits Limit UP ON | The relevelling when moving up starts at the set distance between car and levelling position (see "Relevel. Limits" on page 138). | $0 \ldots 2500 \mathrm{~mm}$ |
| Relevel. Limits Limit UP OFF | The relevelling when moving up stops at the set distance between car and levelling position (see "Relevel. Limits" on page 138). | $0 \ldots 2500 \mathrm{~mm}$ |
| Relevel. Limits Limit DN ON | The relevelling when moving down starts at the set distance between car and levelling position (see "Relevel. Limits" on page 138). | 0... 2500 mm |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Relevel. Limits Limit DN OFF | The relevelling when moving down stops at the set distance between car and levelling position (see "Relevel. Limits" on page 138). | 0... 2500 mm |
| Cal-Results -UP-Speed | Speeds measured during the calibration drive for all drive speeds V1 ... VI for upward travel. | -10000... $10000 \mathrm{~mm} / \mathrm{s}$ |
| Cal-Results -UP-Accel. | Acceleration distances measured during the calibration drive for all drive speeds V1 ... VI for upward travel. | 0... 50000 mm |
| Cal-Results -UP-Decel. | Deceleration distances measured during the calibration drive for all drive speeds V1 ... VI for upward travel. | 0... 50000 mm |
| Cal-Results -UP-t_Accel. | Acceleration times measured during the calibration drive for all drive speeds V 1 ... VI for upward travel. | 0... 32767 msec |
| Cal-Results -UP-t_Decel. | Deceleration times measured during the calibration drive for all drive speeds V1 ... VI for upward travel. | $0 \ldots 32767 \mathrm{msec}$ |
| Cal-Results -DOWN-Speed | Speeds measured during the calibration drive for all drive speeds V1 ... VI for downward travel. | -1000 .. $10000 \mathrm{~mm} / \mathrm{s}$ |
| Cal-Results -DOWN-Accel. | Acceleration distances measured during the calibration drive for all drive speeds V1 ... VI for downward travel. | 0... 50000 mm |
| Cal-Results -DOWN-Decel. | Deceleration distances measured during the calibration drive for all drive speeds V1 ... VI for downward travel. | 0... 50000 mm |
| Cal-Results -DOWN-t_Accel. | Acceleration times measured during the calibration drive for all drive speeds V1 ... VI for downward travel. | 0... 32767 msec |
| Cal-Results -DOWN-t_Decel. | Deceleration times measured during the calibration drive for all drive speeds V1 ... VI for downward travel. | $0 \ldots 32767 \mathrm{msec}$ |
| Cal-Results -V80\%-SpeedMon | Speed monitoring point for deceleration monitoring when approaching the levelling position of the top or bottom landing (see "End-Sw.Speed Mon." on page 114). | 0... 10000 mm |
| Cal-Results -V80\%-Distance | Speed monitoring point for deceleration monitoring when approaching the levelling position of the top or bottom landing (see "End-Sw.Speed Mon." on page 114). | $0 \ldots 49999 \mathrm{~mm}$ |
| Pseudo Floors Pos. (Rel.) | Additional stops without shaft doors. "Pseudo Floors" are additional floors without call signals or doors. They can only be approached using the programmable inputs/outputs and are used as locking positions for cable lifts without machine compartment or as parking floors between regular floors. | 0... 49999 mm |
| Increm. Positng. Control | Control register for incremental positioning: <br> Default setting for this parameter: <br> BDEEIEED <br> Only change this setting after consulting NEW LIFT! | $\begin{aligned} & 00000000 \ldots \\ & 11111111 \end{aligned}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Increm. Positng. -Auto-Orien. | With incremental positioning an orientation drive to the top or bottom landing is required after switching the controller on and off (also after a power failure). The orientation drive is started automatically after switching the FST-Controller on. Only change this parameter after consulting NEW LIFT! | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Increm. Positng. Orien delay | Delay of the orientation drive after switching the FSTController on. | $0 . .9999 \mathrm{~ms}$ |
| Increm. Positng. Corr.Bottom | Position of the switch for bottom correction in [mm]. This is an absolute value. To determine the distance to the bottom floor the absolute value of the bottom floor must be subtracted from the value entered here (see "Position ABS" on page 132). The value is determined automatically during the learn drive and must not be changed! | 0.. 9999999 mm |
| Increm. Positng. Corr.Top | Position of the switch for top correction in [mm]. This is an absolute value. To determine the distance to the top floor the value entered here must be subtracted from the absolute value of the top floor (see "Position ABS" on page 132). The value is determined automatically during the learn drive and must not be changed! | 0.. 9999999 mm |
| Increm. Positng. -ZoneB-Length | Length of the zone signal when relevelling with the $\mathrm{BO} / \mathrm{BU}$ switch. This value is determined automatically during the learn drive. | 0... 250 mm |
| Increm. Positng. -BOBU<->Runoff | Length of the $\mathrm{BO} / \mathrm{BU}$ signal when relevelling with the $\mathrm{BO} / \mathrm{BU}$ switch. This value is determined automatically during the learn drive. | $0 \ldots 250 \mathrm{~mm}$ |
| Increm. Positng. -ZoneB-Hysters | Length of the hysteresis of zone switch B. This value is determined automatically during the learn drive and is limited to 10 mm by the software. In case of problems with the levelling adjustment the levelling for upward travel can be adjusted as described in the installation manual and the levelling for downward travel can be adjusted by changing the hysteresis value. | -100 .. 100 mm |
| Increm. Positng. -ZoneB-Level | Level of zone switch B if the car is in the door zone. <br> - LO: OV (closed) <br> - HI: +24V (open, default) <br> The setting must correspond to jumper JMP7 on the FST circuit board (see "Jumper JMP7" on page 43). | $\begin{aligned} & \mathrm{LO} \\ & \mathrm{HI} \end{aligned}$ |
| Increm. Positng. -ZoneB-Debnce | Debounce time of zone switch B. Only change this value after consulting NEW LIFT! | $0 \ldots 40 \mathrm{msec}$ |
| Increm. Positng. -CB/CT-Level | Level of the CB/CT switch if the car is at the top or bottom landing. <br> - LO: OV DC <br> - HI: +24V (default) <br> The setting must correspond to jumper JMP7 on the FST circuit board (see "Jumper JMP7" on page 43). | $\begin{aligned} & \mathrm{LO} \\ & \mathrm{HI} \end{aligned}$ |

Positioning Parameters
For a better understanding of the parameters for linear and incremental positioning the main settings are shown graphically in the following two figures.


Fig. 1.14 Parameters for linear positioning


Fig. 1.15 Additional parameters for incremental positioning

Relevel. Limits Relevelling during unloading:

- During unloading the car moves up.
- If the car moves more than the value Limit. DN ON from the levelling position, relevelling downwards starts at speed Vn.
- If the car is less than the value Limit DN OFF from the levelling position relevelling is switched off and the car decelerates so it is levelled exactly.
- Parameter Limit DN Du can be set as desired. It controls switching on of the relevelling process. Parameter Limit. Did DFF must be assigned according to the braking distance of the relevelling speed. It must be optimised until the car relevels exactly.
- Parameter init Dit must always be larger than parameter Limit DH DFF.

This also applies to relevelling upwards.


Fig. 1.16 Adjusting relevelling

### 1.6 MAIN MENUE - Calls

| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Call Floor Config | Landing call program for each floor: <br> - No Button: No landing button available. <br> - DOWNcollect: One button for downward calls available. <br> - UP-collect: One button for upward calls available. <br> - Two button: Buttons for upward and downward calls available. <br> - STOPcollect: Upward and downward calls use the same button. | No Button ... STOPcollect |
| Call Floor Door function | Door program for each floor: <br> - Single: Only one shaft door available. <br> - Selective: Shaft doors are handled selectively. <br> - Order: Locked shaft doors are handled in the specified order. <br> - Sequence: Locked shaft doors are handled following the order the calls were issued. <br> - Through: All shaft doors are handled simultaneously. | Single ... <br> Through |
| Call Floor Door | Door program for each car door: <br> - X: Door deactivated <br> - >A<: Door A active, default position closed. <br> - <A>: Door A active, default position open. <br> The same settings apply to car doors B and C. <br> If an $\%$ is entered the landing and in-car calls for that side of the door on that floor are locked. | >A< ... X |
| Special Call Mode | Call programs for landing and in-car calls (see "Special Call Mode" on page 139). | Standard Non-Collective Single-Call Mode |
| Lift-Boy Mode | Activate Lift-Boy Mode (see "Lift-Boy Mode" on page 140). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |

Special Call Mode Pending calls can be processed in three different ways:

| Setting | Method |
| :---: | :---: |
| Sturard | Landing and in-car calls are collected. |
| Wormandetive | - Only one call at a time is accepted. <br> - The car is reserved as long as it is moving or a door is open. <br> - Landing calls are locked when the car is reserved. |
| Sinele-cir mode | - Only one call at a time is accepted. <br> - The car is reserved as long as it is moving or a door is open. <br> - If the car is reserved landing calls are collected but not processed. <br> - When the car is released the oldest call will be processed first. |

Lift-Boy Mode The Lift-Boy Mode requires a lift boy to be present at all times.

- The Lift-Boy Mode can be activated permanently with parameter itt Eat mode or temporarily with FPM input X4.34 (see "Pin-34 Functn" on page 129).
- Landing calls are acknowledged but not processed automatically.
- Each acknowledged landing call will be confirmed on the in-car panel with a flashing of the corresponding in-car call and a short sound of the buzzer (FPM output X4.38 "Display-2").
- The lift boy processes the landing calls one after the other by following the flashing in-car calls.


## Settings:

- Fin- 34 Fumtin = 2 (see "Pin-34 Functn" on page 129) if the Lift-Boy Mode should only be activated temporarily with a key switch.
- Lift-Ege mode = On to activate the Lift-Boy Mode permanently.

- Lam- Gwn Disf = bbbebeb (see "Loading Function" on page 129)


### 1.7 MAIN MENUE - System

| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Time-Date Clock Setting | Time of the FST-Controller. Must be checked during each service and adjusted if necessary. If the time is not set correctly the time stamps of the error storage are useless. | 14:34:12 |
| Time-Date Date Setting | Date of the FST-Controller. Must be checked during each service and adjusted if necessary. If the date is not set correctly the time stamps of the error storage are useless. | 23:01:01 |
| Time-Date Daylight Saving | Rule for automatic adjustment of daylight saving time. | Off <br> no automatic change European system USA system |
| Password Setting Level 1 | Password for security level commissioning: Unlimited access and editing rights. Must be checked during each service and adjusted if necessary. If the time is not set correctly the time stamps of the error storage are useless. | 0000 ... 9999 |
| Password Setting Level 2 | Password for security level customer service: Limited access and editing rights. See "MAIN MENU" on page 148. | 0000 ... 9999 |
| Password Setting Level 3 | Password for security level maintenance: <br> Limited access and no editing rights. See "MAIN MENU" on page 148. | 0000 ... 9999 |
| Language | Language of the LC-Display and the FST Menus. | Deutsch English |
| Recorder Recorder RESTART | Start recording. Depending on the event channel activated certain internal events are recorded with date and time. If a PC-Card is inserted the recording is stored on the card. Short recordings (a few minutes) can also be performed without a PC-Card (see "Event Channels" on page 143). | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Recorder Recorder STOP | Stop recording. | $\begin{gathered} \Rightarrow \text { YES } \\ \text { NO } \end{gathered}$ |
| Recorder - <br> Recorder CONTINUE | Continue stopped recording. | $\begin{gathered} \Rightarrow \text { YES } \\ \text { NO } \end{gathered}$ |
| Recorder Filter Setting Detail | Enable event channel "Detail" for recording. See "Event Channels" on page 143. | ON OFF |
| Recorder Filter Setting Statistics | Enable event channel "Statistics" for recording. See "Event Channels" on page 143. | ON OFF |
| Recorder Filter Setting Group Statistic | Enable event channel "Group Statistic" for recording. See "Event Channels" on page 143. | ON OFF |
| Recorder Filter Setting Drive Curve | Enable event channel "Drive Curve" for recording. See "Event Channels" on page 143. | ON OFF |
| Recorder Filter Setting Remote Activity | Enable event channel "Remote activity" for recording. See "Event Channels" on page 143. | $\begin{aligned} & \text { ON } \\ & \text { OFF } \end{aligned}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Recorder Filter Setting RIO Traffic | Enable event channel "RIO Traffic" for recording. See "Event Channels" on page 143. | ON OFF |
| Recorder -Stop-when-full | Determines if recordings stops when the PC-Card is full. Otherwise recording continues at the start of the card (endless loop). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Update FST | Update the FST software with a PC-Card. | $\begin{gathered} \square \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Update GST | Update the GST software with a PC-Card. | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Update LON-Modules | Update all connected LON-Modules if a new software version is available on the PC-Card. | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Config --> Backup | Create a backup copy of the current FST configuration for storage in an internal buffer. | $\begin{gathered} \hookrightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Config <-- Backup | Load the FST configuration from the internal buffer as current FST configuration. All parameters will be overwritten. Only activate this parameter after consulting NEW LIFT! | $\begin{gathered} \zeta \mathrm{YES} \\ \text { NO } \end{gathered}$ |
| PC-Card Tools Config --> Card | Save current FST configuration on PC-Card. | $\begin{gathered} \zeta \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| PC-Card Tools Config <-- Card | Load the FST configuration from the PC-Card as current FST configuration. All parameters will be overwritten. Only activate this parameter after consulting NEW LIFT! | $\begin{gathered} \square \mathrm{YES} \\ \text { NO } \end{gathered}$ |
| PC-Card Tools S/Ware --> Card | Save current FST software on PC-Card. | $\begin{gathered} \square \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| PC-Card Tools Clear Card | Delete everything on the PC-Card. | $\begin{gathered} \Rightarrow \text { YES } \\ \text { NO } \end{gathered}$ |
| Panel Test | Special function to test landing and in-car panels (see System description - Panel Test). |  |
| FST Reset! | RESET the FST-Controller. | $\begin{gathered} \hookrightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |

Event Channels

|  |  |  |  |  |  |  |  | $\begin{gathered} \frac{n}{\tilde{j}} \\ \stackrel{y}{\tilde{j}} \\ \hline \end{gathered}$ |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Detail | Detailled Trouble Shooting | X | X | X | X | X | X | X | X | X |  |  |  |  | 3 Hours |
| Statistics | Call- and Drive-Statistics |  |  |  | X | X | X | X |  |  |  |  |  |  | 24 Hours |
| Group Statistics | Call- and Drive-Statistics Group |  |  |  | X | X | X | X |  |  | X |  |  |  | 24 Hours |
| Drive Curve | Drive Behaviour |  |  |  |  |  |  |  |  |  |  | X |  |  | 1 Hour |
| Remote Activity | Diagnostics for PAM |  |  |  |  |  |  |  |  |  |  |  | X |  | 1 Week |
| RIO Traffic | Disgnostics für RIO |  |  |  |  |  |  |  |  |  |  |  |  | X | 24 Hours |

Fig. 1.17 Event Channels of the FST-Controller

### 1.8 MAIN MENUE - Doors

All menu items with adjustable values can be deactivated by entering the value " 0 ".

| Menu item | Description | Setting |
| :---: | :---: | :---: |
| Doors Basic Number Doors | Number of car doors. | $0 \ldots 3$ |
| Doors Basic -Apply-ALL | The settings in botes - Select ive automatically apply to all car doors. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors Basic Cam Delay | Delay between reaching the levelling position or the zone area and dropping off of the lock-cam curve (locking solenoid for unlocking the shaft doors, FSM X6.5). | $0 \ldots 4 \mathrm{sec}$ |
| Doors Basic Cam Time Max | Maximum activation time of the locking solenoid. Prevents the solenoid from damage in case of failures. After this time has elapsed output FSM X6.5 for the locking solenoid is switched off, independent from the state of the controller. | 0010 ... 9999 sec |
| Doors Basic Lock Delay | Maximum delay between closing of car door contact and shaft door or locking contact when closing the doors. If this time is exceeded the error DOUR LGCE TMEDTT is displayed. The car door opens for the setcetre Time and then closes again. | $0 . . .4 \mathrm{sec}$ |
| Doors Basic Lock Fail Max | Maximum number of consecutive lock fails (DUTE LTC TTMEUTT). All landing and in-car calls will be deleted and the <br>  | $0 . .10$ |
| Doors Basic Lock Fail Open | Door allocation after lock fail: <br> "One": Only the car door last opened opens after a lock fail (BUQE LUCK THEULT). <br> "All": All car doors open after a lock fail (DOOE LiOCK THEUUT). | ONE <br> ALL |
| Doors Basic SCCT Debounce | Delay between closing of the safety circuit and activation of the drive contactors when starting (prevents contactor bouncing). | $0 . . .2 .5 \mathrm{sec}$ |
| Doors Basic Retry Time | Opening time of the car door before closing again after a lock fail (DOUE LOEE THUDUT). | $0 . .4$ sec |
| Doors Basic Open Delay | Delay before opening the doors when the levelling position has been reached (see "Door times diagram" on page 147). | $0 . . .4 \mathrm{sec}$ |
| Doors Basic Bypass t-OFF | Delay when switching off the safety circuit bypass relay K20 of the VSM. | $0 \ldots 2 \mathrm{sec}$ |
| Doors Basic - <br> Bypass t-ON | Delay when switching on the safety circuit bypass relay K20 of the VSM. | $0.1 \ldots 2 \mathrm{sec}$ |
| Doors Basic -Pre-Opening | Enable approach with car and shaft doors open. This parameter can only be activated when using the A6 Safety Circuit! The following steps are required to deactivate an integrated A6 Safety Circuit: <br> - Set Fre-DFenime = du <br> - Set Eelevelline = WU <br> - Disconnect power supply of the safety circuit (terminals 518, 519) | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |


| Menu item | Description | Setting |
| :---: | :---: | :---: |
| Doors Basic -remains-open | If the car doors are open they will remain open until a call is placed. This parameter controls the default position of the doors (see ">A< ... X" on page 139). Only activate this parameter after consulting NEW LIFT! | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors Basic Nudging Output | FSM X6.6 ("Curve B") and FSM X6.7 ("Curve C") are used as nudging outputs for door $A$ and $B$. If the photocell is interrupted longer than the time set in Dots - Selective Whete Time the door will be closed with the nudging output activated. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors Basic PhotocellLevel | Active level of photocell inputs FSM X8.8 / X9.8 and reversing contact inputs FSM X8.8 / X9.6. <br> - HI: Normally open (photocell interrupted: 24 V on input, photocell clear: OV on input; this also applies to the reversing contact) <br> - LO: Normally closed (photocell interrupted: OV on input, photocell clear: 24 V on input; this also applies to the reversing contact) | $\begin{aligned} & \hline \mathrm{HI} \\ & \mathrm{LO} \end{aligned}$ |
| Doors Basic Allow DRM-Door | Enable runtime monitoring Det-DUE Fhilife after a major door failure. Prevents burning out of unregulated door drives (see "DRM-DOOR FAILURE" on page 155). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors Basic -SS-Curtain | Control of a self regulating SS-Curtain (light barrier) to replace the car doors. The self-regulation uses the FSM door relays and the safety circuit monitoring function of the controller (see System description - SS-Curtain). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors Basic -SS-CurtainWait | Duration of the SS-curtain impulse issued by the door relay of the FSM before each drive. | $0 . . .10 \mathrm{sec}$ |
| Doors Basic WheelchairTime | Extended opening time of the car door after a disabled call on the landing panel. | $0 \ldots 255 \mathrm{sec}$ |
| Doors Basic Selective | Is there a separate locking solenoid for each door side that must be controlled separately (selectively)? <br> - YES: Each door side has a separate locking solenoid controlled selectively via FSM X6.5, X6.6 and X6.7. <br> - NO: The locking solenoids of all door sides are controlled parallel via FSM X6.5. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors - Selective Type | Car door type: All common car doors are supported. No function allocated to this parameter at present. |  |
| Doors - Selective Opening Time | Opening time of a car door without limit switch. If car doors without limit switches are used the inputs for the door limit switches must be bridged (see "FSM: X8" on page 62 and "FSM: X9" on page 63). The opening time of car doors without limit switches must be measured exactly and entered here. The value should be adjusted to 20 seconds for doors with limit switches (see "Door times diagram" on page 147). | $0 . . .20 \mathrm{sec}$ |
| Doors - Selective Decoupling | Car doors where the door leaf can be decoupled. If this parameter is activated the controller checks the door limit switches and the safety circuit and recognizes if the door leaves are decoupled. It then tries re-coupling the door leaves by repeatedly opening the doors. This parameter can only be activated with working door limit switches. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors - Selective Decouple Max. | Maximum re-coupling attempts when the door leaves are decoupled before all calls are deleted (only relevant if Decoupline = yes). | 0 ... 10 |


| Menu item | Description | Setting |
| :---: | :---: | :---: |
| Doors - Selective Manual Door | Shaft doors are manual doors. Door C input of the safety circuit (VSM X1.5) is used to query the manual door contact (display: <br> WhUHL DOGe OPEU). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors - Selective Man. Door Deb. | Debounce time of the manual door contacts. This parameter prevents "scatter" at the locking solenoid output when starting due to bouncing manual door contacts. | $0 \ldots 5 \mathrm{sec}$ |
| Doors - Selective Nudging | If no nudging outputs are used to decrease the closing speed of the doors during nudge time (Whemine Dutmit wit pulsed nudging can be triggered. The door close call is issued as a pulse so the door closes in steps. The Cycle time of the nudging pulses can be set here. If the photocell is interrupted longer than the time set in bors - Selective Whete Ti me the door will be closed with pulsed nudging. | $0 \ldots 6 \mathrm{sec}$ |
| Doors - Selective Endswitches | The car door has end switches (limit switches). <br> - YES: Connect car door limit switches to FSM X8 and X9. Set Demime time to 20 seconds. <br> - NO: Bridge limit switch inputs on FSM X8 and X9 with +24 V and set Demine time. <br> See "FSM: X8" on page 62, "FSM: X9" on page 63 and "Door times diagram" on page 147. | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors - Selective Photocell | Maximum number of consecutive reversing cycles of the car door caused by photocell interruptions before a forced closing (nudge time). This parameter is normally set to 0 (function disabled). Only set this parameter to a value higher than 0 after consulting NEW LIFT! | $0 \ldots 10$ |
| Doors - Selective PhotoCell Xtn | Internal extension of the photocell signal by the controller software. This parameter enables complete opening of the door after a photocell interruption. | $0.0 \ldots 10.0 \mathrm{sec}$ |
| Doors - Selective Open Hold Tim | Time doors are held open when there is no in-car or landing call. This parameter is only effective if no further calls are pending. The opening time of the car doors with pending calls is controlled by min. heit Lending wime wit. C.er. (see "Door times diagram" on page 147). | 2 ... 250 sec |
| Doors - Selective Reversing Tim | Opening time of the car door after a reversing cycle. | $0.0 \ldots 20.0 \mathrm{sec}$ |
| Doors - Selective Deenergize | The car door receives no current when in the limit position OPEN (no UP-signal). | $\begin{aligned} & \text { YES } \\ & \text { NO } \end{aligned}$ |
| Doors - Selective Change Delay | Delay when switching the door relay (from door open to door close and vice versa). This parameter prevents short circuits caused by too fast switching of doors using three-phase AC. | 0.1 ... 2.0 sec |
| Doors - Selective Nudge Time | Time before nudging (forced closure) starts when the photocell is permanently blocked. Nudging will ignore the signal from the photocell. There are two methods for nudging: <br> - Nudging output activated (reducing closing speed at the door controller) if <br> Whatime Dutmit $=\mathrm{YE}$ is set. <br> - Pulse command if Wefing Cutput = Wiand the pulse duration in whem ine are set. | $0 \ldots 300 \mathrm{sec}$ |
| Doors - Selective Min. Wait Landing | Minimum wait time of the car at a floor after following a landing call (see "Door times diagram" on page 147). | $0 . . .60 \mathrm{sec}$ |
| Doors - Selective - <br> Min. Wait Car | Minimum wait time of the car at a floor after following an in-car call (see "Door times diagram" on page 147). | $0 \ldots 60 \mathrm{sec}$ |

## Door times diagram


(1) Car has reached level position, Drive is stopped (resp. Car has reached door zone)
(2) Car Door(s) start opening
(3) Car Door is fully opened (The Deening Time should be adjusted to 20. Sec. for doors with Limit Switches)
(4) Car Door starts closing again, if there are further calls
(5) Car Door starts closing again, if there are no further calls

Fig. 1.18 Door times of the FST-Controller

### 1.9 MAIN MENU

| Menu item | Description | Setting |
| :--- | :--- | :--- |
| Lock MENU | Close main menu: <br> Access to the menu is only granted with the password for the <br> required security level. | $\leftrightharpoons$ YES <br> NO |

Example: If a password is set to enable access to a part of the menu for e.g. maintenance work, a password must be set for the other security levels as well. Example:

Level in 1234
Level 2" $2 Q 2$
Level उ: bebe
In this case all parameters of the maintenance level could be accessed. The parameters of the customer service level are protected by the password $2<2$. Unlimited access is granted when entering the password 1234.

### 1.10 TEST MENU

| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Fault Reset | Reset runtime failures that caused the system to stop. All error messages starting with Deti- shut down the system (error LED illuminates). The shutdown can be reset with "Fault Reset". | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| Door | Lock or unlock car doors (during maintenance work). Locked car doors are marked with an X after the door letter in line C of the FST display (see "Statusmeldungen in Zeile C" on page 14). The door lock remains even when switching the controller on and off. | C Lock Unlock |
| Test Drive | Place calls using the FST keypad. With test drive activated line C of the FST display shows $\operatorname{TEFEt}=\quad=$. Select the target floor using keys $\sqrt{1} /$. Execute the call by pressing. | ON OFF |
| Auto Test Drive | Trigger automatic generation of in-car calls (see MTH IETU - Contis - futo Test Drive page 118). With automatic test drive activated line C of the FST display shows T. | ON OFF |
| Service Mode | In service mode external error messages are suppressed (e.g. collective error messages). In Service Mode line B of the FST display shows GEUTEE MODE: | ON OFF |
| Endswitch Test Top | Slow travel to the top limit switch. <br> This test cannot be started from the top floor! After starting the test with YES button must be pressed until reaching the limit switch (dead man control). | $\begin{gathered} \Rightarrow \text { YES } \\ \text { NO } \end{gathered}$ |
| Endswitch Test Bot | Slow travel to the bottom limit switch. This test cannot be started from the bottom floor! After starting the test with YES button $\square$ must be pressed until reaching the limit switch (dead man control). | $\begin{gathered} \hookrightarrow \text { YES } \\ \text { NO } \end{gathered}$ |
| V-Mon. Test Top | Test speed monitoring at the top. <br> This test can only be performed if the speed monitoring function is enabled (see Mhtherd - Drive - End Su: Speed tonn page 114)! <br> This test cannot be started from the top floor! After starting the test with YES button must be pressed until the end switch speed monitoring function reacts (dead man control). | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |
| V-Mon. Test Bot. | Test speed monitoring at the bottom. <br> This test can only be performed if the speed monitoring function is enabled (see MHM MEM - Drive - End Gu: Geed Mou: page 114)! <br> This test cannot be started from the bottom floor! After starting the test with YES button must be pressed until the end switch speed monitoring function reacts (dead man control). | $\begin{gathered} \hookrightarrow \text { YES } \\ \text { NO } \end{gathered}$ |
| DRM Test | Testing runtime monitoring. | $\begin{gathered} \Rightarrow \mathrm{YES} \\ \mathrm{NO} \end{gathered}$ |


| Menu item | Description | Setting range |
| :---: | :---: | :---: |
| Buffer Test Up | Runs into the counterweight buffer at nominal speed. This test can cause damage to the car. Only perform this test after consulting NEW LIFT! <br> This test cannot be started from the top floor! After starting the test with YES button must be pressed until reaching the buffer (dead man control). | $\begin{gathered} \square \mathrm{YES} \\ \text { NO } \end{gathered}$ |
| Buffer Test Down | Runs into the car buffer at nominal speed. <br> This test can cause damage to the car. Only perform this test after consulting NEW LIFT! <br> This test cannot be started from the bottom floor! After starting the test with YES button (E must be pressed until reaching the buffer (dead man control). | $\begin{gathered} \square \mathrm{YES} \\ \text { NO } \end{gathered}$ |

## 6 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, with the PCCard or via remote data transmission at any time.

### 6.1 LC-Display

```
ERROE E06BG%6046]
26.05 10418:26 [612]
DQot Close F=iled
FLOURES एBE EGI TBE
```

| A | Event/error no. 37 of 40 total |
| :---: | :--- |
| B | Date / Time / Message Code |
| C | Text description of event/error |
| D | Floor / <br> Generated signals (see "Positionsmeldungen Kop: Virt=0b Real=00" <br> on page 22) / <br> actual signals (see "Positionsmeldungen Kop: Virt=0b Real=00" on <br> page 22) / <br> information byte Infobyte1 (see "Error messages" on page 153) |



```
\(26.091016 \pi 26121\)
Dour Close Filied
```



| A | Event/error no. 37 of 40 total |
| :--- | :--- |
| B | Date / Time / Message Code |
| C | Text description of event/error |
| D | Information bytes: Infobyte2 .. Infobyte8 |

### 6.2 Keypad functions

| $\boxed{\square}$ | Switch to 2nd to 8th information byte |
| :---: | :--- |
| $\boxed{\Lambda}$ | Back to first screen |
| $\boxed{s}+\sqrt{\top}$ | Scroll error list up |
| $\boxed{s}+\sqrt{\square}$ | Scroll error list down |

### 6.3 Event messages

| Code | Message | Description | Reason |
| :---: | :---: | :---: | :---: |
| 120 | COLDETRT | Power supply of the FST was interrupted and is back on. | - The FST-Controller was switched off and on again on the fuse or the main switch. <br> - There was a power failure. |
| 129 | IWEPGTTOMTH ThEPGTTOMGF | Inspection work is being carried out. | The inspection switch on the car roof is set to INSPECTION. |
| 131 | Foue Lost | Failure of the 24 V power supply. | The system has been shut down or the power supply is faulty. |
| 13 | RETUTE RESET | The FST-Controller has been reset by the GST Group Controller. | The FST-Controller has been reset through the serial interface. |
| 138 | GRTBRATGD-GTRT CATERATTOHOK | Calibration progress is displayed. | A calibration drive has been triggered. |
| 134 | LERE DRTUETRET <br> LERQ DRTUEGK | Learn drive progress is displayed. | A learn drive has been triggered. |
| 136 | GOFTUPE UPD日TE | The software of the FST has been updated with a PC-Card. |  |
| 136 | EURCUHTTON-DN EURCHTMOTGF EURGHTTOU-GK | An evacuation drive has been carried out. | The evacuation signal on a programmable input/output has been active. |
| 13 | रो-EETML OK | DCP interface X12 in operation. | The serial DCP interface X12 between FST and frequency converter has been initialised correctly (e.g. after switching on). |
| 136 | WणUTOR STGM - On WUWTOR STGUP -GF | State change on the programmable "Monitor" input. | The programmable "Monitor" input has changed its state. This input can be used to enter state changes of any signal in the error storage (see "Programmierbare Ein-/Ausgänge" on page 155). |
| 139 | GPRON OUT-ON <br> GPCOU OT-GFF | State change on the "Apron Monitoring" input. | The state of the electronically monitored apron for small shaft pits is entered in the error storage as a message. |

### 6.4 Error messages

| Code | Message | Description | Reason |
| :---: | :---: | :---: | :---: |
| 1 | HHI | Major CPU error determined by Watchdog-Supervision. | internal error |
| 3 |  | "ON" and „OFF" states of the emergency device that has triggered are displayed. | Interruption of the safety circuit before terminal VSM X1.6. All safety circuit inputs of the preselection module are idle. |
| 5 | DRTUE-EDTT | Error during start up of drive process. | internal error |
| 6 | De¢temfthmot | Major CPU error in drive process area determined by WatchdogSupervision. | internal error |
| 7 | DeTue-mer | Error during transmission of data relevant for drive process. | internal error |
| 9 | OPEN DOTE LOCE | Door contact open while the car is moving. <br> Infobyte2: <br> Safety circuit status: <br> digit 1: Bit 0-3 <br> digit 2: Bit 4-7 <br> bit 0 .. 2: not used <br> bit 3: Emergency stop <br> bit 4: Door contact C <br> bit 5: Door contact B <br> bit 6: Door contact A <br> bit 7: Locking device <br> ("0" = interrupted, <br> " 1 " = closed) | Safety circuit of the door circuit has been interrupted while the car was moving. Infobyte2 shows if the interruption has been caused by a car or a shaft door. |
| 10 | MTSED Thet | When approaching the target floor the programmed levelling position was not reached or exceeded. | - Drive is not working accurately or load dependant. <br> - Increase crawling distance (see "Crawl Distance" on page 133). <br> - Carry out another calibration run. <br> - Check switch off points before levelling (see "Level UP" on page 132). |


| Code | Message | Description | Reason |
| :---: | :---: | :---: | :---: |
| 11 | Dote ofth Fhine | Car door does not open. <br> Infobyte2: <br> Safety circuit status: <br> digit 1: <br> Bit 0-3 <br> digit 2: Bit 4-7 <br> bit 0 .. 2: not used <br> bit 3: Emergency stop <br> bit 4: Door contact C <br> bit 5: Door contact B <br> bit 6: Door contact A <br> bit 7: Locking device <br> ("0" = interrupted, <br> "1" = closed) | - Check door drive <br> - Check wiring of safety circuit <br> - Check operation of door relays on FSM <br> - Check operation of door limit switches ( +24 V must be supplied to FSM X8.2 and X9.2 to open the doors)! <br> - Infobyte2 shows the state of the safety circuit at the time of the error message. |
| 12 | DUR CLTE Fhan | Car door does not close. <br> Infobyte2: <br> $0=$ Door $A$ <br> $1=$ Door $B$ <br> $2=$ Door $C$ <br> Infobyte3: <br> 1 = fully open, limit switch OPEN is active <br> 2 = does not close all the way, limit switch CLOSED is not active | - The car door is blocked mechanically or electrically. <br> - Check operation of door relays on FSM. <br> - Check operation of door limit switches ( +24 V must be supplied to FSM X8.4 and X9.4 to close the doors)! |
| 13 | DOQe LGCK RETR CMT | Error during closing of doors. <br> Infobyte2: $\begin{aligned} & 0=\text { Door A } \\ & 1=\text { Door B } \\ & 2=\text { Door C } \end{aligned}$ <br> The number of lock attempts is displayed under MHT MEDEE * Doors + Doore Emeic bock funt . | The shaft door contact (lock) does not close even after n attempts. |
| 14 | DRt-GTRT PROELEM | Reset TET MEU - Funt Reset. | The car does not start moving even with pre-selection active. |
| 15 | DRt-ETUE WUNTOE | Monitoring or drive error. No movement of the car could be determined during the drive. <br> Reset TET MEU - FUIt Reset. | The encoder position does not change even with pre-selection active. <br> - The encoder is faulty. <br> - No electric connection to encoder. <br> - The drive does not move. |


| Code | Message | Description | Reason |
| :---: | :---: | :---: | :---: |
| 16 | Detratuote Fhuume | Plausibility testing of car position with the encoder is faulty. <br> Reset TET MEUU - FUIt Reset. | - The encoder is faulty. <br> - Check electric connection of the encoder. <br> - During commissioning: Check direction of rotation of the encoder and carry out "Set Floor 0". |
| 17 | Detrat Come Fhut | Communication between the FSTController and the FSM Car Control Module is faulty. | - Plug-in connections of the trailing cable are not plugged or loose. <br> - Rupture in trailing cable. <br> - Car Control Module FSM faulty. <br> - Check jumper position on the car control module (see "Assigning the car in group mode" on page 60). |
| 18 | Demfab Floue greb | Reset TEST MENU - FUIt Reset. | The delay control circuit at the top and bottom limits has triggered (see "End-Sw.Speed Mon." on page 114). |
| 19 | Dethrsenta zone | No zone message available. <br> Reset TEST MUU - FUIt Reset. | The car has reached a levelling position but does not receive a zone message from the A6 Safety Circuit. <br> Check A6 Safety Circuit and zone solenoids. |
| 20 | DRPmere Fhande | The brakes do not react or cannot be released. <br> Reset TET HEW - FRIt Reset. | - The brake does not release even with pre-selection active <br> - The brake does not close even with the car stopped. <br> Monitoring via input VSM X4.7 (see "Brake Monitoring" on page 113). |
| 21 | Detromot Fhunde | Temperature monitoring of the drive has triggered. | Motor overheated. <br> Monitoring via input VSM X4.5 (see "Motor Monitoring" on page 113). |
| 22 | DRYDRED STR | The input signal "Forced Stop" on a programmable input has been active. The car is shut down on the floor with the door open. | Please refer to the system specific wiring diagrams for information on which signal has triggered the forced stop. Also see "Programmierbare Ein-/ Ausgänge" on page 155). |
| 2 S | Detrmatamut | Exceeding the top floor according to EN 81 (for hydraulic lifts). <br> Reset TESTMEWU - FEnit Reset. | The top emergency limit switch has triggered. The contact is sampled by terminal VSM X1.5 ("TC"). |
| 24 | Detrone Fhinue | The car door cannot be moved. Reset TEST MEU - FEnt Reset. | Door control is active but the car door does not move. The controller shuts down the system (see "Allow DRM-Door" on page 145). |


| Code | Message | Description | Reason |
| :---: | :---: | :---: | :---: |
| G | GUTHUTOE MONTtorte | Fault in motor contactor. <br> Reset TET MEU - FEIt Reset. | The main contactors do not release after the levelling position is reached. Monitoring via input VSM: X4.6 (see "Contactor Monitoring" on page 114). |
| $\underline{7}$ | SIP OUTMDE LEUE | Unexpected car movement out of the stopping position. | The drive does not stop at the levelling position even with preselection disabled. <br> - The deceleration distance of the drive is too long. <br> - The drive brake activates too late. <br> - Check encoder function. |
| 26 | GLP GUTSDE ZDE | Unexpected car movement out of the zone. | The drive does not stop at the levelling position even with preselection disabled. <br> - The deceleration distance of the drive is too long. <br> - The drive brake activates too late. <br> - Check encoder function. |
| 2 | DRTE $\mathrm{CHEm-ERQE}$ | Error during transmission of drive data from/to drive processor | internal error |
| 30 | EUE-TF TMEUUT | Fault in bus interface. | internal error |
| II | GTRT-GEDET | Drive start sequence cancelled. | The drive cannot be started. No return signals from drive or signals delayed. <br> - See VSM X4.7 brake monitoring. <br> - See wiring diagram FST X7.11. <br> - See "Brake Delay" on page 113. |
| 3 | GTOP-EEDET | Drive stop sequence cancelled. | The drive cannot be stopped. No return signals from drive or signals delayed. <br> - See VSM X4.7 brake monitoring. <br> - See wiring diagram FST X7.11. <br> - See "Brake Delay" on page 113. |
| ड | REAEALTM GEDET | An error has occurred and the relevelling process has been cancelled. | - Check drive and pre-selection. <br> - Check safety circuit bridging. <br> - Check bypass relay K20 on the pre-selection module. <br> - See "Bypass t-OFF" on page 144. |
| 34 | Erpme manure | Safety circuit bypass not available despite zone message. | - Check K20 of the VSM. <br> - Check wiring of safety circuit. <br> - Check safety circuit. <br> - See "Bypass t-OFF" on page 144. |


| Code | Message | Description | Reason |
| :---: | :---: | :---: | :---: |
| उ5 | DUQe LOEC TMUEUT | Door lock timeout is not long enough. | The car door is closed but the lock contact has not closed in the time set. <br> - Check shaft doors mechanically (smooth running). <br> - Check door lock contacts. <br> - Increase door lock timeout (see "Lock Delay" on page 144). |
| उ | GRe LTGHT Fhture | Power sensor indicates car light is not working. | - Check car light. <br> - Check power sensor on FSM (see "FSM: X14" on page 64). |
| 3 | RELMATOE ERQR | Error message from the frequency converter when using a converter with serial control. | Check error list of the frequency converter. The number of the regulator error corresponds to the error code in the documentation of the frequency converter. |
| 36 | REFLL PUP TMEDUT | Error during refilling of the hydraulic counterweight. | The cut-off pressure for refilling has not been reached within 30 seconds. Check function and control of the refill valve. |
| 8 | GPETY CRTATM ERE | The safety curtain has been interrupted while the car was moving. | Check function and control of the safety curtain (see "SS-Curtain" on page 145). |
| 40 | GhETY CRTATM FRT | Error during test of safety curtain. | The FST-Controller issues a test signal for the safety curtain via FSM X10.2 before each drive. The safety curtain acknowledges the test signal with an interruption of the safety circuit (VSM X1.3). <br> - Check operation of the safety curtain. <br> - Check duration of the test impulse in THT HEUDets - Dote Emsic - SE-Turtimbit (see "SS-CurtainWait" on page 145). |
| 41 | M2-SETML OFF | No serial connection to the frequency converter (FST X12, DCP). | - Check connection cable between FST X12 and frequency converter. <br> - Check settings of the frequency converter (DCP03). |
| 42 | א-12 Sempl Em | Serial connection to the frequency converter is faulty (FST X12, DCP). | - Check connection cable between FST X12 and frequency converter. <br> - Check shield of the connection cable. |
| 43 | HFGMTLEE <br> HFS FGTLUEGOU | State change at the programmable input "UPS FAILURE" for monitoring UPS error messages. | Check operation of the UPS. |

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