

Field Bus Controller



Manual



Publisher NEW LIFT Steuerungsbau GmbH

Lochhamer Schlag 8 D-82166 Gräfelfing

Phone: +49 (0) 89 / 89 866 - 0 Fax: +49 (0) 89 / 89 866 - 300

Doc. No. FST_HB.EN04/03

Date of issue 04/03

Software version V1.100-0233

Copyright © 2003, NEW LIFT Steuerungsbau GmbH

All rights including those of copying and reproduction of parts of this description and of the translation are reserved by the publisher.

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

1	About this manual	5
1.1	General	. 5
1.2	Signs and Symbols used	. 5
1.3	Further information	. 6
2	General Safety Regulations	7
2.1	Standards and regulations applied	. 7
2.2	Electromagnetic compatibility (EMC)	. 8
2.3	Handling electronic components	. 8
3	FST-Controller user interface	9
3.1	LC-Display and messages Main screen Line A Line B Line C Line D Information texts Information page	10 10 11 14 27 28 30
3.2	Keypad functions When switching on Main screen Main menu and test menu Error list Information page	32 32 33 33 33 33
3.3	LEDs	34
3.4	HHT handheld terminal Selection of the FST when using a group controller	35 36
4	Technical Data	37
4.1	Component overview – bus plan	38





4.2	FST-Controller	
4.3	VSM pre-selection module	49
4.4	VSE pre-selection extension	55
4.5	FSM car control module	58
4.6	FPM car operating panel module	65
4.7	FPE car control panel extension module	
4.8	FPA car control panel adapter	
4.9	ADM landing button module	82
4.10	RIO-ADM remote I/O module	86
4.11	RIO-FPM remote I/O module	89
4.12	LON bus	
4.13	Trailing cable	
5	Menu tree	
5.1	General	101
5.2	MAIN MENU – Service	111
5.3	MAIN MENU – Drive	113
5.4	MAIN MENU – Config	117
5.5	MAIN MENU – Positioning	132
5.6	MAIN MENUE – Calls	139
5.7	MAIN MENUE – System	141
5.8	MAIN MENUE – Doors	144
5.9		



5.10		149
6	Error List	. 151
6.1	LC-Display	151
6.2	Keypad functions	151
6.3	Event messages	152
6.4	Error messages	153
7	Index of Key words	. 159





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.

⊂> 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-Display

Line or 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

SAFETY CCT CLOSED		А	Maximum active state of the safety circuit
		В	Active state or error
>AX<		С	Status of the lift system / diagnostic message
00	13:06:56	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 $\mathbb{S} + \mathbb{C} + \mathbb{O}$ 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	Display	Description
in Line A	SAFETY CCT CLOSED	The safety circuit is completely closed.
	DOOR LOCK OPEN	A shaft door contact is open (interruption between terminals VSM X1.2 and VSM X1.3).
	DOOR A OPEN	Car door A is open (interruption between terminals VSM X1.3 and VSM X1.4).
	DOOR B OPEN	Car door B is open (interruption between terminals VSM X1.4 and VSM X1.5).
	DOOR C OPEN	Car door C is open (interruption between terminals VSM X1.5 and VSM X1.6).
	EMERGENCY STOP	An emergency switch has triggered (interruption before terminal VSM X1.6). The lift is not ready for operation.
	MANUAL DOOR OPEN	A manual door contact is open (interruption between terminals VSM X1.5 and VSM X1.6).
	EMERGENCY END SWITCH	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).

The messages ${\sf DOOR}\ C$ ${\sf OPEN},$ MANUAL ${\sf DOOR}\ {\sf OPEN}$ and ${\sf EMERGENCY}\ {\sf END}\ {\sf SWITCH}$ 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

Divida	Description
Display	Description
24V LOW!	The 24V supply of the FST board (FST X7.1 and X7.2) is below the permitted range of 24V –10%. Check power supply and cables.
LANDING CALLS OFF	Landing control is blocked by a safety circuit interruption (interruption of before terminal VSM X1.6), line A displays EMERGENCY STOP, see "EMERGENCY STOP" on page 10.
LANDING CONTROL OFF	 The landing control has been switched off manually. Possible switch-off points: └ key of the FST keypad Programmable input of an external RIO module Input FST X7.15 Programmable input of the FST-Controller Key switch on the in-car control panel (FPM input X4.34) Key switch on the landing control panel (ADM input X3.12 / X3.13) See "Source of special drive signals SRC = 00 00 00 00 00 00 00
FIREMAN	 A fire input is active. Possible reasons: Fire input on the landing control panel (ADM input X3.12 / X3.13) Programmable input of the FST-Controller GST Group Controller (see GST Manual) See "Source of special drive signals SRC:00 00 00 00" on page 24
END-SWITCH TEST	The manual end switch test is running, see "TEST MENU" on page 149.
ES-SPEED MON. TEST	The manual test of the deceleration monitoring function at the top and bottom limits is running, see "TEST MENU" on page 149.
EVACUATION	The controller is in evacuation mode. The source of the evacuation signal is a programmable input on the FST-Controller.
SEND FAX	The controller is in fax mode (see Installation & Commissioning – Fax modem).

3.1 LC-Display and messages



Display	Description	
LIFT OFF	 The controller has been switched off. Possible switch-off points: Car light failure Input "Car Light OFF", FST X7.14 Programmable input/output of a RIO module (external) Programmable input/output of the FST-Controller Externally by the GST Group Controller or the LMS lift monitoring system See "Source of special drive signals SRC:00 00 00 00 00 00 00 	
FIREMAN MODE	 Fireman mode has been activated. Possible sources: Key switch on the in-car control panel (FPM X4.4) Programmable input/output of the FST-Controller The state was saved after a power failure and has been reconstructed. Function Fireman Mode Reset must be used to reset this state, see "Fireman Options" on page 123. Key switch on the landing control panel (ADM input X3.12 / X3.13) GST Group Controller (see GST Manual) See "Source of special drive signals SRC:00 00 00 00" on page 24. 	
FILE TRANSFER ACTIVE	The controller is in remote data transmission mode to transfer files to a GST Group Controller or to a PC.	
INSPECTION	The controller is in inspection mode (input FSM X12.2). Attention: Line A of the FST display must show EMERGENCY STOP!	
CALIBRATION -	The calibration drive has been started. The number of remaining drives is displayed (see "Calibration drive" on page 117).	
LEARN DRIVE ACTIVE	The controller performs a learn drive, see "Learn drive" on page 117.	
LEARN DRIVE-START	The controller performs a learn drive, see "Learn drive" on page 117.	
LEARN DRIVE-OK!	The learn drive has been completed, see "Learn drive" on page 117.	
LEARN DRIVE-ABORT!	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.	
SAFETY CURTAIN	The safety curtain replacing the car door has been interrupted. The contact is in the safety circuit instead of the car door contacts (see System description – Safety curtain).	



Display	Description
DRM	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.
INSTALLATION MODE	The controller is in installation mode, see "Installation Mode" on page 117.
ORIENTATION	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.
PARK DRIVE ACTIVE	The controller sends the car to a programmed parking floor, see "Park Drive –" on page 118.
PRIORITY LANDING	 A priority landing drive has been triggered. Possible sources: Key switch on the landing control panel (ADM input X3.12 / X3.13) Programmable input of the FST-Controller Programmable input of an external RIO module
PRIORITY CAR	 A priority car drive has been triggered. Possible sources: Key switch on the in-car control panel (FPM input X4.37) Automatically after a type Auto 2 priority landing drive, see "Prio-Landing/Car –" on page 117.
AUXILIARY	The controller is in auxiliary mode (input VSM X6.2). Attention: Line A of the FST display must show EMERGENCY_STOP!
HOMING ACTIVE	The hydraulic lift is sent to the lowest landing, see "Homing Time" on page 114.
SERVICE ACTIVE	The controller is in service mode, see description of the controller and "Source of special drive signals SRC:00 00 00 00 00" on page 24.
SERVICE REQUIRED!	A set limit of one of the service-counters has been exceeded, see "Service-Counters –" on page 111.
SYSTEM STOP	The controller has been stopped via the FST Menu.
OVERLOAD	The overload input on the FSM or on one of the programmable inputs is active, see "FSM: X11" on page 63.
USER ERROR -	An user error has occurred. The number of the error is displayed.
FULL LOAD	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 $\mathbb{S} + \mathbb{T}$ and for the right part the key combination $\mathbb{S} + \mathbb{T}$.

Status	Display	Description
Car doors	<a>	Door A completely open
	>A<	Door A closed
	<-A->	Door A is opening
	->A<-	Door A is closing
	<a*></a*>	Photocell or reversing contact door A active
	<ax></ax>	Door A is locked (test menu)
	<al></al>	Door is in loading mode (loading button has been pressed)
	-A-	Door A is stopped
	?A?	State of door A is unknown (check door limit switches)
	$\langle \langle \rangle \rangle$	Door open button active
	$\diamond\diamond$	Door close button active
Shaft positioning	Z	Zone message active
	F	Zone message missing
		Car is in levelled position
		Car position relative to levelled position (each pixel = 2.5 mm)
	Х	Correction switch bottom active
	X	Correction switch top active
Car position	P=6200	Current position of the car relative to levelling position of lowest landing in [mm]
Levelling	Pd= 02	Current position of the car relative to closest levelling position in [mm]
Car speed	V=1300	Current speed of the car in [mm/s]
Set / current speed	IV2	Comparison between set and actual speed of the car. The left bar is a graphic display of the relation between actual speed and the set speed on the right.
Motor-Hours	BS=4351	Operating hours of the drive
Drive counter	FZ=123456	Number of completed drives
Memory occupied	Rec: 45%	Memory occupied on the PC-Card when recording.

The door positions marked with ${\sf A}$ also apply to doors ${\sf B}$ and ${\sf C}.$



Diagnostic messages in line C Line C can be switched from status messages to diagnostic messages with key combination S + C + D. Use key combination S + C and S + D to scroll through the diagnostic messages.

Display	Description
LIK-Errs:00000 00000	Diagnosis of absolute value encoder function (see page 16), this display is irrelevant when using incremental positioning.
ENC:10000000[989680]	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 Resolution.
Door-A: F1=00 F2=00	Current state of the FSM for door A (see page 17)
Door-B: F1=00 F2=00	Current state of the FSM for door B (see page 17)
Door-C: F1=00 F2=00	Current state of the FSM for door C (see page 17).
Motor=00	Internal motor state (see page 20) and states of the pre-selection contact outputs (see page 21).
Kop:Virt=0b Real=00	Generated and actual position messages from the car (see page 21).
SHK=SABCN	State of the safety circuit (see page 21).
M9r1:Drv=00 Call=00	Internal NEW LIFT diagnostic message.
Mgr2:A=02 B=00 C=00	Internal NEW LIFT diagnostic message.
NextPoss=ff UT=U2	Next possible stop (NextPoss) that can be approached and the set speed (UT), see page 22.
Port EXIN1=EGALPUDR	State of input EXIN1, see page 22.
Port EXI02=00000000	State of input EXIN2, see page 23.
Port H8IN1=ZBSMV0	State of input H8IN1, see page 23.
FSM-X6: L=1 V=0 K=0	State of the outputs on FSM X6, see page 23.
SRC:00 00 00 00 00	Source of the special drive signals fireman, fireman mode, landing control OFF, lift off and service mode, see page 24.
LWE: 255% E0 F0 00	State of the weight sensor, see page 25.
Proj.Status=	State of the project specific parts of the program (internal).
PC:s0 m1 c0 f0 Mb005	State of the PC-Card slot, see page 26.
Pkt/s In=005 Out=002	Incoming and outgoing data packets of the FST-Controller in [packets/sec].
ASV: 0000000 P=[00]	State of the holding device, see page 26.
FSM ms9s=00123	Number of message packets from the FSM car control module to the FST-Controller.



Absolute value encoder function LIK-Errs:00000_00000

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
00000 or constant value	Communication between the FST-Controller and the absolute value encoder is working correctly. Double scanning to suppress electric interference does not show any differences.
constantly rising value	Double scanning to suppress electric interference does show differences. There is electric interference on the connection cable between FST-Controller and encoder. Check connection cable and inform your NEW LIFT Hotline.

Right number:

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



Hexadecimal number	Decimal value
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
а	10
b	11
G	12
d	13
е	14
f	15

(8 bits, hexadecimal code). Hexadecimal bytes are decoded digit by digit. Each digit has a decimal value according to the following table:

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	F1 = Byte F1
0		1	active	FSM car control module configured
1	digit 1	2	active	Door locked
2	(right number)	4	active	Door reversing
3	(light hambol)	8	Door completely	Limit switch "door open"
			open	
4		1	Door completely	Limit switch "door closed"
	digit 2		closed	
5	(left source best)	2	active	Photocell interrupted
6	(left number)	4	active	Reversing contact
7		8	active	Minimum load input*

* Signal only relevant for door versions A and B.



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

Example:

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

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 Motor=00

Internal motor states are decoded according to the following table:

Value	Motor = motor state
88	Motor ready
01	Motor starting
02	Motor running
03	Motor approaching stop position
04	Motor braking
05	Motor stopping

Internal states of the preselection relays Ust=0000



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 Door-A: F1=00F2=00" on page 16.

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



Position messages

Kop: Virt=0b Real=00

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 Door-R: F1=00 F2=00" on page 16.

Bit	Number	Value	Setting	Virt = virtual position
0		1	active	Level (A and B)
1	Number 1	2	active	Level (A and B) with motor stopped
2	(right number)	4	active	Approach area
3	(light hambol)	8	active	Zone B
4		1	active	Relevelling "up"
5	Number 2	2	active	Relevelling "down"
6	(left number)	4	active	Enable zone switching
7		8	active	Internal use

Bit	Number	Value	Setting	Real = real position
0		1	active	zone message
1	Number 1	2	active	Correction switch, top "CT"
2	(right number)	4	active	Correction switch, bottom "CB"
3	(light humber)	8	active	Level (incremental)
4		1		Not assigned
5	Number 2	2	active	Brake monitoring
6	(left number)	4	active	Motor monitoring
7		8		Not assigned

States of the safety circuit Shk=SABCN

The state of the security circuit is decoded according to the following table:

Code	Description
S	Door lock open
A	Door A open
8	Door B open
С	Car door C (manual door) open
М	Emergency stop



Next possible stop

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

Code	Description NextPoss=
ff	All floors possible (car is at rest)
fe	No further floor possible (when decelerating)
003f	Next possible stop = code (hexadecimal)

Current set speed Ut=U2

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

Code	Description Ut.=
V1V8	Drive speed 1 8 (for normal drives)
ve	Approach speed
Vi	Fast inspection speed
Vn	Relevelling speed

Input EXIN1 Port EXIN1=EGALPDUR

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
Р	FST X7.13	not active	230V AC power supply
L	FST X7.14	active	Car light OFF
Ĥ	FST X7.15	active	Landing control OFF
G		active	GST found
E		active	Alarm



Input EXIO2

Port EXI02=00000000

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

Bit	Terminal	Setting	Description
0	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
3	FST X7.7	active	Programmable input/output 3
4	FST X7.8	active	Programmable input/output 4
5	FST X7.9	active	Programmable input/output 5
6	FST X7.10	active	Programmable input/output 6
7	FST X7.11	active	Programmable input/output 7

Input H8IN1

Port H8IN1=ZBSMU0

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

Bit	Terminal	Setting	Description
0			Not assigned
1			Not assigned
0	FSM X5.5	active	Correction switch, top "CT"
U	FSM X5.7	active	Correction switch, bottom "CB"
М	VSM X4.5	active	Motor monitoring
S	VSM X4.6	active	Standstill monitoring
В	VSM X4.7	active	Brake monitoring
Ν	VSM X5.4	active	zone message

FSM-X6

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

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

Code	Terminal	Setting	L= car light
0	FSM X6.3	active	Car light OFF
1	FSM X6.3	not active	Car light ON

Code	Terminal	Setting	U= car ventilator
0	FSM X6.4	not active	Car ventilator OFF
1	FSM X6.4	active	Car ventilator ON



Code	Terminal	Setting	K= door lock solenoid
0	FSM X6.5	not active	Door locking solenoid released
1	FSM X6.5	active	Door locking solenoid activated

Source of special drive signals SRC:00 00 00 00

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
01	Landing button module ADM
02	Programmable input/output of the FST-Controller
04	GST Group Controller

Code	Source for fireman mode signal
01	FPM car operate panel, X4.4
02	Programmable input/output of the FST-Controller
04	State was saved after a power failure and has been reconstructed.
68	ADM landing button module
10	GST Group Controller



Code	Source for landing control OFF signal
01	E key of the FST keypad
02	Programmable input/output of a RIO module (external)
04	Input "Landing control OFF", FST X7.15
68	Programmable input/output of the FST-Controller
10	FPM car operate panel, X4.34
20	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
02	Input "Car Light OFF", FST X7.14
04	Programmable input/output of a RIO module (external) or ADM
08	Programmable input/output of the FST-Controller
10	Externally by the GST Group Controller or the LMS lift monitoring system

Code	Source for service mode signal		
01	External via LMS lift monitoring system		
02	TEST MENU @ Service Mode ON		
04	Programmable input/output of the FST-Controller		

Weight Sensor LWE: 255% E0 F0 00 The state of the weight sensor inputs and the loading level of the car when using analogue weight sensors is displayed as follows:







PC-Card	Code	Description
PC:s0 m1 c0 f0 Mb005	sØ	No PC-Card inserted
	si	PC-Card inserted – card type not detected
	s2	PC-Card inserted – card type detected / card OK
	s3	PC-Card inserted – card type not detected / error
	mØ	PC-Card memory type unknown
	mi	Card type: static RAM
	m2	Card type: flash memory
	c0	CIS memory: no CIS found
	сi	CIS status: CIS OK
	fØ	Flash type: PC-Card unknown / unusable
	f1	Flash type: AMD A28F040 – 512kB memory module
	f2	Flash type: INTEL I28f016 – 2MB memory module
	Mb	Size of memory storage in 0.1 MB steps

State of holding device

ASV: 0000000 P=[00]

The state of the holding device is decoded as follows:

Bit	Setting	Description ASV:
0	active	Pump for bolt control ON
(right)		
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
5	active	Input "car bottomed" active
6	active	Input "re-pump" active
(left)		

Number	Code	Description P=[]
1 (right)	Ø	Standstill
1 (right)	1	Main contactors ON, waiting for star-delta start up
1 (right)	2	Lift car (approx. 30mm)
1 (right)	м	Motor run-on active
1 (right)	4	Wait for bolt to extend or retract
1 (right)	cu	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 P=[]	
2 (left)	м	Re-pumping active	
2 (left)	4	Error in bolt control	

Line D

Drive mode messages in line D

Column	Display	Description
1	Т	Auto test drive active
	S	No serial connection to the frequency converter (FST X12)
	S	Data transmission to the frequency converter via serial connection is faulty (FST X12)
2	Ť	Direction of travel UP
	ŧ	Direction of travel DOWN
3-4	10	Next possible floor
5-8	[13]	In-car and landing call to target floor
	E13	In-car call to target floor
	13]	Landing call to target floor
	X13	In-car control blocked
	13X	Landing control blocked
9		Not assigned
10	G	FST is integrated in a GST Group Controller
	g	FST is integrated in a GST Group Controller but communication with the GST is faulty
11	R	Flashes when recording data on the PC card
	F	Card is cleared
12		Not assigned
13-20	10:44:12	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	
!! EMERGENY MODE !!	The controller is in emergency operation mode. Drives are not possible. Emergency operation is activated by pressing the s key while switching the system on.	
ADM STUCK :	The landing call from the specified floor and door side is permanently activated (is stuck).	
ADM unconfigured!	A landing button module connected to the shaft bus is not configured. Inform your NEW LIFT Hotline!	
DRIVE INHIBIT ON!	The drive is locked by the LMS bus. Starting will be delayed until the connected systems have completed their acceleration phases.	
Please wait!	The triggered action has not been completed. Please wait!	
FAX/SMS SENT OK!	A status fax has been successfully sent via the modem interface.	
FAX/SMS —> GST!	A fax/sms is sent to the group controller where it will be sent via the FAX- modem.	
FAX/SMS NOT SENT!	Transmission of a status fax via the modem interface has been aborted. Check modem and telephone connection. See MAIN MENU - Config - Modem/Fax/LMS	
FILE NOT FOUND!	The inserted PC-Card does not contain the files required for the triggered action.	
FST Software Update	The software of the FST is updated with a PC-Card. The progress in [%] is displayed in line C.	
GST UPDATE COMPLETE!	The software update of the GST Group Controller has been completed.	
PRIO CAR ACTIVE	Soft priority car is waiting for standstill after the pending in-car call. See MAIN MENUE – Config – Prio-landing/car.	
Calibration abort!	The calibration drive has been aborted. Check function of connected drive speeds. Locate reason for abortion in the error list.	
NO (CT) SIGNAL	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 MAINMENUE – Positioning – Increm.Pos. – CT/CB-level. Check setting of jumper JMP6 on the FST board.	
NO (CB) SIGNAL	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 MAINMENUE – Positioning – Increm. Pos. – CT/CB-level. Check setting of jumper JMP6 on the FST board.	
CONFIG TRANSFER ERR!	An error has occurred during copying of the controller configuration.	
CONFIG TRANSFER OK!	Copying the controller configuration has been completed successfully.	
CONFIGED] CORRUPT!	A parameter of the drive configuration is not plausible. Change a parameter in MAIN MENU – Drive and undo the change again. The information text disappears after saving the settings.	
CONFIGES] CORRUPT!	A parameter of the system configuration is not plausible. Change a parameter in MAIN MENU – Config and undo the change again. The information text disappears after saving the settings.	
LEARN DRIVE FAILURE!	The started learn drive has not been successful. Check function of signals zone B, correction bottom and correction top.	

. .



- -

Display	Description		
LEARN START FAILURE!	The started learn drive has been aborted due to the car not moving even with pre-selection active.		
DRU-TEST STARTED!	A drive test has been triggered.		
DRU-TEST FINISHED!	The drive test has been completed successfully.		
CAR NUISANCE DETECT!	The car nuisance protection function has triggered. See MAIN MENU - Config - Anti Nuisance		
NOT IN 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 MAIN MENU – Positioning – Increm. Pos. – ZoneB-Level. Check setting of jumper JMP7 on the FST board.		
NOT IN FLOOR-0!	The started learn drive can not be completed because the car is not on the lowest floor.		
NOT FROM END FLOOR!	The car is at an end floor. The triggered end switch test cannot be started from this floor.		
ONLY FROM END FLOOR!	The triggered drive test can only be started from an end floor.		
PC-CARD REMOVED!	The inserted PC-Card has been removed from slot X8.		
PC-CARD FLASH TYPE??	The flash type of the inserted PC-Card is unkown. The PC-Card cannot be used.		
PC-CARD EMPTY!	The inserted PC-Card has been cleared successfully.		
PC-CARD LOW BATTERY!	The battery voltage of the inserted PC-Card is too low. Change battery!		
PC-CARD OK!	The inserted PC-Card has been recognized by the controller and can be used.		
PC-CARD TYPE????!	The inserted PC-Card has not been recognized by the controller and cannot be used.		
Checkin9 Update File	The software is updated. The inserted PC-Card is checked for update files.		
RECORDING RE+START!	An already started recording has been restarted.		
RECORDING STOPPED!	Recording has been stopped.		
RECORDING NEW START!	A new recording is started.		
SUPERVISOR LEVEL!	The supervisor level is accessed with a master password. It enables setting hidden parameters.		
FILE NOT FOUND!	The software update has been aborted. The inserted PC-Card does not contain update files.		
UPDATE FILE FOUND	The file required for the software update has been found on the PC-Card. The software is updated.		
UPDATE COMPLETE!	The software update of the LON module has been completed.		
WAITING TO RESET	Automatic RESET after changing basic parameters (e.g. Drive type). This may take a few seconds.		
EXCESSIVE SLIPPAGE!!	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 10mm is measured this message is displayed. Hysteresis is limited to 10mm automatically. See "ZoneB–Hysters" on page 135.		
DOOR-NUDGING!	Nudging (forced closure) of the car door is activated. Photocell and reversing contacts are ignored. See MAIN MENU - Doors - Doors Selective - Photocell and MAIN MENU - Doors - Doors Selective - Nudge Time.		

Messages in lines B, C and D



Information page

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

It can be accessed with key combination $\mathbb{S} + \mathbb{E}$ and closed with \mathbb{E} . The \mathbb{D}/\mathbb{U} keys are used to navigate through the information page.

- FST Information -	A	Information page
HW Ver.:14-16	В	Hardware version 12-16 of the FST
SW VER.:V1.100-0126	С	Software version V1.100-026 of the FST
:18/05/2001	D	Release date of the software version

Display	Description
HW VER.:14-16	Hardware version of the FST board
SW Ver.:V1.100-0132 :18/05/2001	Software version with release date
Boot Ver:0104	Software version of the operating system
FSM Ver: FSM00125	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 Ver: FPM00128	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).
LiftID:A	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).
Neuron-ID 01 00 22 C1 fb 00	Unique ID for identification of the FST
SystemID Test bench	System location or name
Factory number FC9900234	Order number of the individual lift system
Start:12/07/01 08:23	Date and time of activation
CAL :12/07/01 10:23	Date and time of last calibration drive
STATS:27/07/01 14:03	Start date and time of the current statistics recording
Cf9:12/07/01 12:05	Date and time of the last change of a parameter in the FST Menu



Display	Description
Cf9Bk:12/07/01 12:06	Date and time of the current backup copy in the internal buffer
Err:12/07/01 12:07	Date and time of the last reset of the error list
Sec.Level: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 S during the switch-on sequence of the FST starts emergency mode. In emergency mode no drives are possible. Emergency mode is required if the FST cannot be switched on in normal mode due to a fault. The complete FST Menu and the PC-Card functions are active in emergency mode.
--	---	--

Main screen

SAFETY CCT CLOSED	$\widehat{}$	Set in-car call to top floor
	Ţ	Set in-car call to bottom floor
AN <u></u>	-	Switch landing control on and off (switch function)
10100100	\rightarrow	Open test menu
	E	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.
	S + ↑	Set in-car call to next floor up
	S + ↓	Set in-car call to next floor down
	S + →	Scroll through the right status messages in line C
	S+←	Scroll through the left status messages in line C
	S+E	Display information page
	S+↔+→	Toggle diagnostic messages in line C on and off
	<u>↑</u> +↓+←+→	Controller RESET

SAFETY CCT CLOSED	S++	Scroll diagnostic messages down
FSM msgs: 00000	S + →	Scroll diagnostic messages up
00 13:06:56		



Main menu and test menu

MAIN MENU	$\widehat{}$	Move cursor up
Drive >	\square	Move cursor down
Conf19 →	-	Exit submenu
	\rightarrow	Change menu level
	E	Select submenu / menu item

Clock Setting	Î	Increase value
	Ţ	Decrease value
13:45:81	←	Move cursor left
<u>.</u>	\rightarrow	Move cursor right
	E	Confirm settings

Error list

ERROR[00037/00040]		Switch to 2nd to 8th information byte in line D	
28.09 10:18:26 [012] Door Close Failed	↑	Switch to initial display in line D	
FLOOR: 03 V00 R01 I00	S+1	To last error message	
	S+↓	To next error message	

Information page

 FS	5T Information -
ΗW	Ver.:12-16
SW	UER.:U1.100-0026
	:18/05/1999

$\boxed{\uparrow}$	Scroll one line up			
\downarrow	Scroll one line down			
E	Back to main screen			



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 24V power supply of the FST- Controller.
			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	switches the landing control on again.
		off	Fault in the drive processor.	Inform your NEW LIFT Hotline!
ERROR	ROR red on A drive is not possible.		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 S is pressed for more than three seconds the screen displays:

- FST Terminal V1.10 -	\uparrow/\downarrow	Select the desired FST-Controller (HH)
connect to FST: A	E	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 x 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 ±10%	V DC
Power consumption	300	mA
Length x width x height	200 × 210 × 50	mm
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°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 MAIN MENU – Positioning – Global – ZoneB Active).

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
24V DC	1-2
5V 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 r	State	Description
RUN	green	on	The FST-Controller is switched on and working correctly.
		off	The FST-Controller has no power 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 the error list.
		off	There is no error or event.

NEW LIFT

Terminals and plugs FST: X1

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 +24V (emergency power supply unit)	
36	0V / GND	
37	0V / GND	
38	0V / GND	
39	0V / GND	
40	0V / GND	



FST: X2	Colour code	Absolute value encoder	Pin on absolute value encoder
1	PK	Data signal "A"	P2
2	YE	Clock signal "A"	P3
3	RD	Incremental encoder signal "A"	
4	WH	+24V or +5V (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 code	Option bus
See LON-Bus page 94.		

FST: X4	Colour 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	+1224V DC (supply voltage of emergency power supply unit)	
6	GY	Bus signal "B"	
7	GN	Phone "A"	
8	BU	Voice "A"	
9	Shield	PE / protective conductor	

FST: X5	Colour code	Shaft A bus
See LON-Bus page 94.		

FST: X6	Colour code	Shaft B bus
See LON-Bus page 94.		



Г

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	0V / 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: 0V / GND (for emergency power and intercom system) (input)	
17	Input: +1224V (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: 0V / 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	0V / 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	Not	Not
	assigned	assigned	assigned
2	RxD	Not	Not
		assigned	assigned
3	TxD	Not	Not
		assigned	assigned
4	+TX	"A"	"A" bridged with 7
5	0V / GND	0V / GND	0V / GND
6	Not	Not	Not
	assigned	assigned	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 pre-selection 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 ±10%	V DC
Safety circuit control signals	24	V DC
Drive control signals	250	V AC
Power consumption	50	mA
Length x width x height	120 × 120 × 17.5	mm
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°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).

See "DRM-BRAKE FAILURE" on page 155, "DRM-MOTOR FAILURE" on page 155 and "CONTACTOR MONITORING" on page 156.

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 J2 is not plugged the pre-selection relays K0..K10 are not powered and cannot be activated.

Source	Function	Pin
+24V	During an emergency stop the software releases the pre-selection relays K0K10.	1-2
+ 24V NH During an emergency stop relays K0K10 are released by the hardware (24V NH).		2-3

LED	Colou	State	Description
	r		
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

LEDs

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 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 potential)	
5	Not assigned	
6	Door lock conductor A (bridged with terminal X1.2 at zero 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 conductor of the motor contactors) (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 potential)	

VSM: X4	24V monitoring	
1	+24V	
2	0V / 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	+24V	
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	+24V	
2	Auxiliary control "ON"	
3	Auxiliary control "UP"	
4	Auxiliary control "DOWN"	

VSM: X7	Falling supply voltage
1	+24V
2	0V / GND
3	+24V
4	0V / GND
5	+24V
6	0V / GND

VSM: X8	Trailing cable	
1	+24V	
2	+24V	
3	0V / GND	
4	0V / 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	4 Pre-selection contact 1	
15	15 Pre-selection contact 2	
16	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	35 Not assigned	
36	36 Not assigned	
37	37 0V / GND	
38	0V / GND	
39	39 0V / GND	
40	40 0V / 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 ±10%	V DC	
Drive control signals	250	V AC	
Power consumption	50	mA	
Length x width x height	100 × 50 × 17.5	mm	
Temperature range			
Storage / transport	-20 - +70	°C	
Operation	±0 - +60	°C	
Relative humidity			
Storage / transport	5 - 95	%	
Operation	15 - 85	%	



Fig. 4.5 VSE pre-selection extension

Jumpers

Jumpers J10, J11 and J12 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.
J11	Pin 1-2 plugged	K11 supplied by X10.1.
	Pin 2-3 plugged	K11 supplied by X10.8.
J12	Pin 1-2 plugged	K12 supplied by X10.1.
	Pin 2-3 plugged	K12 supplied by X10.10.

LED	Colou 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

WEGE

NEV

VSE: X9	FST connection		
121	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		
2630	Not assigned		
31	+24V (permanent)		
32	+24V (permanent)		
3336	Not assigned		
37	0V / GND		
38	0V / GND		
39	0V / GND		
40	0V / GND		

VSE: X10	Extended pre-selection	
1	Supply for relay contacts K9K12 (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	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 ±10%	V DC
Power consumption	300	mA
Outputs	Excess load and short-circuit proof	
Inputs/outputs	Low-active	
Length x width x height	200 × 100.3 × 34	mm
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°C
Relative humidity		
Storage / transport	5 - 95	%
Operation	15 - 85	%





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 supply unit	J3	
12V	plugged	
24V	open	

Unused jumpers

Not plugged:

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



LEDs	LED	Colou	State	Description
		r		
	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	1224V 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 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	824V DC (supply voltage of intercom)
6	Emergency light
7	0V / GND
8	Alarm button
9	Alarm test



FSM: X4	Supply voltage
1	+24V
2	0V / GND
3	+24V
4	0V / GND
5	+24V
6	0V / GND

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

FSM: X6	Car light / ventilator / approach chime
1	Approach chime (negative trigger)
2	+24V
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	+24V
2	Enable "Open Door A" / limit switch "Door A OPEN"
3	+24V
4	Enable "Close Door A" / limit switch "Door A CLOSE"
5	+24V
6	Reversing contact door "A"
7	+24V
8	Photocell contact door "A"
9	0V / 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	+24V
2	Enable "Open Door B" / limit switch "Door B OPEN"
3	+24V
4	Enable "Close Door B" / limit switch "Door B CLOSE"
5	+24V
6	Reversing contact door "B"
7	+24V
8	Photocell contact door "B"
9	0V / 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	0V / GND
3	Full load contact
4	0V / GND
5	Car empty
6	0V / GND
7	Pre-assembled current sensor for car light
8	0V / GND

FSM: X12	Inspection control
1	+24V
2	Inspection ON
3	Inspection UP
4	Inspection DOWN
5	Inspection FAST



FSM: X13	Trailing cable
1	+24V
2	+24V
3	0V / GND
4	0V / 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 ±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 proc		
Inputs/outputs	Low-active		
Length x width x height	x width x height 120 x 71 x 20		
Temperature range			
Storage / transport	-20 - +70	°C	
Operation	±0 - +60	°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 (Fireman input X4.4 and loading button X4.34 act on door B.)	dual door mode	open	plugged	plugged
Door B+A (Calls A and B 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	LED	Colou r	State	Description
	LD1	yellow	flashing briefly	FPM ready
			flashing or permanent ly on	Hardware error
	LD2	green	on	Supply voltage (+5V) present



Terminals and plugs

FPM: X1	Colour code	LON bus
See LON-Bu	s page 93.	

FPM: X2	Colour code	LON bus
See LON-Bu	s page 93.	

FPM: X3	Car call button extension
1	+24V (supply voltage)
2	+24V (supply voltage)
3	+5V (supply voltage)
4	+5V (supply voltage)
5	Reset SPI driver
6	0V / GND
7	Serial clock
8	0V / GND
9	Serial output
10	0V / GND
11	Serial input
12	0V / GND
13	SPI select 3 (IDR 4863)
14	0V / GND
15	SPI select 2 (IDR 32.0.47)
16	0V / GND
17	SPI select 1 (IDR 16.0.31)
18	0V / GND
19	FPE recognition
20	0V / 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: X4	Colour code	In-car control panel signals in "single door mode"	Input/ output
1	WH	Button "Ventilator ON"	ш
2	BR	Button "Close Door B"	Е
3	GN	Button "Close Door A"	Е
4	YE	Key switch for Fireman Mode	Е
5	GY	Display-2	A
6	PK	Overload indicator	А



FPM: X4	Colour code	In-car control panel signals in "single door mode"	Input/ output
7	BU	Direction display "UP"	А
8	RD	+24V	А
9	BL	Floor display 6	А
10	VT	Floor display 3	А
11	GY PK	Floor display 0 (LSB)	А
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	0V / GND	А
19	WH PK	0V / GND	А
20	PK BR	0V / GND	А
21	WH BU	0V / GND	А
22	BR BU	+24V	А
23	WH RD	+24V	А
24	BR RD	+24V	А
25	WH BL	Floor display 7 (MSB)	А
26	BR BL	Floor display 4	А
27	GY GN	Floor display 1	А
28	YE GY	In-car button enable	А
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	I/O
34	YE RD	Landing control OFF or button "loading function" (see "Pin-34 Functn" on page 123)	Е
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	А
39	GY RD	Display-0	А
40	PK RD	Direction display "DOWN"	А
41	GY BL	0V / GND	А
42	PK BL	Floor display 5	А
43	BU BL	Floor display 2	А
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: X4	Colour code	In-car control panel signals in "single door mode"	Input/ 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	+24V	А

FPM: X4	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	А
7	BU	Direction display "UP"	А
8	RD	+24V	A
9	BL	Floor display 6	А
10	VT	Floor display 3	А
11	GY PK	Floor display 0 (LSB)	А
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	0V / GND	А
19	WH PK	0V / GND	А
20	PK BR	0V / GND	А
21	WH BU	0V / GND	А
22	BR BU	+24V	А
23	WH RD	+24V	А
24	BR RD	+24V	А
25	WH BL	Floor display 7 (MSB)	А
26	BR BL	Floor display 4	А
27	GY GN	Floor display 1	А
28	YE GY	In-car button enable	А
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: X4	Colour code	In-car control panel signals in "dual door mode"	Input/ output
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	А
40	PK RD	Direction display "DOWN"	А
41	GY BL	0V / GND	А
42	PK BL	Floor display 5	Α
43	BU BL	Floor display 2	А
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 06, door side B	I/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).

Description	Value	Unit
Supply voltage	24 ±10%	V DC
Power consumption	10	mA
Max. switch-on current per output for approx. 40 ms	600	mA
Outputs	Excess load and sho	rt-circuit proof
Inputs/outputs	Low-active	
Length \times width \times height	98.5 × 71 × 20	mm
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°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.

Term	inals	and	pluas
	maio		P

5	FPE: X2	Colour code	In-car control panel signals in "single door mode"	Input/ output
	1	WH	Output: +24V	А
	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



FPE: X2	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



FPE: X2	Colour code	In-car button panel in "dual door mode"	Input/ output
1	WH	Output: +24V	А
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: X2	Colour code	In-car button panel in "dual door mode"	Input/ 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	А

FPE: X3	Colour code	car call button extension
See FPM: X	3 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



Function

Terminals and plugs

FPA: X4See FPM: X4 page 69

FPA: X5	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	А
19	Floor display 0 (LSB)	А
20	Floor display 1	А
21	Floor display 2	А
22	Floor display 3	А
23	Floor display 4	А
24	Floor display 5	А
25	Floor display 6	А
26	Floor display 7 (MSB)	А
27	+24V	А

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



FPA:	In-car control panel signals	Input/
X6		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	+24V	A
26	+24V	A
27	+24V	A
28	+24V	A
29	+24V	A
30	+24V	A

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



FPA: X7	In-car control panel signals	Input/ output
17	Button "Open Door B" or "divider door" (see "Divider- 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 "loading function" (see "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"	А
26	Direction display "DOWN"	A
27	Overload indicator	А
28	Display-0	А
29	Display-1	А
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).

Description	Value	Unit
Supply voltage	24 ±10%	V DC
Power consumption	50	mA
Max. switch-on current per output for approx. 40 ms	600	mA
Outputs	Excess load and sho	rt-circuit proof
Inputs/outputs	Low-activ	/e
Length \times width \times height	54 × 50 × 17.5	mm
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°C
Relative humidity		
Storage / transport	5 - 95	%
Operation	15 - 85	%





Fig. 4.10 Landing button module ADM

Jumper Unused jumpers

- J1 (service jumper)

L	E	D

LED	Colou r	State	Description
LD1	yellow	flashing briefly	ADM ready
		flashing or permanent ly on	Hardware error

Terminals and plugs

S	ADM: X1	Colour code	LON bus
	See LON-Bus page 93.		



ADM: X2	Colour 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" Chime trigger 	 Display "Special Drive" Chime trigger (left lift) 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" 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]

Description	Value	Unit
Supply voltage	24 ±10%	V DC
Power consumption	50	mA
Max. switch-on current per output for approx. 40 ms	600	mA
Outputs	Excess load and sho	rt-circuit proof
Inputs/outputs	Low-active	
Length x width x height	54 × 50 × 17.5	mm
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°C
Relative humidity		
Storage / transport	5 - 95	%
Operation	15 - 85	%





Fig. 4.11 RIO-ADM remote I/O module

Jumper Unused jumpers

- J1 (service jumper)

L	E	D

LED	Colou r	State	Description
LD1	yellow	flashing briefly	RIO-ADM ready
		flashing or permanent ly on	Hardware error

Terminals and plugs

js	RIO-ADM: X1	Colour code	LON bus
	See LON-Bus page 93.		



RIO-ADM: X2	Colour code	LON bus
See LON-Bus page 93.		

RIO-ADM- X3	RIO-ADM 8 19	RIO-ADM 20 31	RIO-ADM 32 43	RIO-ADM 44 55	RIO-ADM 56 67	RIO-ADM 68 79
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.

Description	Value	Unit
Supply voltage	24 ±10%	V DC
Power consumption	10	mA
Max. switch-on current per output for approx. 40 ms	600	mA
Outputs	Excess load and sho	rt-circuit proof
Inputs/outputs	Low-active	
Length \times width \times height	98.5 × 71 × 20	mm
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°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 r	State	Description
	LD1	yellow	flashing briefly	RIO-FPM ready
			flashing or permanent ly on	Hardware error



Terminals and plugs

RIO-FPM: X1	Colour code	LON bus
See LON-Bus page 93.		

RIO-FPM: X2	Colour code	LON bus
See LON-Bus pag	e 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	0V / GND
19	WH PK	0V / GND
20	PK BR	0V / GND
21	WH BU	0V / GND
22	BR BU	+ 24V
23	WH RD	+ 24V
24	BR RD	+ 24V
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	0V / 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	+ 24V



4.12 LON bus

Technical

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!

Description	Value	Unit
Supply voltage	24 ±10%	V DC
Temperature range		
Storage / transport	-20 - +70	2° 2°
Operation	±0 - +60	
Relative humidity		
Storage / transport	5 - 95	%
Operation	15 - 85	%
Weight	0,072	kg/m
Max cable length	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

X	Colour code	LON bus plugs
1	BL	Bus signal "A"
2	WH	Bus signal "B"
3	RD	+24V / 4A
4	VT	0V / 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.

Description	Value	Unit
Supply voltage	24 ±10%	V DC
	230 ± 10%	V AC
Temperature range		
Storage / transport	-20 - +70	°C
Operation	±0 - +60	°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: X4" on page 46 or "FS	SM: X1" on page 61.

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

FST: X2 / LIK: X3	Rotation encoder
See "FST: X2" on page 46 (only	available with version 1).



X102	Terminal	Safety circuit car (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 DOWN

SCCT stands for "Safety Circuit".

X202	Terminal	Safety circuit car (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 DOWN

SCCT stands for "Safety Circuit".

X101	Terminal	Car power supply (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 / L9A	Three-phase supply car L2 / 230V for car door drive
7	L1	Three-phase supply car L1
8	N / L9A	Zero conductor car door drive / 230V for car door drive



X201	Terminal	Car power supply (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 / L9B	Three-phase supply car L2 / 230V for car door drive
7	L1	Three-phase supply car L1
8	N / L9B	Zero conductor car door drive / 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 "0000".

Menu tree All functions and settings of the menu tree are explained below.

Actions are marked with \Box 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)



Group Member

- Group Floor Offset - Flr Offset-Car - Flr Offset-Landing - ADM-Bus Mask-1 - ADM -Bus Mask-2



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

...



Config	Anti Nuisance	Maximum Car Calls
oomig		Stops w/o Exit
		Empty Car Sense
		Call Direction
		Always Clear Up/Dn
	Car Ventilator	Control Mode
		Vent. Off Delay
	Car light	Car Light Off Delay
		Monitoring
		EvacLight Off
	Car-Operate-Panel	EAZ type
		——— Lamp type
		Display-0
		Display-1
		OPEN = A+B
		OPEN = last
		Divider-Door
		Card Reader
		Chime Roof
		Chime-Roor
		DoorOpen NC
		——————————————————————————————————————
		PIN-34 Function
		3xCall=Clear
	——— Fireman Options ———	Fire Standards
		——— Fire->Fireman (ADM)
		——— Fire->Fireman I/O
		——— Off only in M-FIr
		——— Door open in M-FIr
		Fire Main Floor
		Fire MainFlr Doors
		Smoke Evac. Plan
		Fireman Mede Reset
	——— Weight Sensor	Sensor-Type
		Level-Empty
		Level-Full
		Level-OverL
	Speech Output	Activated
		Output turns

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



Config —	Project-Config	Basis	Basis
		LON-Modules	LON-Modules
	Landing buttons	Landing Call Enable	
		——— ADM-EAZ Type	
		Special Display 0	
	Lift-Off	Lift-Off Program	
		Lift-Off Floor	
	——— Special functions	Loading Function	
		Lobby-Stop	
		——— Allika Control	
		Ramp-Drive	
	Blinking Approach		
	—— Insp. Door Test		
	Departure Arrows		
	——— Depart.Arrows Max		
	DoorC=Emerg-EndSw.		

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


Г

_	-	
Positioning	Floor	Position ABS
		Position REL
		Level UP
		Level DOWN
		Zone Sw.UP
		Zone Sw.DOWN
		· · · · · · -
-	Landing	Landing UP
		Landing DOWN
	—— Global ———	Resolutin.
		Direction
		Encoder Type
		——— Max.Floor
		Crawl Distance
		Insp.FAST
		Insp.UP
		Insp.DOWN
		ZoneB Output
		ZoneB Out.Inv.
		Virt.Zone
-	—— Relevel. Limits ——	Limit UP ON
		Limit UP OFF
		Limit DN ON
		Limit DN OFF
-	—— Cal-Results ———	UP-Speed
		UP-Accel.
		UP-Decel.
		UP-t_Accel.
		UP-t_Decel.
		DOWN-Speed
		DOWN-Accel.
		DOWN-Decel.
		DOWN-t_Accel.
		DOWN-t_Decel.
		W80%-Distance
	Decude Electro	
	Increm. Positna	Control
	5	Auto-Orien.
		——— Orien delav
		Corr.Bottom
		Corr.Top
		ZoneB-Length
		BOBU<->Runoff
		ZoneB-Hysters
		ZoneB-Level
		ZoneB-Debnce
		L CB/CT-Level
1		

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





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



Г

- Doors	Doors Basia	Number Deers
Doors	Doors Basic	Apply ALL
		Appiy-ALL
		Lock Fail Open
		SCCT Debounce
		Retry Time Open Deley
		Bypage t OEE
		Bypass t-OFT
		Pre-Opening
		remains-open
		Nudging Output
		PhotocellLevel
		Allow DRM-Door
		SS-Curtain
		SS-CurtainWait
		WheelchairTime
		Selective
	Selective	Туре
		Opening Time
		——— Decoupling
		——— Decouple Max.
		——— Manual Door
		——— Man. Door Deb.
		Nudging
		——— Endswitches
		——— Photocell
		PhotoCell Xtn
		Open Hold Time
		Reversing Lime
		Deenergize Change Dalay
		Change Delay
		Min Wait Landing
		Min. Wait Car
— GST Menu —	see GST Manual	
— Lock MENU		

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





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



1.2 MAIN MENU – Service

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.	⊂ > YES NO
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-Hours, Drives and Door Movements can be reset here (e.g. after a service).	⊂ > YES NO
Service-Counters – Set Interval	Overwrite counter values To Service with the values of the Interval counters (e.g. after a service).	⊂ > YES NO
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 last Clear All Counters.	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 Day1	Drives since commissioning of the FST-Controller. This value cannot be reset.	Read only
Service-Counters – Drives – Current	Drives since last Clear All Counters.	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 Day1	Door movements since commissioning of the FST-Controller. This value cannot be reset.	Read only
Service-Counters – Door Movements – Current	Door movements since last Clear All Counters.	Read only
Service-Counters – Door Movements – To Service	Door movements remaining until the next service.	Read only



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



1.3 MAIN MENU – Drive

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 DRM-START PROBLEM (see "DRM-START PROBLEM" on page 154).	0 30 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 Brake Delay (+24V). When stopping the input must be deactivated during the set Brake Delay. If this fails the system will be shut down with DRM- BRAKE FAILURE (see "DRM-BRAKE FAILURE" on page 155).	YES NO
Brake Delay	Maximum permitted time between activation of the drive brake and confirmation from the brake bleed contact on terminal VSM X4.7 (see Brake Monitoring).	0 9999 ms
Drive Speeds Possible	Possible drive speeds V8V1 of the set drive ("1" stands for speed possible).	Read only
Drive Speeds Enabled	Enabled drive speeds V8V1 of the set drive ("1" stands for speed enabled). Only speeds displayed with "1" in Possible can be enabled!	00000000 11111111
Drive Speeds Calibrated	Drive speeds V8V1 successfully measured during the calibration run ("1" stands for speed calibrated). After a successful calibration run all speeds displayed with "1" in Enabled must be displayed with "1" in Calibrated!	Read only
Motor Monitoring	Monitoring of the motor temperature via terminal VSM X4.5. If the terminal is activated (+24V) the system will be shut down with DRM-MOTOR FAILURE (see "DRM-MOTOR FAILURE" on page 155).	YES NO
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 2 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: - Set Pre-Opening = N0 - Set Relevelling = N0 - Disconnect power supply of the safety circuit (terminals 518, 519)	YES NO
Relevelling Delay	Delay between recognising that the car is not levelled and starting relevelling. This parameter guarantees smooth relevelling for swaying cars.	0 9999 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).	YES NO
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. Yes: Landing calls are blocked. The car can only be moved with in-car commands. NO: Pending landing calls are deleted. Landing calls will be enabled again after the safety circuit has been closed. 	YES NO
Homing Time	Maximum time without a car call before an hydraulic lift automatically travels to the lowest floor.	0 15 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 Contactor Mon. Time. If this fails the system will be shut down with DRM-CONTACTOR MON. (see "CONTACTOR MONITORING" on page 156).	YES NO
Contactor Mon. Time	Delay between stopping and reaction of the contactor monitoring function.	0 9999 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 5 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 DRM-END SIJ. SPEED MON. (see "V80%-SpeedMon" on page 134 and "DRM-END FLOOR SPEED" on page 155).	YES NO
Change Time	Minimum delay when switching the main contactors (fast to slow) of unregulated lift motors.	0 0.5 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 "OPEN DOOR LOCK" on page 153). This system will not be shut down. It will wait for new calls.	0 10
Holding device	Controlling a holding device for hydraulic lifts (see System description – Holding device).	YES NO
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 9999 min
Special Params – Time-1	Special parameters for drive specific programming. Only change this value after consulting NEW LIFT!	0 65535 msec
Special Params – Time-2	Special parameters for drive specific programming. Only change this value after consulting NEW LIFT!	0 65535 msec
Special Params – Time-3	Special parameters for drive specific programming. Only change this value after consulting NEW LIFT!	0 65535 msec
Special Params – Time-4	Special parameters for drive specific programming. Only change this value after consulting NEW LIFT!	0 65535 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 –	Special parameters for drive specific programming.	⊂ } ON
Switch-1	Only change this value after consulting NEW LIFT!	OFF
Special Params –	Special parameters for drive specific programming.	⊂ } ON
Switch-2	Only change this value after consulting NEW LIFT!	OFF
Special Params –	Special parameters for drive specific programming.	⊂ > ON
Switch-3	Only change this value after consulting NEW LIFT!	OFF
Special Params –	Special parameters for drive specific programming.	⊂ 〉 ON
Switch-4	Only change this value after consulting NEW LIFT!	OFF
Special Params –	Special parameters for drive specific programming.	⊂ } ON
Switch-5	Only change this value after consulting NEW LIFT!	OFF
Special Params –	Special parameters for drive specific programming.	⊂ 〉 ON
Switch-6	Only change this value after consulting NEW LIFT!	OFF

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 Speed correction function 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 2.6m > 1m + 1m + 0.05m





Fig. 1.10 Drive without speed correction

Drive from A to B with speed correction function enabled:

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



Fig. 1.11 Drive with speed correction



1.4 MAIN MENU – Config

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.	⊂ > YES NO
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.	⊂ > YES NO
Commissioning – 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". - Hard: All in-car and landing calls are deleted. - 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.	0 999 sec
Prio-Landing/Car – Landing Prio. Prog.	 Variations of "Priority landing": Auto 1: after reaching the target floor the "Priority landing" state remains active until the next in-car call. Auto 2: after reaching the target floor "Priority in-car" is activated automatically. Standard: when reaching the target floor the system switches to normal operation after the "Landing Prio." Time" has elapsed. 	Auto 1 Auto 2 Standard
Prio-Landing/Car – Car Prio. Type	 Activation type "Priority car" Hard: All in-car and landing calls are deleted. Soft: In-car calls remain, landing calls are deleted if Keep landing calls = NO is set. 	Hard Soft



Menu item	Description	Setting range
Prio-Landing/Car –	After activating "soft" priority car, landing calls will also be	YES
Keep landing calls	kept.	NO
Park Drive –	Enable park drive program.	YES
Enable		NO
Park drive –	Parking drive characteristics of the lift system (see "Park Drive	
Program	Programs" on page 126).	
Auto Test Drive –	Automatic call generation for testing purposes. Drive	Sequence
Mode	characteristics of the Auto Test Drive:	Shuttle
	- Sequence: floors are approached sequentially	Random
	- Shuttle: car shuttles between "I o-I imit" and "Hi-I imit"	
	- Random: floors are approached in a random sequence.	
Auto Test Drive –	Automatically generated in-car calls during the auto test drive	YES
In-car calls		NO
Auto Test Drive -	Automatically generated landing calls during the auto test	YES
Landing calls	drive.	NO
Auto Test Drive –	Enables the car doors during the auto test drive. The set value	07
Doors	corresponds to the following bit mask:	0 /
	0 = no door enabled	
	1 = door A enabled	
	$0 \ C \ B \ A$ door: "1" = enabled $3 = door \ A and \ B enabled$	
	Bit 0-3 5 = door A and C enabled	
	6 = door B and C enabled	
	7 = all doors enabled	
Auto Test Drive –	When activated only floors between Lo-Limit and Hi-	YES
Floor-Limit	Limit will be approached.	NO
Auto Test Drive –	Lowest floor of the auto test drive.	0 top floor
Lo-Limit		
Auto Test Drive –	Highest floor of the auto test drive.	0 top floor
Hi-Limit		
Auto Test Drive –	The auto test drive will be disabled automatically after two	YES
Time-Limit	hours.	NO
Auto Test Drive –	Time between two commands during the auto test drive.	0 255 sec
Interval		
LON Configuration	A bus scan is carried out to determine the modules connected	⊳ YES
Search LON Modules	to the bus. All LON modules connected to the bus will be	NO
	entered in a table that can be displayed with Show LON	
	Modules.	
LON Configuration	Displays all LON modules connected to the bus The list of	Read only
Show LON Modules	LON modules is generated/updated with the menu item	
	Search LUN Modules. See "Show LON Module" on	
Modem / Fax / LMS	Enable external floor-locking via remote data transmission	YES
LMS floor-locking	(LMS Lift Monitoring System).	NO
Modem / Fax / LMS	Enables all fax functions (see Installation & Commissioning –	OFF
FST FAX Enable	Fax modem).	ON
Modem / Fax / LMS	Phone number of the FST modem (see Installation &	ASCII
Tel. Number FST	Commissioning – Fax modem).	



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 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 1000 sec
Modem / Fax / LMS Fax Numbers Used	Enables fax numbers (see Installation & Commissioning – Fax modem).	0 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.	00000000000000000000000000000000000000
Modem / Fax / LMS Send Test Fax	See Installation & Commissioning – Fax modem.	⊏ 〉 YES NO
I/O Configuration – I/O Ports – RAW	Configure programmable inputs/outputs.	00000000 11111111
I/O Configuration – I/O Flags – Delay	Delay of inputs and outputs . Depending on Bit1 of menu item CTRL 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 FFFFFFF
I/O Configuration – I/O Flags – Ctrl.	Flag Check.	00 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. YES: A two-digit floor name can be entered in EAZ Text. for each floor This name will be used by the FST display and by all LON floor displays. NO: Floor names 0,1,2, 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. 0: code starts at bottom floor with "00000000". 1: code starts at bottom floor with "00000001". The type of position indicator code can be set in EAZ type (see "Car-Operate-Panel –" on page 122). 	0 1
EAZ Configuration – Bottom Flr. Hall	Initial value for the position indicator code issued by ADM X3. - 0: code starts at bottom floor with "00000". - 1: code starts at bottom floor with "00001". The type of position indicator code can be set in ADM-EAZ type (see "ADM-EAZ type" on page 125).	0 1
EAZ Configuration – Target-Floor Car	 Activation of the position indicator at the braking point when approaching a floor. 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. 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 LON_ER2_Config have different meanings (see description of the position indicator).	EAZ-256 EAZ-40/64 EAZ-VFD/LCD
EAZ Configuration – LON-EAZ Number	LON position indicator selected for parametrising. Each LON position indicator has a unique number (0255). If 255 is set, the settings apply to all connected LON indicators.	0 255
EAZ Configuration – LON-EAZ Config.	Options for the connected LON position indicator. Depending on the LON-ERZ type the options set here have different meanings (see description of the position indicator).	00000000 11111111
EAZ Configuration – LON-EAZ Download	Transfer a configuration file from a PC-Card to the LON indicator selected in LON-EAZ Number.	⊂ > YES NO
EAZ Configuration – IRT-code	Access code for the remote function. With indicator types EAZ-VFD and EAZ-LCD the FST-Controller can be 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. 00000000: Dimming function off. 00000001: Only in-car indicators are dimmed. 00000010: Only landing indicators are dimmed. 00000011: All indicators (in-car and landing) are dimmed. 	00000000 11111111
Chime Functions –	Chime sounds for car and/or landing calls.	YES
Chimes Enabled		NO
Chime Functions – Chime Duration	Impulse length of the chime trigger signal.	0 5 sec
Chime Functions – Chime Trigger	Distance of the car from the levelling position of the target floor that triggers the chime.	0 9999 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.	YES NO
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. 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 DRM- CAR COMMS FAIL (see "DRM-CAR COMMS FAIL" on page 155). Single lifts are always set to Lift A.	ΑΗ
ID – Lift ID-Name	Location, identification of the FST-Controller for modem, remote data transmission and PAM (LMS).	20-digit ASCII
ID – 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!	000000 999999
Group Settings – GST-Menu	See GST Manual.	
Group Settings – Lift ID-Number	SeeLift ID-Number.	А Н
Group Settings – Group Member	Integrate FST-Controller in a GST Group Controller (see GST Manual).	YES NO
Group Settings – Group Floor Offset	Floor offset in relation to the lowest floor in the group (see GST Manual).	0 15
Group Settings – Flr Offset-Car	The value set in Group Floor Offset is the lowest floor for the position indicator in the car (if not set the value "0" will be used, see GST Manual).	YES NO
Group Settings – Flr Offset-Landing	The value set in Group Floor Offset is the lowest floor for the landing position indicators (if not set the value "0" will be used, see GST Manual).	YES NO
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 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 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!	YES NO
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 control!	YES NO
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!	YES NO
Car Ventilator – Control Mode	Control modes for the Car Ventilator (see "Car ventilator" on page 128).	Switched Off Manual On/Off Manual+Off-Delay Automatic+Off-Delay
Car Ventilator – Vent. Off Delay	Run-on time of the car ventilator in modes Manual+Off- Delay and Automatic+Off-Delay.	0 250 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 CAR LIGHT FAILURE if the car light fails (see "CAR LIGHT FAILURE" on page 157).	YES NO
Car Light – Evac. – Light Off	Switch off the car light after an evacuation drive.	YES NO
Car-Operate-Panel – EAZ type	 Position indicator code issued by FPM X4. HEX: Binary code 1-of-N: Separate signal for each floor (only possible up to a maximum of eight floors) GRAY: Gray Code The initial value for the bottom floor can be set in Bottom Fir. Car (see "Bottom FIr. 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.	00000000 11111111
Car-Operate-Panel – Display-1	Function of pin X4.38 on the FPM Car-Operate-Panel. See "Display-0 2" on page 128.	00000000 11111111



Menu item	Description	Setting range
Car-Operate-Panel -	Function of pin X4.5 on the FPM Car-Operate-Panel. See	00000000
Display-2	"Display-0 2" on page 128.	11111111
Car-Operate-Panel – OPEN = A+B	The door open signal (FPM X4.35 or X4.36) is active for all car doors.	YES NO
Car-Operate-Panel –	The door close signal (FPM X4.2 or X4.3) is active for all car	YES
CLOSE = A+B	doors.	NO
Car-Operate-Panel – OPEN = last	The door open signal (FPM X4.35 or X4.36) is only active for the car door last opened.	YES NO
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).	YES NO
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!	YES NO
Car-Operate-Panel – -"- Clear Opt	Delete pending in-car calls when activating the card reader.	YES NO
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 Display-1=00000000 is set (see "Display-0 2" on page 128).	YES NO
Car-Operate-Panel – Chime–Floor	Separate landing chime for downward travel installed below the car floor. The chime signal is issued on FPM output "Display-2", if parameter Display-2=00000000 is set (see "Display-0 2" on page 128).	YES NO
Car-Operate-Panel – DoorOpen NC	Interpret the door open signal (FPM X4.35 or X4.36) as normally closed contact.	YES NO
Car-Operate-Panel – O-Load Blink	Activate flashing mode of the overload display (FPM X4.6).	YES NO
Car-Operate-Panel – Pin-34 Functn	Function of input X4.34 of the FPM (see "Pin-34 Functn" on page 129).	099
Car-Operate-Panel – 3xCall=Clear	An already acknowledged in-car call can be deleted by placing the call another three times.	YES NO
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).	YES NO
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).	YES NO
Fireman Options Off only in M-Flr	The fireman mode can only be deactivated on the main floor (see Manual for Fireman Mode).	YES NO



Menu item	Menu item Description	
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).	YES NO
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 Door A only Door B only 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).	YES NO
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).	⊏) YES NO
Weight Sensor Sensor-Type	 Operating principle of the weight sensor. 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 Level—Empt.9, Level—Full and Level—OverL. 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).	ON OFF
Speech Output Output-type	Encoding of the SPK Module's output. - HEX: Binary code - 1-of-N: Separate signal for each output - GRAY: Gray Code See System description – Speech Output.	HEX 1-of-N GRAY
Speech Output Speech-Codes Speech-Codes	Allocation of the speech output encoding (see System description – Speech Output).	0255
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. HEX: Binary code 1-of-N: Separate signal for each floor (only possible up to a maximum of five floors) GRAY: Gray Code The initial value for the bottom floor can be set in Bottom Flr. Hall (see "Bottom Flr. Hall" on page 120). 	HEX GRAY 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 FST-Editor). 0: No function 1: "Door open" display for revolving doors 2: Fireman Mode active 3: Priority car or landing active 4: Fireman Mode or fire signal active 5: Out-of-use (display only when the system is shut down) 6: Priority car active 	0255
Landing buttons Special Display 1	No function at present	0 255
Lift-Off Lift-Off Program	There can be more than one input for remote shutdown. - FST X7.14 - ADM X3 - RIO Module - GST (see GST Manual) After activating one of the inputs the controller triggers a "hard" or "soft" remote shutdown drive to the remote shutdown floor. Then the car light is switched off and the system is shut down. The door open button on the in-car panel remains active! - HARD: All in-car and landing calls are deleted. - 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 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.	YES NO
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 direction. Important parameter for collective control: The time must be set at least so that passengers calling the car with a landing call have ample time to enter the car and issue a command for the current direction of travel (at least 5 15 sec, depending on the size of the car). If the delay is too short the car can be "snatched away" by a landing call in the opposite direction before the in-car call has been placed.	0 30 sec
Departure Arrows	Mode of the departure arrow outputs ADM X3.8 and X3.9 on the landing button module: "YES": Display of direction with departure arrows "NO": Display of direction with direction arrows "Only when door open": Display of direction as departure arrow only when car door is open	Yes No only when door open
Depart.Arrows Max	Maximum on-time of departure arrows when the car is not moving.	0 9999 sec
DoorC=Emerg-EndSw.	Door C input VSM X1.5 on the pre-control module is interpreted and stored as a top emergency limit switch with hydraulic lifts, according to EN 81.	YES 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
Day	Weekday	SU SA
from	Start time of the time zone	0:00 23:45
to	End time of the time zone	0:00 23:45
Prog	Program 1 3 (for time zone 1 3)	0 2
Floor	Floor: park floor	0 top floor
W-Time	Waiting period before starting the park drive.	0 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:

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

Α	The first LON Module of five total is displayed.
В	Module Type "FSM" with software version "00117", appendix "010/ 002".
С	LON-ID of the module: "010030496900"
D	First four configuration bytes of the module.

\uparrow/\downarrow	Switch to configuration bytes 5 12
S+↑	Show next LON Module.
S+↓	Show last LON Module.
$[\rightarrow$	Toggle line C of ADM Modules.

ID:	01	00	3	9	49	69	00
001]	E00]	E 0	01	E00]
E 00]	600]	C (9	01	E00]
E 00]	600]	C (9	01	E00]

А	
В	Configuration bytes 1 4 of the module.
С	Configuration bytes 5 8 of the module.
D	Configuration bytes 9 12 of the module.

LON Module [004/005] Prg:ADR00112 010/002 Floor=02 Door=A BS=0 [00] [00] [00] [00]

А	
В	
С	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
Switched Off	The car ventilator is switched off.
Manual On ≣ Off	The car ventilator is switched on and off with a button on the in-car panel (input FPM X4.1).
Manual+Off- Delay	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. Off Delay).
Automatic+Off- Delay	The car ventilator is switched on automatically for each drive and switched off after an adjustable delay (see Vent. Off Delay).

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 ("0000000") the outputs "Display-1" and "Display-2" can have the following functions:

Display-1

- Issue "Chime-Roof" signal if Chime-Roof=YES is set (see "Chime-Roof" 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-Floor=YES is set (see "Chime-Floor" on page 123).

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

Setting	Function
0	Loading Button (see "Loading Function" on page 129)
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
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 Load Time-max. has elapsed.

The loading function provides the following options:

Loading Program

Two loading programs can be selected in Program Nr...

Setting	Function
0	 Loading button can be operated with the car door closed, the car door opens after pressing the button. Pressing the loading button again cancels the loading function.
1	 The loading button can only be operated with the car door open, the loading button does not work with the doors closed. Pressing the loading button again resets the maximum loading time. Issuing an in-car call cancels the loading function.



Maximum loading time

The maximum loading time in seconds can be set in Load Time-max...

Load-Sw.Disp

FPM output "Display-1" (X4.38) can display the loading function if Load-Sw.Disp = 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 Enable.

Floor

The "Lobby" floor is set in Floor.

Doors

The car doors to be opened in the "Lobby" floor are set in Doors.

- **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

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 5000 mm
Floor – Zone Sw.UP	Switch-on point for the internal door zone signal above the actual levelling position. Linear positioning: Set value to 200 mm! Incremental positioning: Do not change value determined automatically during the learn drive! (See Installation & Commissioning.)	0 2500 mm
Floor – Zone Sw.DOWN	Switch-on point for the internal door zone signal below the actual levelling position. Linear positioning: Set value to 200 mm! Incremental positioning: Do not change value determined automatically during the learn drive! (See Installation & Commissioning.)	0 2500 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 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: Absolute: Linear positioning with absolute value encoder and tooth belt. Incremt.: Incremental positioning with incremental encoder on motor or speed limitor. 	Absolute Incremt.
Global – Max.Floor	Number of floors of the lift system, starting with zero. (Example: 8 floors –> Setting = 7)	0 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. (Setting = 0 -> 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 5000 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 5000 mm
Global – ZoneB Output	 Output of the internally generated encoder-B signal (also see "Output encoder-B simulation" on page 42). The output is 0V if the car is outside the door zone. 	YES NO
Global – ZoneB Out.Inv.	Inverts the output of the internally generated encoder-B signal (also see "Output encoder-B simulation" on page 42). - YES: The output is 0V if the car is in the door zone. - NO: The output is 0V if the car is outside the door zone.	YES NO
Global – Virt.Zone	Determines whether the values set in Positioning – Floor – Zone Sw. UP■DOWN are real or virtual zone signals. With linear positioning this parameter should always be set to VES, with incremental positioning always to NO! Incorrect setting of this value can lead to problems with door control and levelling positions after adjusting the levelling!	YES NO
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 2500 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 2500 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.	-1000010000 mm/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 V1 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 32767 msec
Cal-Results – DOWN–Speed	Speeds measured during the calibration drive for all drive speeds V1 VI for downward travel.	-1000 10000 mm/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 32767 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 49999 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:	00000000 11111111
	0 0	
	Only change this setting after consulting NEW LIFT!	



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!	YES NO
Increm. Positng. – Orien delay	Delay of the orientation drive after switching the FST- Controller on.	0 9999 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 BO/BU switch. This value is determined automatically during the learn drive.	0 250 mm
Increm. Positng. – BOBU<->Runoff	Length of the BO/BU signal when relevelling with the BO/BU switch. This value is determined automatically during the learn drive.	0 250 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. - LO: 0V (closed) - HI: +24V (open, default) The setting must correspond to jumper JMP7 on the FST circuit board (see "Jumper JMP7" on page 43).	LO HI
Increm. Positng. – ZoneB–Debnce	Debounce time of zone switch B. Only change this value after consulting NEW LIFT!	0 40 msec
Increm. Positng. – CB/CT–Level	Level of the CB/CT switch if the car is at the top or bottom landing. - LO: 0V DC - HI: +24V (default) The setting must correspond to jumper JMP7 on the FST circuit board (see "Jumper JMP7" on page 43).	LO HI

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 ON can be set as desired. It controls switching on of the relevelling process. Parameter Limit DN OFF must be assigned according to the braking distance of the relevelling speed. It must be optimised until the car relevels exactly.
- Parameter Limit DN ON must always be larger than parameter Limit DN OFF.

This also applies to relevelling upwards.



Fig. 1.16 Adjusting relevelling



MAIN MENUE – Calls 1.6

Menu item	Description	Setting range
Call Floor – Config	 Landing call program for each floor: No Button: No landing button available. DOWNcollect: One button for downward calls available. UP-collect: One button for upward calls available. Two button: Buttons for upward and downward calls available. STOPcollect: Upward and downward calls use the same button. 	No Button STOPcollect
Call Floor – Door function	 Door program for each floor: Single: Only one shaft door available. Selective: Shaft doors are handled selectively. Order: Locked shaft doors are handled in the specified order. Sequence: Locked shaft doors are handled following the order the calls were issued. Through: All shaft doors are handled simultaneously. 	Single Through
Call Floor – Door	 Door program for each car door: X: Door deactivated >A<: Door A active, default position closed. <a>: Door A active, default position open. The same settings apply to car doors B and C. If an X 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).	YES NO

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

Setting	Method
Standard	Landing and in-car calls are collected.
Non-Collective	 Only one call at a time is accepted. The car is reserved as long as it is moving or a door is open. Landing calls are locked when the car is reserved.
Sin9le-Call Mode	 Only one call at a time is accepted. The car is reserved as long as it is moving or a door is open. If the car is reserved landing calls are collected but not processed. 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 Lift-Boy 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:

- Pin-34 Functr = 2 (see "Pin-34 Functr" on page 129) if the Lift-Boy Mode should only be activated temporarily with a key switch.
- Lift-Boy Mode = 0N to activate the Lift-Boy Mode permanently.
- Display-1 = 00000000 (see "Display-0 ... 2" on page 128)
- Load-Sw.Disp = 00000000 (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 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: 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).	└〉 YES NO
Recorder – Recorder STOP	Stop recording.	⊂ > YES NO
Recorder – Recorder CONTINUE	Continue stopped recording.	⊂ > YES NO
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.	ON OFF



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).	YES NO
Update FST	Update the FST software with a PC-Card.	⊏ } YES NO
Update GST	Update the GST software with a PC-Card.	⊏ } YES NO
Update LON-Modules	Update all connected LON-Modules if a new software version is available on the PC-Card.	⊏ } YES NO
Config> Backup	Create a backup copy of the current FST configuration for storage in an internal buffer.	⊏} YES NO
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!	⊂ ን YES NO
PC-Card Tools – Config> Card	Save current FST configuration on PC-Card.	⊂ > YES NO
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!	⊂ > YES NO
PC-Card Tools – S/Ware> Card	Save current FST software on PC-Card.	⊂ > YES NO
PC-Card Tools – Clear Card	Delete everything on the PC-Card.	⊏ } YES NO
Panel Test	Special function to test landing and in-car panels (see System description – Panel Test).	
FST Reset!	RESET the FST-Controller.	⊂ > YES NO


Event Channels

⊑vent Channel	Meaning	Oetailled Software States	-ON Bus Messages	Drive Messages	Door States	Car States	Drive States	Calls	Safety Circuit	ositioning	Statistic Messages Group	Drive Curve	AM Messages	RIO Messages	Max. Recording Length (1 Mbyte Card)
Detail	Detailled Trouble Shooting	X	X	Χ	Χ	X	X	Χ	Χ	Χ					3 Hours
Statistics	Call- and Drive-Statistics				Χ	X	X	Х							24 Hours
Group Statistics	Call- and Drive-Statistics Group				Х	X	X	Х			Х				24 Hours
Drive Curve	Drive Behaviour											Χ			1 Hour
Remote Activity	Diagnostics for PAM												Χ		1 Week
	Disgnostics für BIO													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.	03
Doors Basic – Apply–ALL	The settings in Doors – Selective automatically apply to all car doors.	YES NO
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 4 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 DOOR LOCK TIMEOUT is displayed. The car door opens for the set Retry Time and then closes again.	0 4 sec
Doors Basic – Lock Fail Max	Maximum number of consecutive lock fails (DOOR LOCK TIMEOUT). All landing and in-car calls will be deleted and the error DOOR LOCK RETRY CNT is displayed.	0 10
Doors Basic – Lock Fail Open	Door allocation after lock fail: "One": Only the car door last opened opens after a lock fail (DOOR LOCK TIMEOUT). "All": All car doors open after a lock fail (DOOR LOCK TIMEOUT).	ONE ALL
Doors Basic – SCCT Debounce	Delay between closing of the safety circuit and activation of the drive contactors when starting (prevents contactor bouncing).	0 2.5 sec
Doors Basic – Retry Time	Opening time of the car door before closing again after a lock fail (DOOR LOCK TIMEOUT).	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 sec
Doors Basic – Bypass t–OFF	Delay when switching off the safety circuit bypass relay K20 of the VSM.	0 2 sec
Doors Basic – Bypass t–ON	Delay when switching on the safety circuit bypass relay K20 of the VSM.	0.1 2 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: - Set Pre-Opening = N0 - Set Relevelling = N0 - Disconnect power supply of the safety circuit (terminals 518, 519)	YES NO



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!	YES NO
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 Doors – Selective – Nudge Time the door will be closed with the nudging output activated.	YES NO
Doors Basic – PhotocellLevel	 Active level of photocell inputs FSM X8.8 / X9.8 and reversing contact inputs FSM X8.8 / X9.6. HI: Normally open (photocell interrupted: 24V on input, photocell clear: 0V on input; this also applies to the reversing contact) LO: Normally closed (photocell interrupted: 0V on input, photocell clear: 24V on input; this also applies to the reversing contact) 	HI LO
Doors Basic – Allow DRM-Door	Enable runtime monitoring DRM-DOOR FAILURE after a major door failure. Prevents burning out of unregulated door drives (see "DRM-DOOR FAILURE" on page 155).	YES NO
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).	YES NO
Doors Basic – SS-CurtainWait	Duration of the SS-curtain impulse issued by the door relay of the FSM before each drive.	0 10 sec
Doors Basic – WheelchairTime	Extended opening time of the car door after a disabled call on the landing panel.	0 255 sec
Doors Basic – Selective	 Is there a separate locking solenoid for each door side that must be controlled separately (selectively)? YES: Each door side has a separate locking solenoid controlled selectively via FSM X6.5, X6.6 and X6.7. NO: The locking solenoids of all door sides are controlled parallel via FSM X6.5. 	YES NO
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 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.	YES NO
Doors – Selective – Decouple Max.	Maximum re-coupling attempts when the door leaves are decoupled before all calls are deleted (only relevant if Decoupling = YES).	0 10



Menu item	Description	Setting
Doors – Selective –	Shaft doors are manual doors. Door C input of the safety	YES
Manual Door	circuit (VSM X1.5) is used to query the manual door contact (display:	NO
	MANUAL DOOR OPEN).	
Doors – Selective –	Debounce time of the manual door contacts. This parameter	0 5 sec
Man. Door Deb.	prevents "scatter" at the locking solenoid output when starting	
Deere Celective	due to bouncing manual door contacts.	0 0 0 0 0 0
Nudaina	of the doors during pudge time (Nudging Dut.eut. = ND)	0 6 sec
	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	
	longer than the time set in Doors - Select.ive -	
	Nudge Time the door will be closed with pulsed nudging.	
Doors – Selective –	The car door has end switches (limit switches).	YES
Endswitches	- YES: Connect car door limit switches to FSM X8 and X9. Set	NO
	- NO: Bridge limit switch inputs on FSM X8 and X9 with +24V	
	and set Öpening time.	
	See "FSM: X8" on page 62, "FSM: X9" on page 63 and "Door times diagram" on page 147	
Doors – Selective –	Maximum number of consecutive reversing cycles of the car	0 10
Photocell	door caused by photocell interruptions before a forced closing	0 10
	(nudge time). This parameter is normally set to 0 (function	
	disabled). Only set this parameter to a value higher than 0 after consulting NEW LIET!	
Doors – Selective –	Internal extension of the photocell signal by the controller	0.0 10.0 sec
PhotoCell Xtn	software. This parameter enables complete opening of the	
	door after a photocell interruption.	
Doors – Selective – Open Hold Tim	Time doors are held open when there is no in-car or landing	2 250 sec
	pending. The opening time of the car doors with pending calls	
	is controlled by Min. Wait Landing 🖩 Min. Wait	
Deere Celective	Lar (see "Door times diagram" on page 147).	0.0
Reversing Tim	Opening time of the car door after a reversing cycle.	0.0 20.0 sec
Doors - Selective -	The car door receives no current when in the limit position	YES
Deenergize	OPEN (no UP-signal).	NO
Doors – Selective –	Delay when switching the door relay (from door open to door	0.1 2.0 sec
Change Delay	caused by too fast switching of doors using three-phase AC.	
Doors – Selective –	Time before nudging (forced closure) starts when the	0 300 sec
Nudge Time	photocell is permanently blocked. Nudging will ignore the	
	signal from the photocell. There are two methods for nudging:	
	door controller) if	
	Nudging Output = YES is set.	
	Pulse command it Nud91n9 Uutput = NU and the pulse duration in Nud91n9 are set	
Doors – Selective –	Minimum wait time of the car at a floor after following a landing	0 60 sec
Min. Wait Landing	call (see "Door times diagram" on page 147).	
Doors - Selective -	Minimum wait time of the car at a floor after following an in-car	0 60 sec
Min. Wait Car	call (see "Door times diagram" on page 147).	



Door times diagram



Fig. 1.18 Door times of the FST-Controller



1.9 MAIN MENU

Menu item	Description	Setting
Lock MENU	Close main menu: Access to the menu is only granted with the password for the required security level.	⊂ > YES 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	1:	1234
Level	2:	2222
Level	3:	0000

In this case all parameters of the maintenance level could be accessed. The parameters of the customer service level are protected by the password 2222. 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 DRM- shut down the system (error LED illuminates). The shutdown can be reset with "Fault Reset".	□ YES NO
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.	⊏) Lock Unlock
Test Drive	Place calls using the FST keypad. With test drive activated line C of the FST display shows Tar get. =Select the target floor using keys 1/ Execute the call by pressing .	ON OFF
Auto Test Drive	Trigger automatic generation of in-car calls (see MAIN MENU — Config — Auto 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 SERVICE MODE!.	ON OFF
Endswitch Test Top	Slow travel to the top limit switch. This test cannot be started from the top floor! After starting the test with YES button E must be pressed until reaching the limit switch (dead man control).	□ YES NO
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 ^[E] must be pressed until reaching the limit switch (dead man control).	⊂) YES NO
V-Mon. Test Top	Test speed monitoring at the top. This test can only be performed if the speed monitoring function is enabled (see MAIN MENU – Drive – End- Sw. Speed Mon. page 114)! This test cannot be started from the top floor! After starting the test with YES button E must be pressed until the end switch speed monitoring function reacts (dead man control).	C⊅ YES NO
V-Mon. Test Bot.	Test speed monitoring at the bottom. This test can only be performed if the speed monitoring function is enabled (see MAIN MENU – Drive – End- Sw. Speed Mon. page 114)! This test cannot be started from the bottom floor! After starting the test with YES button E must be pressed until the end switch speed monitoring function reacts (dead man control).	⊂ > YES NO
DRM Test	Testing runtime monitoring.	⊂) YES NO



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! This test cannot be started from the top floor! After starting the test with YES button E must be pressed until reaching the buffer (dead man control).	Ľ) YES NO
Buffer Test Down	Runs into the car buffer at nominal speed. This test can cause damage to the car. Only perform this test after consulting NEW LIFT! 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).	⊂ > YES NO



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 PC-Card or via remote data transmission at any time.

6.1 LC-Display

ERROR [00037/00040]	A Event/error no. 37 of 40 total		
28.09 10:18:26 [012]	B Date / Time / Message Code		
Door Close Failed C		Text description of event/error	
FLOOR:03 V00 R01 I00	D	Floor / Generated signals (see "Positionsmeldungen Kop: Virt=0b Real=00" on page 22) / actual signals (see "Positionsmeldungen Kop: Virt=0b Real=00" on page 22) / information byte Infobyte1 (see "Error messages" on page 153)	

ERROR [00037/00040]	А	Event/error no. 37 of 40 total
28.09 10:18:26 [012]	В	Date / Time / Message Code
Door Close Failed	С	Text description of event/error
01 02 00 00 00 00 00	D	Information bytes: Infobyte2 Infobyte8

6.2 Keypad functions

$[\downarrow]$	Switch to 2nd to 8th information byte			
$\widehat{}$	Back to first screen			
S + ↑	Scroll error list up			
\$+↓	Scroll error list down			

Г



6.3 Event messages

Code	Message	Description	Reason
128	COLDSTART	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. There was a power failure.
129	INSPECTION-ON INSPECTION-OFF	Inspection work is being carried out.	The inspection switch on the car roof is set to INSPECTION.
131	POWER LOST	Failure of the 24V power supply.	The system has been shut down or the power supply is faulty.
132	REMOTE RESET	The FST-Controller has been reset by the GST Group Controller.	The FST-Controller has been reset through the serial interface.
133	CALIBRATION—START CALIBRATION—OK!	Calibration progress is displayed.	A calibration drive has been triggered.
134	LEARN DRIVE-START LEARN DRIVE-OK!	Learn drive progress is displayed.	A learn drive has been triggered.
135	SOFTWARE UPDATE	The software of the FST has been updated with a PC-Card.	
136	EVACUATION-ON EVACUATION-OFF EVACUATION-OK	An evacuation drive has been carried out.	The evacuation signal on a programmable input/output has been active.
137	X12-SERIAL 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).
138	MONITOR SIGNAL-ON MONITOR SIGNAL-OFF	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	APRON OUT-ON APRON OUT-OFF	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
<u>1</u>	NMI	Major CPU error determined by Watchdog-Supervision.	internal error
N	EMERGENCY STOP-ON EMERGENCY STOP-OFF	"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 pre- selection module are idle.
5	DRIVE-BOOT	Error during start up of drive process.	internal error
6	DRIVE-WATCHDOG	Major CPU error in drive process area determined by Watchdog- Supervision.	internal error
7	DRIVE-XFER	Error during transmission of data relevant for drive process.	internal error
9	OPEN DOOR LOCK	Door contact open while the car is moving. Infobyte2: Safety circuit status: digit 1: Bit 0-3 digit 2: Bit 4-7 bit 0 2: not used bit 3: Emergency stop bit 4: Door contact C bit 5: Door contact B bit 6: Door contact A bit 7: Locking device ("0" = interrupted, "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	MISSED TARGET	When approaching the target floor the programmed levelling position was not reached or exceeded.	 Drive is not working accurately or load dependant. Increase crawling distance (see "Crawl Distance" on page 133). Carry out another calibration run. Check switch off points before levelling (see "Level UP" on page 132).



Code	Message	Description	Reason
11	DOOR OPEN FAILED	Car door does not open. Infobyte2: Safety circuit status: digit 1: Bit 0-3 digit 2: Bit 4-7 bit 0 2: not used bit 3: Emergency stop bit 4: Door contact C bit 5: Door contact B bit 6: Door contact A bit 7: Locking device ("0" = interrupted, "1" = closed)	 Check door drive Check wiring of safety circuit Check operation of door relays on FSM Check operation of door limit switches (+24V must be supplied to FSM X8.2 and X9.2 to open the doors)! Infobyte2 shows the state of the safety circuit at the time of the error message.
12	DOOR CLOSE FAILED	Car door does not close. Infobyte2: 0 = Door A 1 = Door B 2 = Door C Infobyte3: 1 = fully open, limit switch OPEN is active 2 = does not close all the way, limit switch CLOSED is not active	 The car door is blocked mechanically or electrically. Check operation of door relays on FSM. Check operation of door limit switches (+24V must be supplied to FSM X8.4 and X9.4 to close the doors)!
13	DOOR LOCK RETRY CNT	Error during closing of doors. Infobyte2: 0 = Door A 1 = Door B 2 = Door C The number of lock attempts is displayed under MAIN MENUE * Doors * Doors Basic * Lock fault .	The shaft door contact (lock) does not close even after n attempts.
14	DRM-START PROBLEM	ResetTEST MENU - Fault Reset.	The car does not start moving even with pre-selection active.
15	DRM-DRIVE MONITOR	Monitoring or drive error. No movement of the car could be determined during the drive. Reset TEST MENU - Fault Reset.	 The encoder position does not change even with pre-selection active. The encoder is faulty. No electric connection to encoder. The drive does not move.



Code	Message	Description	Reason
16	DRM-ENCODER FAILURE	Plausibility testing of car position with the encoder is faulty. Reset TEST MENU - Fault Reset.	 The encoder is faulty. Check electric connection of the encoder. During commissioning: Check direction of rotation of the encoder and carry out "Set Floor 0".
17	DRM-CAR COMMS FAIL	Communication between the FST- Controller and the FSM Car Control Module is faulty.	 Plug-in connections of the trailing cable are not plugged or loose. Rupture in trailing cable. Car Control Module FSM faulty. Check jumper position on the car control module (see "Assigning the car in group mode" on page 60).
18	DRM-END FLOOR SPEED	Reset TEST MENU - Fault Reset.	The delay control circuit at the top and bottom limits has triggered (see "End-Sw.Speed Mon." on page 114).
19	DRM-MISSING ZONE	No zone message available. Reset TEST MENU - Fault Reset.	The car has reached a levelling position but does not receive a zone message from the A6 Safety Circuit. Check A6 Safety Circuit and zone solenoids.
20	DRM-BRAKE FAILURE	The brakes do not react or cannot be released. Reset TEST MENU - Fault Reset.	 The brake does not release even with pre-selection active The brake does not close even with the car stopped. Monitoring via input VSM X4.7 (see "Brake Monitoring" on page 113).
21	DRM-MOTOR FAILURE	Temperature monitoring of the drive has triggered.	Motor overheated. Monitoring via input VSM X4.5 (see "Motor Monitoring" on page 113).
22	DRM-FORCED STOP	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).
23	DRM-EMERG.LIMIT SW	Exceeding the top floor according to EN 81 (for hydraulic lifts). Reset TEST MENU - Fault Reset.	The top emergency limit switch has triggered. The contact is sampled by terminal VSM X1.5 ("TC").
24	DRM-DOOR FAILURE	The car door cannot be moved. Reset TEST MENU - Fault 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
26	CONTACTOR MONITORING	Fault in motor contactor. Reset TEST MENU - Fault 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).
27	SLIP OUTSIDE LEVEL	Unexpected car movement out of the stopping position.	 The drive does not stop at the levelling position even with preselection disabled. The deceleration distance of the drive is too long. The drive brake activates too late. Check encoder function.
28	SLIP OUTSIDE ZONE	Unexpected car movement out of the zone.	 The drive does not stop at the levelling position even with preselection disabled. The deceleration distance of the drive is too long. The drive brake activates too late. Check encoder function.
29	DRIVE: CHKSUM-ERROR	Error during transmission of drive data from/to drive processor	internal error
30	BUS-I/F TIMEOUT	Fault in bus interface.	internal error
31	START-ABORT	Drive start sequence cancelled.	 The drive cannot be started. No return signals from drive or signals delayed. See VSM X4.7 brake monitoring. See wiring diagram FST X7.11. See "Brake Delay" on page 113.
32	STOP-ABORT	Drive stop sequence cancelled.	 The drive cannot be stopped. No return signals from drive or signals delayed. See VSM X4.7 brake monitoring. See wiring diagram FST X7.11. See "Brake Delay" on page 113.
33	RELEVELLING ABORT	An error has occurred and the relevelling process has been cancelled.	 Check drive and pre-selection. Check safety circuit bridging. Check bypass relay K20 on the pre-selection module. See "Bypass t–OFF" on page 144.
34	BYPASS FAILURE	Safety circuit bypass not available despite zone message.	 Check K20 of the VSM. Check wiring of safety circuit. Check safety circuit. See "Bypass t-OFF" on page 144.



Code	Message	Description	Reason
35	DOOR LOCK TIMEOUT	Door lock timeout is not long enough.	The car door is closed but the lock contact has not closed in the time set. - Check shaft doors mechanically (smooth running). - Check door lock contacts. - Increase door lock timeout (see "Lock Delay" on page 144).
36	CAR LIGHT FAILURE	Power sensor indicates car light is not working.	 Check car light. Check power sensor on FSM (see "FSM: X14" on page 64).
37	REGULATOR ERROR	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.
38	REFILL PUMP TIMEOUT	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.
39	SAFETY CURTAIN BRK.	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	SAFETY CURTAIN FAIL	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). - Check operation of the safety curtain. - Check duration of the test impulse in MAIN MENU – Doors – Doors Basic – SS-CurtainWait (see "SS-CurtainWait" on page 145).
41	X12-SERIAL OFF	No serial connection to the frequency converter (FST X12, DCP).	 Check connection cable between FST X12 and frequency converter. Check settings of the frequency converter (DCP03).
42	X-12 SERIAL BAD	Serial connection to the frequency converter is faulty (FST X12, DCP).	 Check connection cable between FST X12 and frequency converter. Check shield of the connection cable.
43	UPS FAILURE UPS FAILURE-ON	State change at the programmable input "UPS FAILURE" for monitoring UPS error messages.	Check operation of the UPS.





7 Index of Key words

Numerics

24V I	_OW!	 1	
	-		

Α

A	
A6 Safety Circuit	52
Absolute value encoder	43
absolute value encoder	15
Action	5, 101
additional pre-selection relays	55
ADM	82
X1	83, 87
X2	
ADM I landing button module	82
ADM unconfigured!	28
ADM-Bus Mask	121
Alarm horn	47
Allow DRM-Door	145
Anti Nuisance	122
Apply–ALL	144
Approaching	144
associated bus	
Auto Test Drive	149
Auto test drive	118
auto test drive	27
Auto-Orien.	135
AUXILIARY	13
Auxiliary control	53

В

BOBURunoff	135
Boot version	30
Bottom Flr. Car	120
Bottom Flr. Hall	120
Brake Delay	113
Brake Monitoring	113
Brake monitoring	45
bus plan	38
Bypass t-OFF	144
Bypass t–ON	144

С

117
12



Cam Delay144	1
Cam Time Max144	1
Car bus	3
car call button extension)
Car doors144	1
Car Light	2
Car light	1
Car Light "OFF"	7
CAR NUISANCE DETECT!)
car position	ļ
Car Prio. Type	7
car speed	ł
Car ventilator	2
Card Reader	3
CB/CT-Level	5
Change Delay	3
Change Time	1
Checking Update File)
Chime	3
circuit documentation	3
Clear Card	2
Clock Setting	
CLOSE = A+B	3
Commissioning	7
compatible	7
Component overview	3
Config < Backup	2
Config < Card	2
Config> Backup	2
Config> Card	2
CONFIG TRANSFER ERR!	3
CONFIG TRANSFER OK!	3
Contact voltage protection	7
Contactor monitoring	1
Control	1
control box	5
Corr.Bottom	5
Corr.Top	5
correction switches	3
Correct-levelling	7
Counter values	
Crawl Distance	3
Ctrl)

D

CONFIG	
data packets	
Date Setting	
Daylight Saving	141, 143
decoding	17, 24
Decouple Max.	
Decoupling	145
Deenergize	



Default position of doors	139
Depart.Arrows Max	126
departure	85
Departure Arrows	126
Detail	141
device status	34
diagnosis	15
diagnostic message	10
Diagnostic messages	.10, 15, 32
DIN EN 81	7
DIN VDE 0100	7
Direction	126
direction display	27
Direction of rotation	132
direction of travel	85
Display-02	122
Divider-Door	123
DMF	13
Door movement counter	111
Door movements	111
Door type	145
DoorC=Emerg-EndSw.	126
DOOR-NUDGING!	29
Doors	144
doors without limit switches	63
drill-hole dimensions	37
Drive counter	14, 111
Drive Curve	141
drive mode messages	27
drive processor	34
Drive Speeds	113
Drive type	113
Drives	111, 113
DRM Test	149
DRV-TEST FINISHED!	29
DRV-TEST STARTED!	29
dual door mode	66

Ε

EAZ EAZ Configuration	122 120
EAZ Text	120
electrical isolation	
Electromagnetic compatibility	8
EMC	8
Emergency	42
Emergency power supply unit (HSG)	60
Emergency stop	114
Emergency stop recognition	42
EMERGENY OPERATION	28
EN 55011	8
EN 61000-4-2/1995	8
EN 61000-4-3/1997	8



EN 61000-4-4/1995	8
EN12015	8
EN12016	
encoder failure	
Encoder type	133
encoder-B signal	42
encoder-B simulation	42
END-SWITCH TEST	
Endswitch Test Bot	
Endswitch Test Top	149, 150
Endswitches	
ERROR	
Error list	
Error message	33
Error Messages	
Error messages	153
Error Storage	111, 151
ES-SPEED MON. TEST	
EVACUATION	
Event Channels	
Event messages	152
EXIN1	
EXIN2	
extended pre-selection	57

F

Factory number	
Fault Reset	
Fax	
Fax number	
FAX/SMS NOT SENT!	
FAX/SMS SENT OK!	
FILE NOT FOUND!	
FILE TRANSFER ACTIVE	
Filter Setting	
fire	85
Fire Main Floor	
FIREMAN	11
FIREMAN MODE	
Fireman Options	123
Flag	119
Flags	
flash memory	
Floor-locking	
Flr Offset-Car	
Flr Offset-Landing	
FPA	78
X4	79
X5	79
X6	79
Х7	80
FPE	73
X2	74, 76



X3	77
FPE car control panel extension module	73, 78
FPM	65
X3	69
X4	71
FPM car operating panel module	30, 65
Front panel	9
FSM	58
X10	63
X12	63
X2	61
X3	61
X4	62
X6	62
X7	62
X8	62
X9	63
FSM car control module	30, 58
FSM X6	15
FST	
X11	48
X12	48
FST Installation & Commissioning	6
FST Manual	6
FST Menus	101
FST Quick Guide	6
FST Reset!	142
FST Software Update	28
FST-Controller	39
FULL LOAD	13
Further information	6

G

General Safety Regulations	7
GND-PE coupling	
group controller	
Group Floor Offset	
Group Member	
Group mode	60, 67
Group operation	
Group Settings	
Group Statistic	141
GST Group Controller	60, 67, 121
GST Manual	6
GST UPDATE COMPLETE!	
GST-Menu	

Н

H8IN1	15
halogen free	95
Handling electronic components	8
Hardware version	30
HHT handheld terminal	35



Holding device	
holding device	15, 26
HOMING ACTIVE	
humidity	40
hydraulic lifts	39

I

•	
I/O Error –	
ID	
Identification	
in-car button panel	65, 69, 71, 74, 76, 79, 80
in-car call	
in-car control	
Incremental Positioning	
Incremental value encoder	
Information page	
information texts	
Input EXIN2	
input H8IN1	
Insp. Door Test	
Insp.DOWN	
Insp.FAST	
Insp.UP	
INSPECTION	
inspection control	
INSTALLATION MODE	
Installation Mode	
installation site	

J

Jumper J2	
Jumpers	
Jumpers – FPM	
Jumpers – FSM	
Jumpers – FST	
Jumpers – VSE	
Jumpers – VSM	

Κ

Key combination	5
Keypad	
Keypad functions	

L

Landing buttons	124
landing call	27
LANDING CALLS OFF	11
Landing Chimes	121
landing control	27, 32
Landing control "OFF"	
LANDING CONTROL OFF	11
Landing DOWN	132



landing panel	82
Landing Prio. Type	117
Landing UP	132
Language	141
LC-Display6,	9, 39, 151
Learn drive	
LEARN DRIVE ACTIVE	12
LEARN DRIVE FAILURE!	28
LEARN START FAILURE!	29
LED	112
LEDs	61
LEDs – ADM I	.83, 87, 90
LEDs – FPM	
LEDs – FSM	61
LEDs – FST	9, 34, 44
LEDs – VSE	
LEDs – VSM	51
Level	14
Level DOWN	132
Level UP	132
levelling	14
Levelling position	132
Lift ID-Name	121
Lift ID-Number	121
LIFT OFF	12
Limit DN OFF	134
Limit DN ON	133
Limit UP OFF	133
Limit UP ON	133
Line A	10
Line B	11
Line C	14
Line D	27
LMS	118
loading button	14
Lock Delay	144
Lock Fail Max	144
Lock Fail Open	144
LON bus	38, 93
LON Configuration	118
LON-EAZ	120

Μ

Main menu	32, 101
Main menu and test menu	30, 33
Main screen	10, 32
Manual Door	146
MASK	119
Measures	7
memory	14
Menu tree	101
message packets from car control module	15
messages	10



metal nut	
Min. Wait Car	
Min. Wait Landing	
Modem	39, 47, 118
Monitoring	
Motor Monitoring	
Motor monitoring	45
Motor Run-on	
motor state	
motor states	
Motor-Hours	

Ν

next possible stop	
NO SIGNAL	
NO SIGNAL	
NOT FROM END FLOOR!	
NOT IN FLOOR-0!	
NOT IN THE ZONE!	
Nudge Time	
Nudging	
Nudging Output	
Number Doors	

0

ONLY FROM END FLOOR!	
OPEN = A+B	123
Open Delay	
Open Hold Tim	146
Opening Time	145
Option bus	46
Opto-coupler	49
order number	30
Orien delay	135
ORIENTATION	
Original packaging	8
OVERLOAD	13

Ρ

Parameter	
Parametrising	
Park Drive	117, 118
PARK DRIVE ACTIVE	
Park Drive Programs	
Password	. 101, 141, 148
PC-Card	
PC-CARD EMPTY!	
PC-CARD FLASH TYPE??	
PC-CARD LOW BATTERY!	
PC-CARD OK!	
PC-CARD REMOVED!	
PC-Card slot	15, 39



PC-Card Tools	142
PC-CARD TYPE????!	29
Photocell	146
photocell	14
PhotocellLevel	145
pin assignments	37
plastic nut	44
Please wait!	28
Port	119
Position ABS	132
Position encoder	46, 132
position messages	15, 21
Position REL	132
Positioning	132
Power supply	47
Pre-Opening	144
Pre-selection	52
pre-selection relay	20
PRIO CAR ACTIVE	
PRIORITY CAR	13
Priority car	117
PRIORITY LANDING	13
Priority landing	117
priority landing	85
Program	101
Programmable input/output	47
Programmable inputs/outputs	47, 119

R

RAW	119
RAW Register	132
Recorder	141
RECORDING NEW START!	29
RECORDING RE_START!	29
RECORDING STOPPED!	29
Regulation for lift systems, AufzV	7
Relevelling	113, 133
remains-open	145
Remote Activity	141
remote shutdown	85
repeater	39
Resolutn.	132
Retry Time	144
reversing contact	14
Reversing Tim	146
RIO Traffic	142
RS-232 interface	47
RS-232 interface (2-wire)	48
RS-422 interface	48
RS-485 interface	48
RUN	34, 44



S

CONFIG	
S/Ware> Card	
Safety circuit messages	10, 11
SAFETY CURTAIN	12
Salety measures	
	۲۲ ۱۸۸
Secret LON Medules	
Search LON Modules	
Security level commissioning	31, 101
Security level contrinssioning	101, 141
Security level customer service	101, 141
	101, 141
SEND FAX	
	27, 107
SERVICE REQUIRED!	
Set / current speed	
Set Floor [n]	
Setting deere	15, 22
Setting doors	
Setting lift car doors	
Show LON Modules	
Sign	
Signs and symbols	
single door mode	
Smoke detector	
Software Update	
Software version	30, 39
software versions	
source of special drive signals	
Special Display	
Special params	
Speech Output	
Speech-Codes	
Speed correction function	
SS-Curtain	
SS-Curtainvvait	
Standards and regulations	
Star / Delta	
Start Method	
Start Monitoring	
State bytes F1 and F2	
State messages	10, 11
State of the security circuit	
States of the and adaption relation	
states of the pre-selection relays	
Static Charges	ð
	112, 141
	34, 44
Status messages	10, 14, 32



Stop Max	114
Stop-when-full	142
storage	40
strain relief	93
Supply voltage	53, 62
suspension height	95
Switch 13	115
Symbols	5
System	141
system location	
SYSTEM STOP	13

Т

Technical Data – ADM I	
Technical Data – FPE	
Technical Data – FPM65	
Technical Data – FSM58	
Technical Data – FST40	
Technical Data – LON bus93	
Technical Data – Trailing cable	
Technical Data – VSM	
Technical regulations for lifts (TRA, Technische Regeln für Aufzüge) 7	7
Temperature range40	
Terminal resistance8	
Terminal resistance (terminator)93	
Terminals and plugs – ADM I83, 87	
Terminals and plugs – FPE74, 78	
Terminals and plugs – FPM69, 91	
Terminals and plugs – FSM61	
Terminals and plugs – FST45	
Terminals and plugs – LON bus94	
Terminals and plugs – Trailing cable	
Terminals and plugs – VSM51	
Terminator	
Test Drive149	
Test menu32, 149	
Time27	
Time 16114	
Trailing cable53, 61, 64, 95	
trailing cable95	
TÜV-Rheinland49	
Type verification certificate VSM49	

U

UPDATE COMPLETE!	29
UPDATE FILE NOT FOUND!	29
Update GST	142
Update LON-Modules	142
Use Text	120
USER ERROR	13
user interface	9, 35



۷

•	
Ventilator	122
V-Mon. Test Bot.	
V-Mon. Test Top	
VSE	
VSE pre-selection extension	
VSM	
X1	51
X3	
X6	
X7	
VSM pre-selection module	

W

WAITING TO RESET		29
Weight Sensor	15,	124

Χ

X100

Ζ

Zero conductor	49
zone message	14
Zone Sw.DOWN	132
Zone Sw.UP	
zone switch B	42, 43
ZoneB Active	
ZoneB–Hysters	
ZoneB–Length	135
ZoneB-Level	135





Your NEW LIFT-Hotline:

Lochhamer Schlag 8 D-82166 Gräfelfing e-mail: hotline@newlift.de

Tel.: +49 (0) 89 / 89 866 110 Fax: +49 (0) 89 / 89 866 300