



# Operation instruction

## Lift control LC 2005

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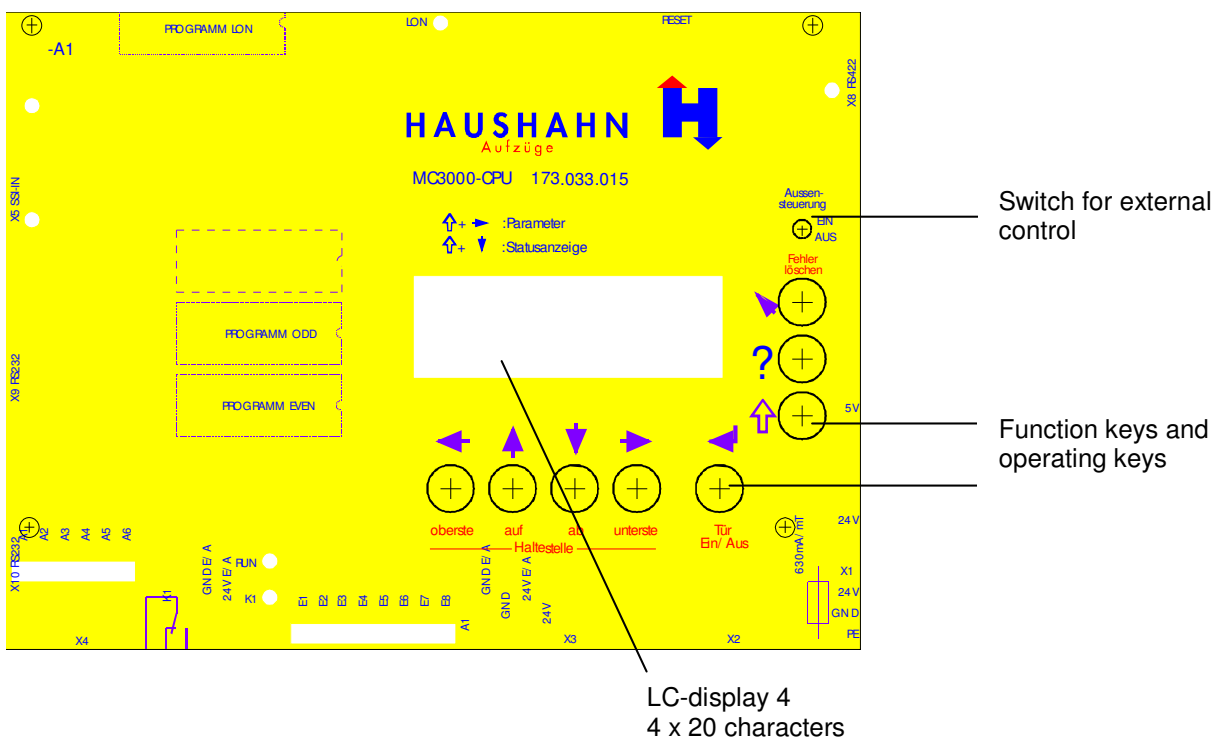


## 1 Display and Operation

Setting and operating of the control is to be made by means of the 4-line LC-display and the 8 operating keys.

The display and operating device can be divided into 2 categories:

- Operation display and control with hotkeys
- Menu display and parameterization



### 1.1 Operating keys

For selecting display options, operating the elevator and setting of parameters 8 keys are available. The keys have different functions in the respective display modes and are partially allocated with double functions.

For confirmation just give a short push on the key, extended pressing causes automatic repetition of the key function.

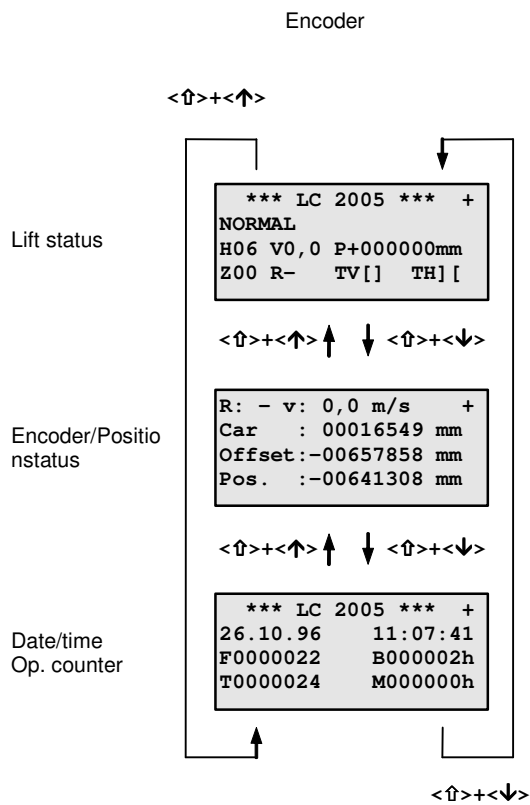
The alternative key function is activated by simultaneous pressing <↑> and the respective key.

(keep <↑> pressed and press shortly the key with the desired function).

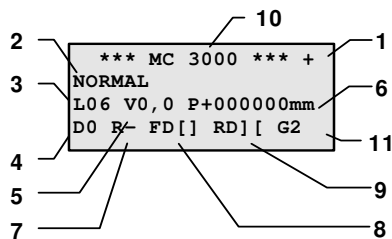
1.2 Operating display

On the display 3 different operation display modes can be shown and selected by means of the key combinations <↑> + <↑> resp. <↑> + <↓>:

- Elevator status (standard after RESET)
- Encoder/position status (shaft copying with encoder) resp. status of shaft switches (shaft copying with magnet switches)
- Date/time, operations counter



1.2.1 Lift status



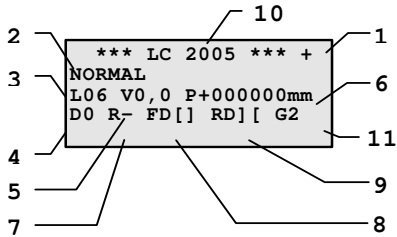
After switching on the control resp. after RESET, the operating indication for the elevator status appears on the display.

No.	Meaning
1	Program flow control: with the program running, the marks "+" and "*" are alternatingly displayed in intervals of a second.
2	Indication of the active operation mode: NORMAL Normal mode, additional information will be displayed: SFTY OPEN Safety circuit open LockgFaultAuto Self locking fault in NORMAL operation LockgFaultInsp Self locking fault in INSPECTION/EMERGENCY EL. CONTR. OVERLOAD Overload CAR LIGHT Car light OFF SFTY-DOOR Safety circuit DOOR OPEN EXTCONTROL. OFF External control is disengaged EM.EL.OP. Operating mode EMERGENCY ELECTRICAL OPERATION INSPECTION Operating mode INSPECTION CONTROL+LIGHT OFF Operating mode control/light off
3	Current car position
4	Destination landing of the current trip
5	Speed of car [m/s]
6	Deviation [mm] of car stopping position from accurate level position
7	Indication of travelling direction: — no travelling direction ↑ travelling direction upward ↓ travelling direction downward
8+9	Door status <b>TV</b> (front door) and <b>TH</b> (rear door): []door open ]]door closed -- door control disengaged, doors are closed
10	*** LC2005 *** resp. F-No 1104 L06 Fault no. and landing. By repeated operating of key <? > the clear text fault indication can be switched on and off. Automatic switching-off will be made after 20 sec.
11	Number of elevators in a group (in case of group only)

1.2.2 Encoder/position status, status of shaft switches

Depending on the installed type of shaft copying, either the encoder/position status or the status of the shaft switches is getting displayed.

**Shaft encoding with absolute encoder**

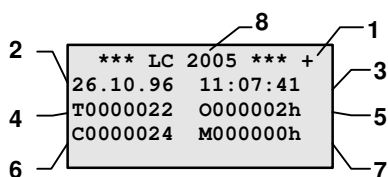


No.	Meaning						
1	Program flow control: with the program running, the marks "+" and "*" are alternatingly displayed in intervals of a second.						
2	Speed [m/s]						
3	Travelling direction: <table style="display: inline-table; vertical-align: middle;"> <tr> <td style="text-align: center;">—</td> <td>no travelling direction</td> </tr> <tr> <td style="text-align: center;">↑</td> <td>travelling direction upward</td> </tr> <tr> <td style="text-align: center;">↓</td> <td>travelling direction downward</td> </tr> </table>	—	no travelling direction	↑	travelling direction upward	↓	travelling direction downward
—	no travelling direction						
↑	travelling direction upward						
↓	travelling direction downward						
4	Position of car [mm]						
5	Offset [mm]						
6	Location value from encoder [mm]						

The value of the actual car position is calculated by following formula:

**Car position = Location value – Offset**

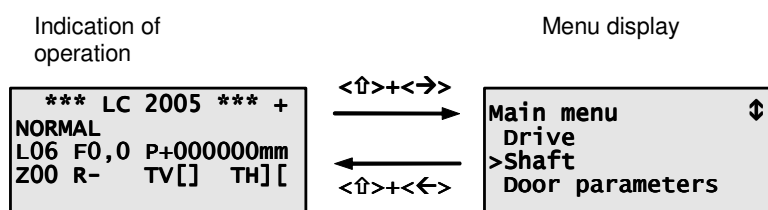
1.2.3 Datum/Uhrzeit, Betriebszähler



No.	Meaning
1	Program flow control: with the program running, the marks "+" and "*" are alternatingly displayed in intervals of a second.
2+3	Date/Time
4	Trip counter
5	Operating hours counter
6	Door motions counter
7	Motor hours meter
8	compare 1.2.1 Elevator status <b>10</b>

1.3 Menu display and parameterizing

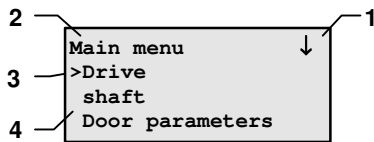
By setting the key combination <↑>+<→>, the Menu/Parameter display will be entered. You can again leave this display mode by setting the key combination <↑>+<←>. If no key is operated within 5 min the operation display will be activated automatically.



There are three classes of the parameterizing display mode:

- Menu display
- Parameter display and setting
- Dialogues

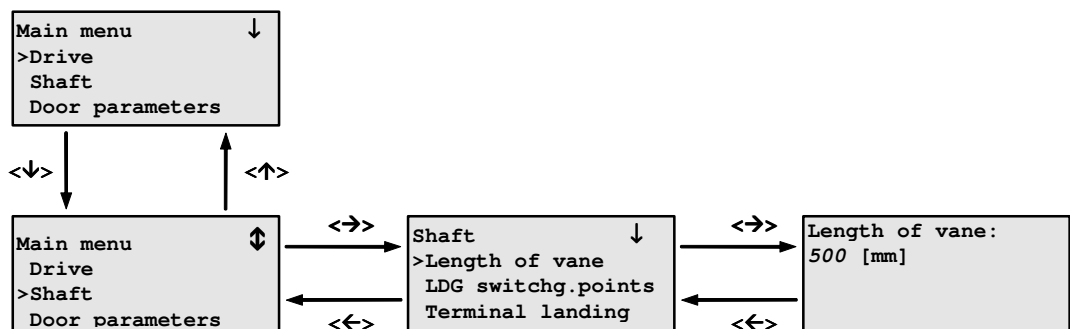
1.3.1 Menu display



No.	Meaning
1	Navigation assistance; indicates to which direction the list with the selectable submenus can be scrolled through: ⇅ Not all submenus can be shown at the same time on the display. The double arrow indicates that the list can be scrolled in both directions. ↑ The end of the list is reached, only upward scrolling is possible. ↓ The begin of the list is reached, only downward scrolling is possible.
2	Display of the active menu
3	Display of the currently selected submenu in the list
4	List of selectable submenus

1.3.2 Menu navigation

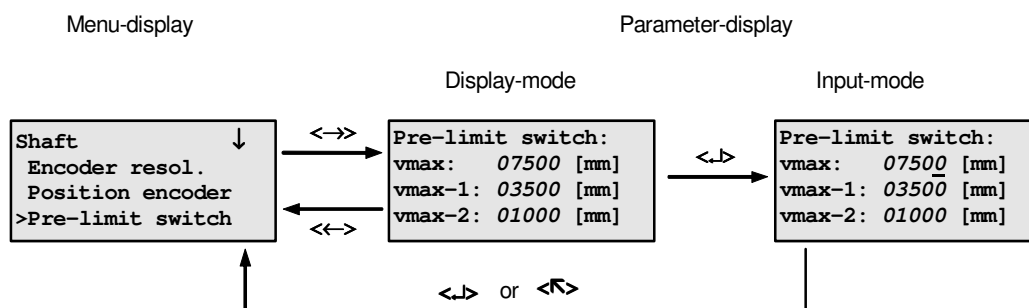
By means of the 4 keys <←>, <↑>, <↓> and <→> individual menus can be selected. With keys <↑> resp. <↓> the desired sub-menu will be selected in the list and opened by <→>. The name of the selected menu appears in the 1st line of the display. If there are no further sub-menus available, finally the respective parameter is getting displayed.



1.3.3 Display and setting of parameters

Depending on the selected menu level, in the parameter view

- 1 resp. several parameters in 1 window
- several parameters in a list of windows are displayed.



The <.> key allows to change from display mode into setting mode. The parameter can be modified with <↑> resp. <↓> the cursor position – mark \_ shows, which digit of the parameter is going to be modified. The cursor can be moved with <←> resp. <→>.

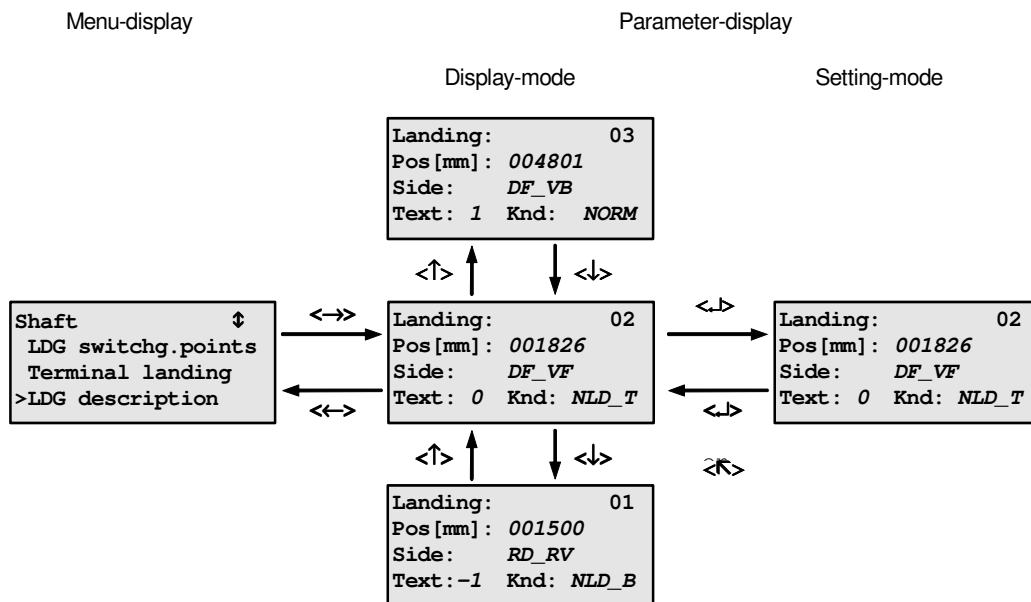
After completed setting the modification of parameter is to be confirmed with <.>, the display changes automatically back to the menu.

With key <↵> the parameter setting will be quit without modifying the parameter values.

1.3.4 Displaying a list of parameters

Some parameter sets consist of a list of parameters of same nature, e.g. the parameter set.

**LDG description:** for each landing a set of parameters is provided with values for position, door side/vane side, text for the position indicator etc.

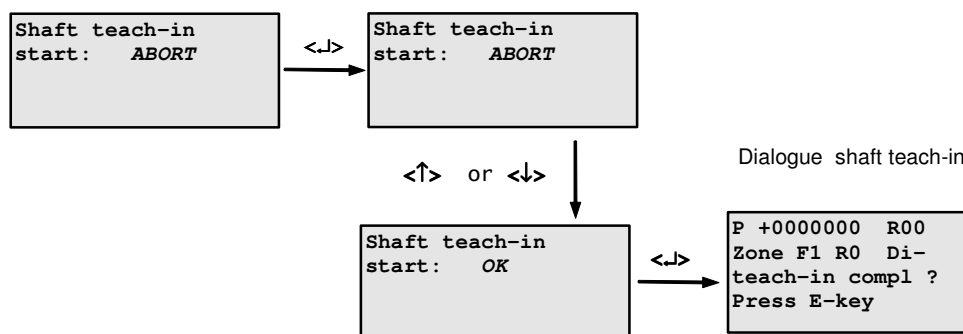


The list of the parameter sets can be scrolled through in the display mode with the keys <← > resp. <→ >.

Parameter modification is done analogous to the parameter view with only one window. When the parameter input is completed, the parameter display mode is shown.

1.3.5 Dialogues

With some parameters, e.g. **Shaft teach in**, a dialogue can be activated. In order to start the dialogue in the parameter setting mode **OK** is to be selected. The dialogue shows instructions and the user is requested to press certain keys.



## 1.4 Lift control with keys

### 1.4.1 Travel commands

In display mode "operations display" travel commands (internal commands) can be set by the keys.

Key	Meaning
<← >	Travel to the top floor
<↑ >	Travel one landing upward
<↓ >	Travel one landing downward
<→ >	Travel to the bottom floor

### 1.4.2 Door control

In the display mode "Operation display" the door control can be enabled or disabled by repeated pressing of key <↓ >. With disabled door control the doors are closed.

```
*** LC 2005 *** +
NORMAL
L06 V0,0 P+000000mm
D00 D- DF[] DR][
```

```
*** LC 2005 *** +
NORMAL
H06 V0,0 P+000000mm
D00 D- DF-- DR--
```

### 1.4.3 External control

The external control can be enabled or disabled via toggle switch "External control ON/OFF"

With disabled external control no hall calls can be set.

## 2 Fault diagnosis

With LC2005, depending on the character of fault, information about the fault can be obtained at various places.

Display and fault memory of the CPU-card:

Here you should investigate first. Depending on the displayed fault, further information can be obtained (see page 10 chapter 2.1 Fault diagnosis at the CPU-card).

Lettered LEDs of the pre-control card;

These are indicating the condition of the safety circuit and of the contactors/valves (see chap. Precontrol card).

In case of faults in the bus-modules, with faulty bus communication, information can be obtained at the status-LED. (Diagnosis of the bus modules).

Input/output signals of the CPU can be evaluated by means of LED-displays (see chap. CPU board)

### 2.1 CPU-board

If there is a fault during operation the display shows the fault-number. Simultaneously the fault is saved in an error memory together with further informations about the condition of the control at occurrence of the fault.

The fault memory can be interrogated under  
**Main menu|Service|Fault memory|Display memory.**

Basically 2 kinds of fault can occur:

- Serious fault:  
1<sup>st</sup> digit of the fault identification no. = 1
- Warnings or temporary faults:  
1<sup>st</sup> digit of the fault identification no. = 2
- Fault that must be acknowledged  
1<sup>st</sup> digit of the fault identification no. = 3

In case of a serious fault the lift will be put out of service immediately. The control goes into self-locking status and it must be re-enabled with key <␣> (escape or fault acknowledgement).

In case of warnings the fault is getting displayed and memorized.

With faults that must be acknowledged the fault remains after voltage switching-off and must be acknowledged explicitly (key fault cancelling).

### 2.1.1 Fault display

```
Idx: 022   No: 2112
01.01.95  08:15:20
L06 D04   P016543mm
I00000000 O00000000
```



```
Idx: 022   WARNING
MONITORING:
Slip at absolute
encoder too long
```

Display of last registered faults, sorted acc.to the time. With keys ↑ and ↓ the list of faults can be scrolled through. With key <?> you can switch over to the plain text fault display and back again.

Display:

**Idx**

**1...100** Upon jumping to the fault memory display the most recent fault with the highest index (=no. of faults) is displayed.

No

Fault no. date and time of fault occurrence

L

Actual position of fault occurrence

D

Destination landing

P

Absolute position [mm]

I

Input map CPU [Hex]

O

Output map CPU [Hex]

The fault identification no. consists of the actual 4-digit fault no. and of a leading 2-digit classification no.

The classification no. is used only in connection with data transmission to external systems.

In the following, only the 4-digit fault no. as shown in the display will be used.

As a maximum, only the latest 100 faults will be displayed in the fault memory.

2.1.2 Assignment and interpretation of the I/O map

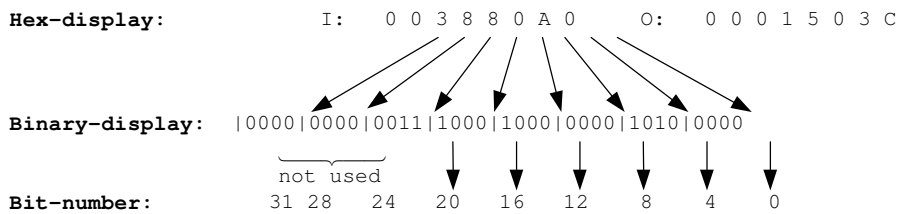
The input/output signals stored in the fault memory at the time of fault occurrence are displayed as 8-digit hexadecimal numbers.

**Coordination of hexadecimal to binary numbering**

For interpretation the hexadecimal number must be transferred into a binary number:

Hex	Binary	Hex	Binary	Hex	Binary	Hex	Binary
0	0000	4	0100	8	1000	C	1100
1	0001	5	0101	9	1001	D	1101
2	0010	6	0110	A	1010	E	1110
3	0011	7	0111	B	1011	F	1111

Example: **E003880A0 A0001503C**



## Fault diagnosis

### 2.1.3 Input map of the CPU

Bit	CPU	FI speed controlled	FI position controlled	DSM	Pole-changing	Hydraulic
0	X2/13	Safety circuit (IN4): door lock closed				
1	X2/14	Safety circuit (IN5): complete				
2	X2/15	Safety circuit (IN2): limit switches				
3	X2/16	Safety circuit (IN3): doors				
4	X2/17	Brake not open	Therrmistors:			
5	X2/18	Safety circuit (IN1): Feed-in ok				
6	X2/19	Checkback travel contactor K 31 (1 = contactor off)				Pipe rupture
7	X2/20	Brake contactor K 32 (1 = contactor off)				Over pressure
8	X2/21	Emergency electr. Operation, travelling direction down				
9	X2/22	Travel contactor K 30 (1 = contactor off)	both directional contactors off	travelling fast	Pump motor OFF	
10	X2/23	Emergency electr. Operation ON				
11	X2/24	Emergency electr. Operation upward direction				
12	X2/25	Fault safety module, front				
13	X2/26	Fault safety module, rear				
14	+5V	0 (not used)				
15	—	External control (1 = on)				
16	X3/13	Zone signal, front				
17	X3/12	v < 0,3 m/s	17	X3/12	v < 0,3 m/s	17
18	X3/11	Excess temperature of motor		18		
19	X3/10					
20	X3/9	Inverter ready for operation		20	X3/9	Inverter ready for operation
21	X3/8	Motor on power		21	X3/8	Motor on power
22	X3/7	Monitoring of brake lining				22
23	X3/6	Zone rear				

2.1.4 Output map of the CPU

Bit	CPU	FI speed controlled	FI position controlled	DSM	Pole-changing	Hydraulic	
0	X2/1	—		Contactor up	Contactor slow	Valve fast down (4V) Valve fast (3V)	
1	X2/2	—			Contactor fast	Valve fast up (4V)	
2	X2/3	Brake (K 32)				Valve up	
3	X2/4	Forced ventilation		Contactor down		Valve down	
4	X2/5	Safety circuit enabling					
5	X2/6	Travelling contactor (K 30)			Contactor up	Pump	
6	X2/7	—					
7	X2/8	Enabling of front side safety module, approaching, releveling or position					
8	X2/9	Enabling of front side safety module, releveling or position					
9	X2/10	Enabling of safety module, zone shunting					
10	X2/12	—					
11	X4/7	Relays on CPU (selector bus)					
12	X4/1	Enabling of closed-loop controller					
13	X4/2	Direction up			V <sub>insp</sub>		
14	X4/3	V <sub>relev.</sub>	Bit 0		Binary speed selection- (Mentor)		V <sub>relev.</sub>
15	X4/4	V <sub>appr.</sub>	Bit 1				V <sub>appr.</sub>
16	X4/5	V <sub>rat-1</sub>	Bit 2				V <sub>rat-1</sub>
17	X4/6	V <sub>rat</sub>	Bit 3				V <sub>rat</sub>

Faults in order related functions		
08	1001	Fault upon initialisation of I/O-modules → no execution of order related functions

Faults in monitoring			Causes in FSV-drives
10	1102	Motion time control as per TRA.	
12	1103	Supervision of motor temperature. The windings of the motor have become too hot, signal at terminal X3.11	- Motor overloaded owing to stiffness - Conductor to motor-thermistors interrupted - Defective evaluator circuit in the FI
08	1110	Inplausible desired destination.	
	1113	Motion control of speed governor has tripped	
	1114	Brake monitoring	
	1116	Coupler of upper deceleration control sticking	
	1117	Coupler of lower deceleration control sticking	
	1118	Speed-stepping switches incorrectly	
	1119	Speed-stepping Standstill	
	1123	Watchdog-jumper not plugged	
08	1125	V03 approach monitoring has tripped	
08	1126	Brake lever input not available after brake enabling	
08	1127	Brake lever input still engaged after brake drop-out	
08	1128	Brake lining input not available after brake drop-out	
08	1129	V03 releveilling monitoring has tripped	
08	1130	V03 standstill monitoring has tripped	
12	1135	Brake temperature exceeded	
08	2101	Closed-loop control not ready. A fault in the motor-controller has caused the loss of the signal at terminal X3.9	- Frequency inverter defective - Frequency inverter too hot - Overvoltage in the mains - Failure of feed-in voltage
01	2104	Safety circuit open (emerg.stop switch in car/manual operating box)	
08	2105	Contactormonitoring TRA, end of travel.	
01	2106	Fault in safety module.	
08	2107	Fault in car kight.	
03	2108	Fault in door locking device.	
06	2109	Timeout upon starting.	
	2111	Rope brake has tripped	
	2112	Slip of encoder too long	
	2115	Encoder monitoring	
	2120	Absolute encoder shows reading error	
	2121	Overpressure in hydraulic system	
	2122	Pipe rupture in hydraulic system	
	2124	Sperrung von Aufzugswärter	
01	2131	Safety circuit in the feed-in section is open	
01	2132	Safety circuit in the encoder section (shaft) is open	
01	2133	Safety circuit in the door section is open	
01	2134	Safety circuit in the door lock section is open	
01	2136	Starts per Hour exceeded level setting	
08	2137	Starts per Hour fell below level setting	
08	2138	Duty Cycles exceeded level setting	
08	2139	Duty Cycles fell below level setting	
08	2140	Car speed in manual mode too high	

Fault diagnosis

Faults in monitoring			Causes in FSV-drives
08	3132	Safety circuit in the encoder zone (shaft) open (on adjustment /configuration/EN81)	

Faults in travel processing			
08	2201	Controller not ready to work. As a consequence of a fault in the motor controller the signal at terminal X3.9 has been removed upon starting	<ul style="list-style-type: none"> <li>- Frequency inverter defective</li> <li>- Frequency inverter too hot</li> <li>- Overvoltage in the mains</li> <li>- Failure of supply voltage</li> <li>- Pulse encoder defective/not connected</li> <li>- Reversed polarity in rotating field of motor</li> <li>- Frequency inverter overloaded</li> </ul>
08	2202	Break-contact of travel contactor (K31) does not open when being activated.	
08	2203	Signal MOTOR ON POWER not available. The motor controller has been activated by the control, but no current flow is getting established, no signal arrives at X3.8	<ul style="list-style-type: none"> <li>- Main contacts of travel contactor open or defective</li> <li>- Aux. make-contact on K31 defective</li> <li>- Wrong setting at the inverter</li> <li>- Cables interrupted</li> </ul>
08	2204	The breaker of the brake contactor (K32) does not open when activated	
08	2205	Checkback: travel contactor (K31) drops during travel.	
08	2206	Checkback: travel contactor (K31) not dropped at end of travel	
08	2207	FI does not cancel DESTINATION REACHED when starting.	With position control only
08	2208	Signal MOTOR ON POWER still available after end of travel	-FI defective
08	2209	Signal MOTOR ON POWER extinguishes during travel	<ul style="list-style-type: none"> <li>- Wrong settings at the frequency inverter</li> <li>- Travel contactor shortly opened</li> <li>- Sequential fault in case of emerg. stop</li> </ul>
08	2220	Fault in the program status of internal program faults	
08	2221	Fault on sending of INV_ENABLING.	Only with serial communication to the FI
08	2222	Fault in acknowl. of sending INV_ENABLING:	Only with serial communication to the FI
08	2223	Fault on sending of CANCEL_INV_STOP.	Only with serial communication to the FI
08	2224	Fault in acknowl. of sending CANCEL_INV_STOP.	Only with serial communication to the FI
08	2225	Fault on sending of INVERTER_TIPP_STOP.	Only with serial communication to the FI
08	2226	Fault in acknowl. of sending INVERTER_TIPP_STOP.	Only with serial communication to the FI
08	1233	Input "brake not open" not not switching	
08	2227	Fault on sending of INV_TIPP_TELEGRAM.	Only with serial communication to the FI
08	2228	Fault on acknowl. of sending INV_TIPP_TELEGRAM.	Only with serial communication to the FI
08	2229	Fault on sending of INV_SETPOINTVAL_32.	Only with serial communication to the FI
08	2230	Fault on acknowl. of sending INV_SETPOINTVAL_32.	Only with serial communication to the FI
08	2231	Fault on sending of INV_TIPP_PARAMETER_READG	Only with serial communication to the FI
08	2232	Fault on acknowl. of sending INV_TIPP_PARAMETER_READG.	Only with serial communication to the FI
08	2234	Input "brake not open" not available	

<b>Faults in the destination control</b>		
08	2301	Overflow of command lockout counter.
08	2302	Underflow of command lockout counter.
08	2303	Overflow of command filter counter.
08	2304	Underflow of command filter counter.
08	2305	Underflow of command input lockout counter.
08	2306	Overflow of command input lockout counter.

<b>Fault in communication with frequency inverter</b>		
08	2401	Fault in transmitting of defined control parameter data to the inverter
08	2402	Cycle time Main loop critical
08	2403	Cycle time application critical

<b>Fault in parameter input/output</b>		
08	1501	Checksum fault of the buffered parameter data Measure: Set again the parameter acc. to the lift data and carry out a shaft mapping (s.). Re-configuration of the LON-nodes not required.
	2502	Parameter-download has not been accepted.
	2503	Checksum faultup on acceleration → attempt data transfer from flash memory to Battram
	2504	Data transfer Flashspeicher nach Battram
	2505	Data transfer Battram to flash memory
	2506	Fault upon writing of flash memory, write-time to high
	2507	Fault upon writing of flash memory, data comparison faulty
	2508	No flash memory available
	2509	Data transfer flash memory to Battram refused, varying program versions of flash memory and control
08	3501	Fault in the proof-total of buffered parameter data. ACTION: Parameters to be re-established in accordance with the elevator, and shaft teach-in to be executed (s. chapter: Commissioning) Configuration of LON-nodes not required.

<b>“Porter’s“ fault (door control)</b>		
03	2601	Motion control of front door has tripped
03	2602	Motion control of rear door has tripped.
03	2603	Safety module of front door locking magnet has tripped.
03	2604	Safety module of rear door locking magnet has tripped.
03	2605	Twist-shaft contact not switching
03	2606	Repeated door opening

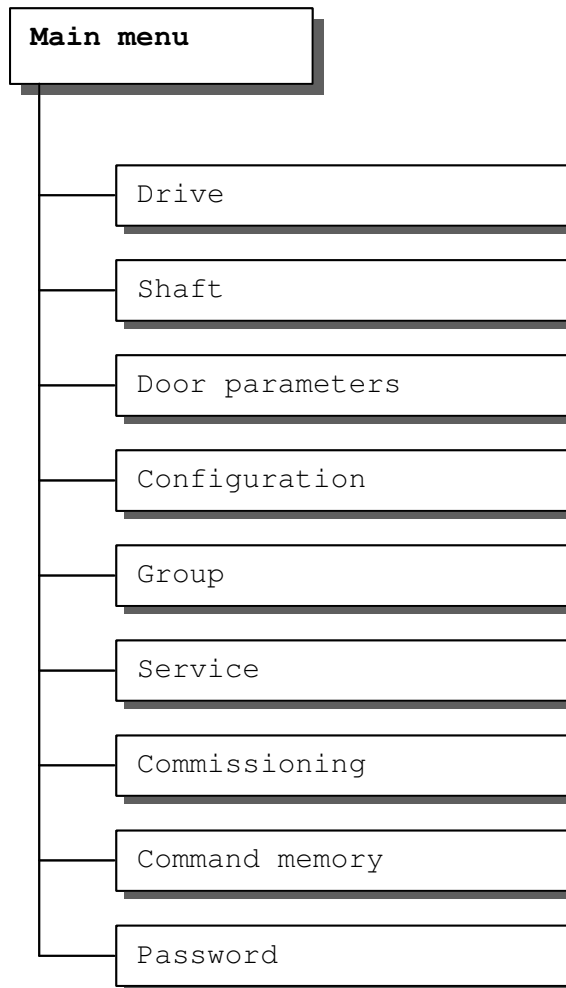
Fault LON (network)		
08	2701	Door module front no response
08	2702	Door module rear no response
08	2703	Car module front no response
08	2704	Car module rear no response
08	2705	Call module no response
08	2706	Node number has been lost
08	2707	Key 1 stuck (call module).
08	2708	Key 2 stuck (call module).
08	2709	Key 3 stuck (call module).
08	2710	Car command key stuck
08	2711	NMG Power-UP reset occurred
08	2712	NMG External reset occurred
08	2713	NMG Watchdog reset occurred
08	2714	NMG Software reset occurred
08	2715	NMG Unknown reset occurred
08	2716	NMG Table code of load table wrong
08	2717	NMG Fetch Error no nodes installed
08	2718	NMG too many nodes found
08	2719	NMK Get Tab Entry falscher Tabellen-Code oder -Index
08	2751	Transmitting buffer overflow, messages have been lost.
08	2752	Wrong parameter upon receipt of a table from network manager.
08	2753	Unknown LON message, cannot be processed further.
08	2754	Default tables have not been loaded
08	2755	Table has not been canceled.
08	2756	Table has not been loaded.
08	2757	Required table contents not sent by LON
08	2758	LON-network has not been read-in
08	2759	Node has not been tied (i.e. no valid LON-network available).
08	2760	Lift no. has not been accepted.
08	2761	NMG synchronisiert nicht nach Reset
08	2762	NMG meldet Reset
08	2763	NMG LON configuration editor Sending buffer full, request aborted
08	2764	NMG LON configuration editor Heap full, request has not been generated
08	2765	NMG LON configuration editor No answer from LON-module
08	2766	NMK preemption message
08	2767	NMK queue overflowed
08	2768	NMK buffer busy
08	2769	NMK no ACK message received

<b>Fault in group control</b>		
08	2801	CAN-Module not initialized
08	2802	Transmitting buffer overflow, messages have been lost.
08	2803	Transmitting channel busy, messages have been lost
08	1804	2 or more controls are using identical lift nos.
08	2805	Underflow of the planned group orders counter
08	2806	Overflow of the planned group orders counter
08	2807	Underflow of the available group orders counter
08	2808	Overflow of the available group orders counter
08	2809	Door monitoring
08	2810	Light barrier monitoring

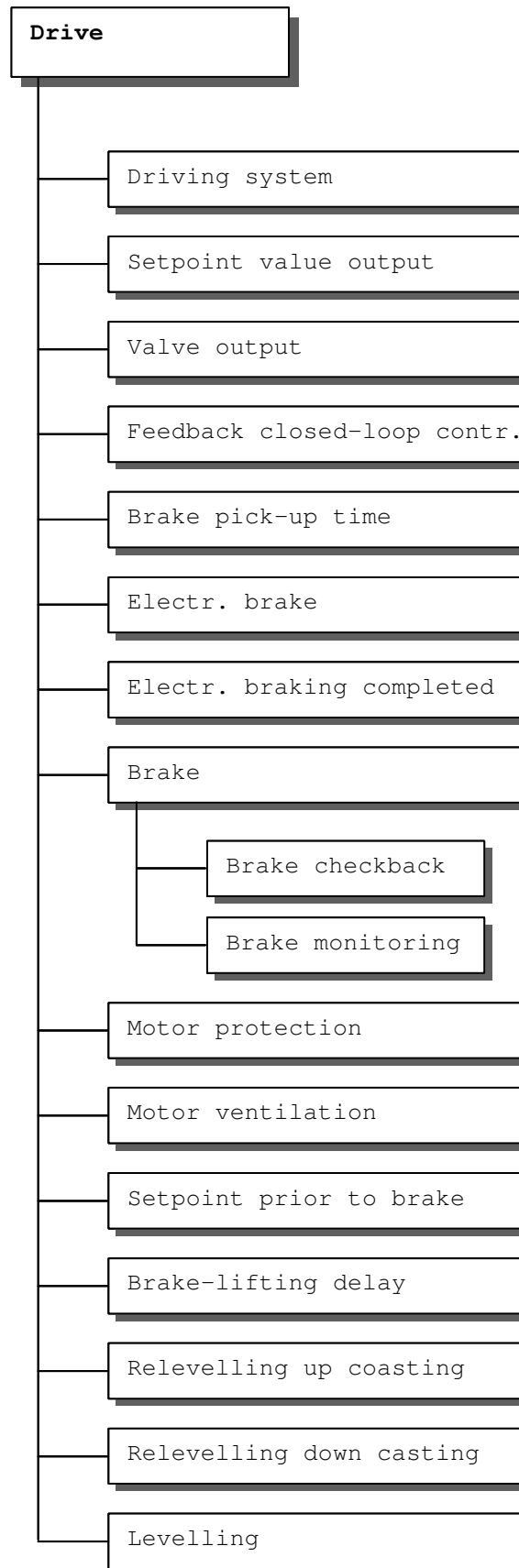
<b>Faults in the shaft</b>		
08	2901	Deceleration switch in the shaft.
08	2902	Sequence of stop switches.
08	2903	Magnets in shaft: both correction switches (C_T, C_B) have been acknowledged.



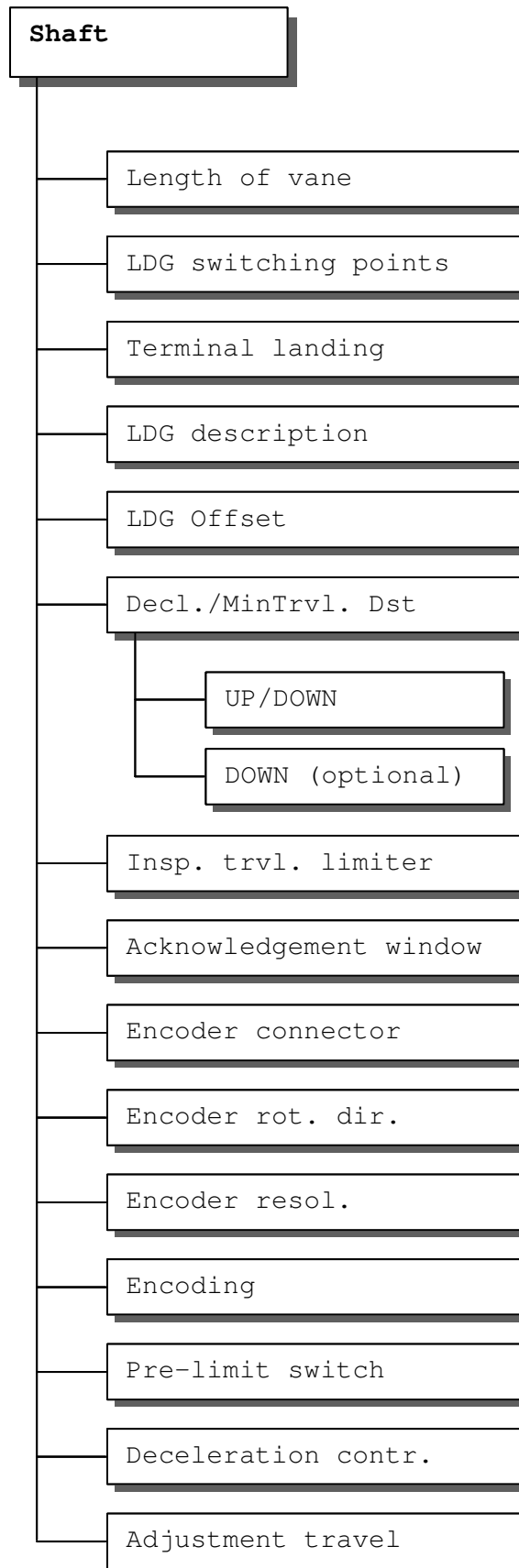
## Menu structure



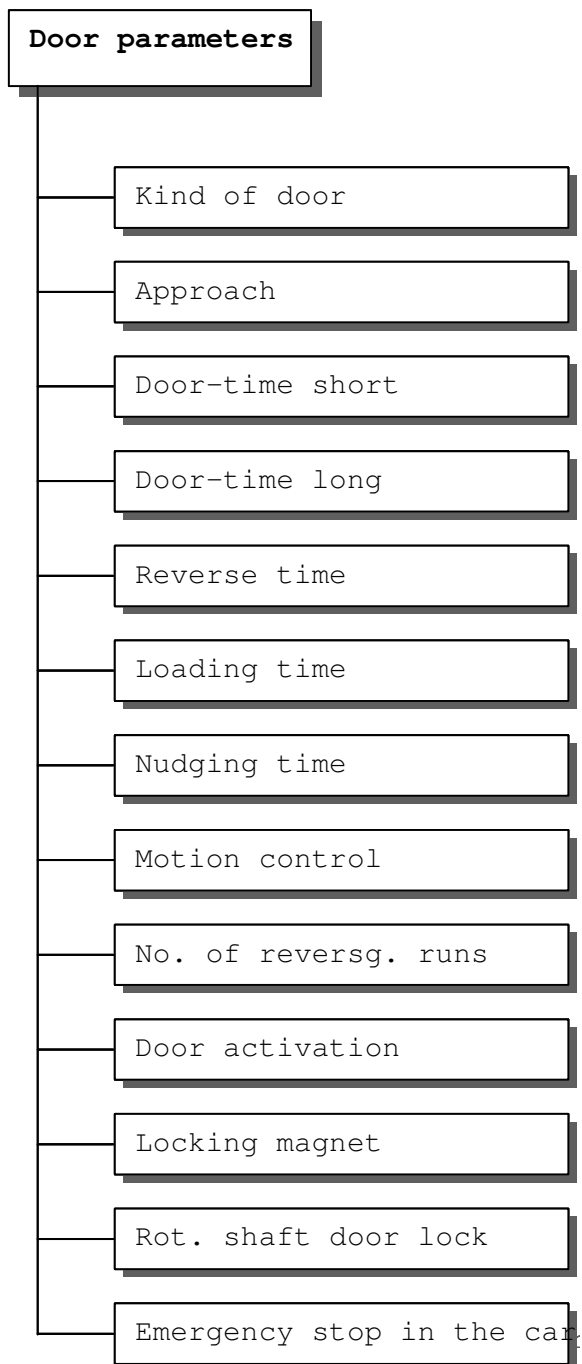
## 2.4 Drive menu



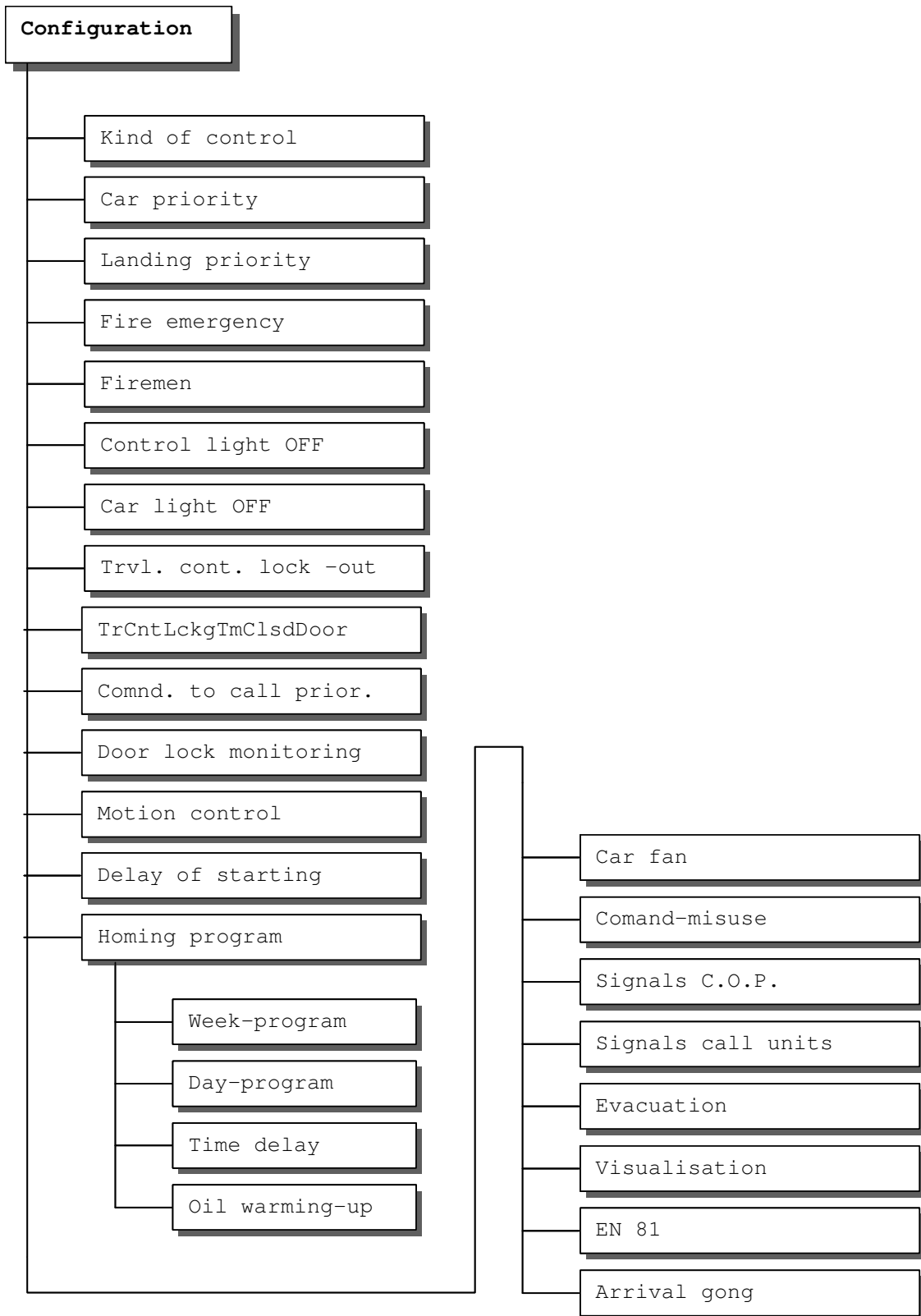
## 2.5 Shaft menu



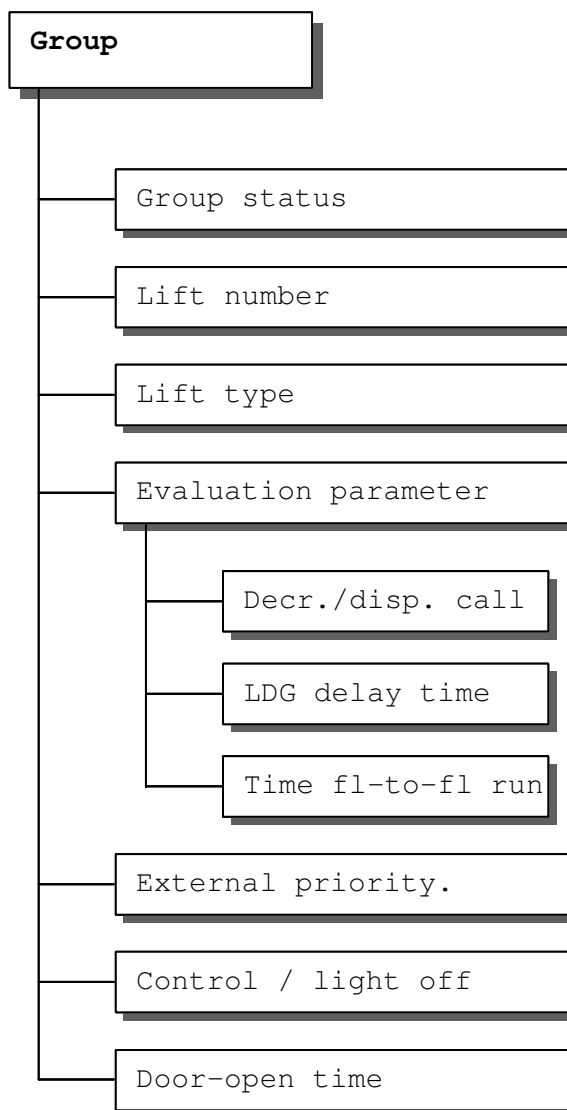
2.6 Door parameter menu



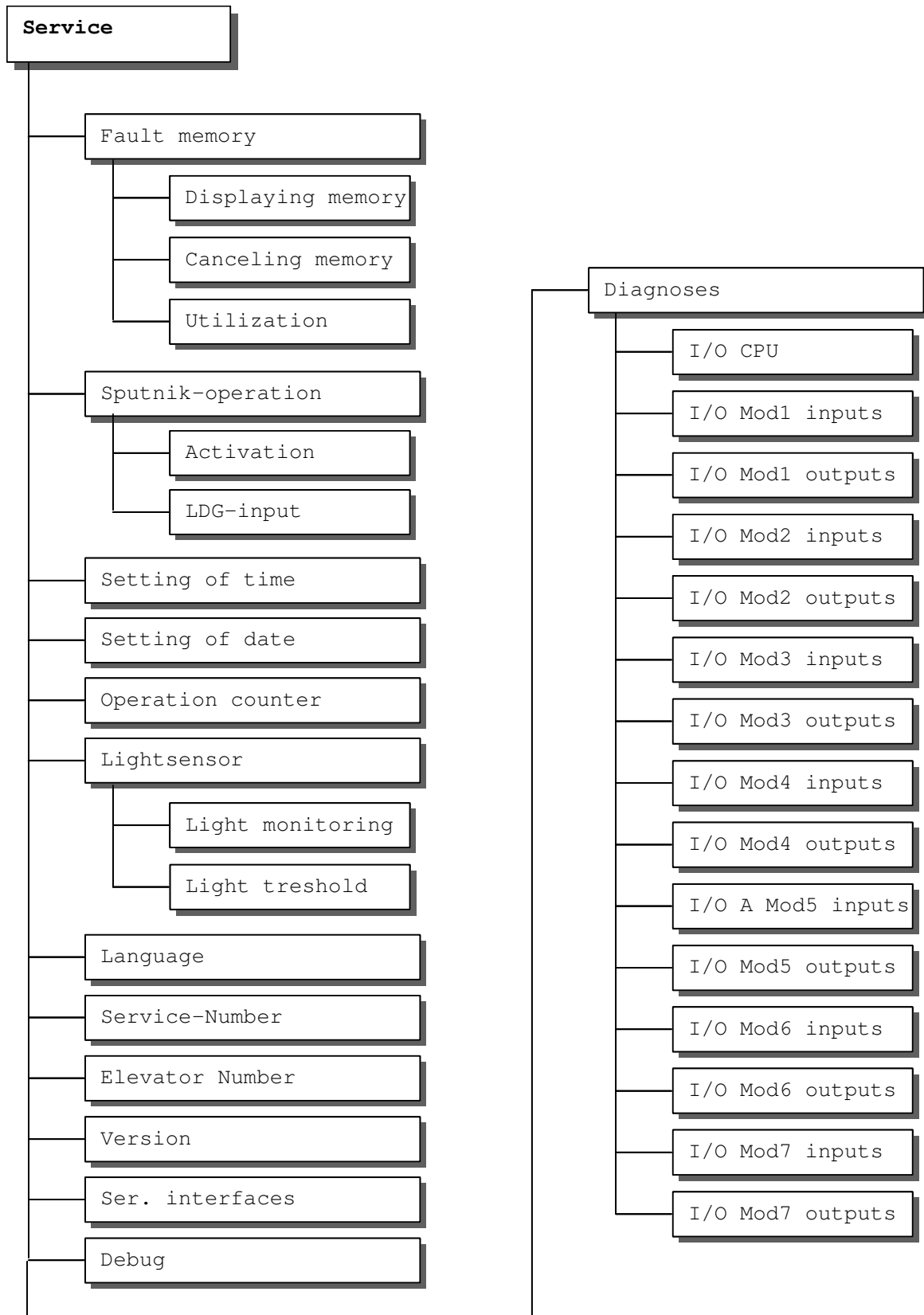
2.7 Configuration menu



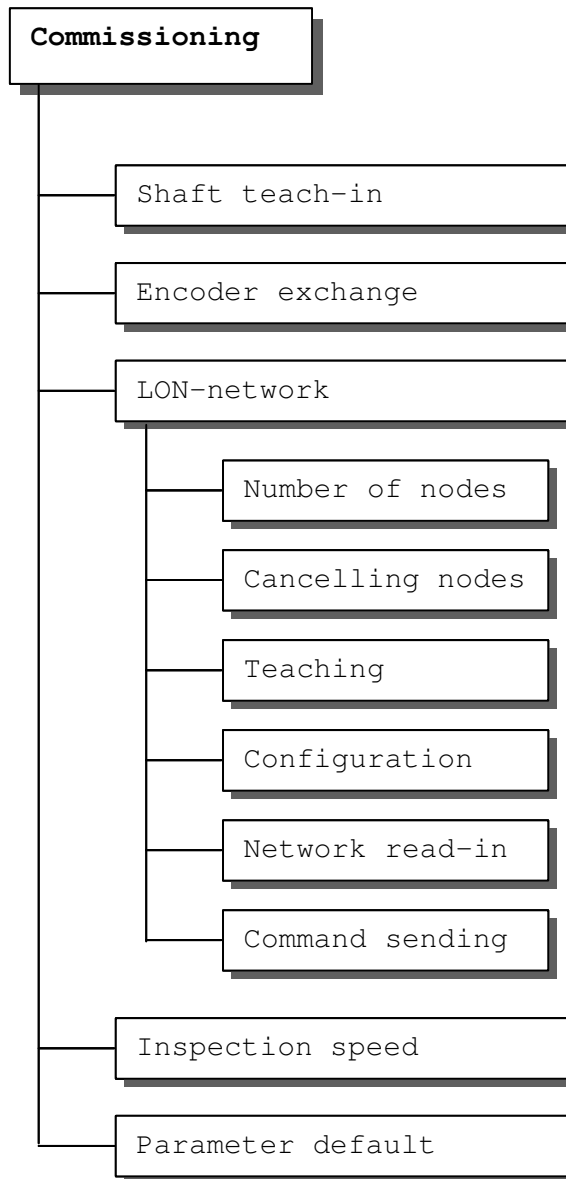
2.8 Group menu



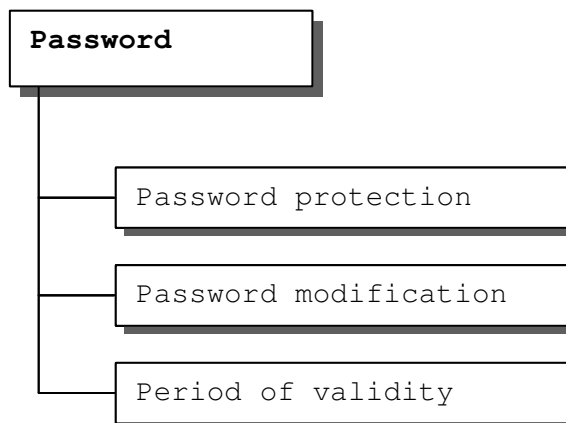
2.9 Service menu



### 2.10 Commissioning menu



### 2.11 Password menu



### 3 Commissioning

#### 3.1 Before switching-on

Plug in the electric emergency control device and switch on the emergency operation mode. This prevents an inadvertent and uncontrolled movement of the lift.

#### 3.2 Switching on

Engage the main switch.

Check the protective circuits.

#### 3.3 Parameterization

During factory tests the lift control has been preset to standard parameters.

Fault no. 1501 (new 3501) reflects a fault in the parameters.

Check the parameters by random tests.

If the set lift parameters do not match the actual lift type, the following essential parameters are to be entered first:

Menu	Parameter	Parameter value
Drive	Driving system	<i>SPEED CONTROLLED</i> <i>POLE REVERSING</i> <i>HYDR. OPEN-LOOP CONTR.</i> <i>HYDR. CLOSED-LOOP CONTR.</i>
	Setpoint value output	<i>BINARY</i> <i>1 out of n</i>
	Valve output	<i>3-valve</i> <i>4-valve</i>
Shaft	Length of vane	<i>380 mm</i> (Standard)
	Encoder connection	<i>INTERNAL</i>
	Encoder resolution	<i>320</i> (Standard)
Door parameters	Kind of door	<i>SEMATIC</i> <i>AT 20</i> <i>CH AS80</i> <i>HINGED CH</i> <i>MANUAL</i> <i>AT 25</i> <i>MANUAL AT</i>
Group	Lift no.	<i>1 to 6</i> (Standard value 1)

Check frequency inverter parameters and adjust them to the actually used motor (see frequency inverter manual). Now, the lift can be run in electrical emergency operation mode.

3.4 LON-network

The LON-nodes are read automatically after RESET and the LON-network is getting tied. In the display the following message appears:

```
LON-nodes
reading

Please wait
```

- ① Check number of nodes:  
This is only required for the first commissioning, after exchanging bus devices or in case of faults in the bus system.

```
Main menu      ⬆
Configuration
Service
>Commissioning
```

```
Commissioning ⬆
Shaft teach in
Encoder exchange
>LON-network
```

```
LON-Network  ⬇
>No. of nodes
Node cancelling
Teaching
```

```
No. of nodes: 010
CPU: 1      Pos.: 001
Dr: 1      Clls: 006
Car: 1     I/O: 000
```

No. of nodes =

CPU + No. of car modules (C.O.P.) + No. of door modules (doors) + No. of car position indicators + No. of hall call panels + No. of hall position indicators + No. of I/O-modules

- ② Assignment of LON-nodes:

```
Main menu      ⬆
Configuration
Service
>Commissioning
```

```
Commissioning ⬆
Shaft teach-in
Encoder exchange
>LON-network
```

```
LON-network  ⬇
No. of nodes
Node cancelling
>Teaching
```

```
LON-nodes    ⬆
assignmt
ABORT
```

Set here **TEACHING** and confirm after 2-3 seconds with enter-key <J>. Now, the lift no. is assigned to the individual nodes. This step has to be executed also with single lifts.

3.5 Shaft teach-in

Depending on the mode of shaft encoding a particular teach-in travel has to be executed:

- Shaft encoding with absolute encoder

3.5.1 Shaft teach-in with encoder

- 1 Run the lift with the emergency operation to the buffer.  
Call successively in the main menu:

- 2 Call successively in the main menu:

Main menu Configuration Service >Commissioning	Commissioning >Shaft teach-in Encoder exchange LON-network	Shaft teach-in start: OK -	P +000000 R00 Zone F0 R0 Di- teach-in compl ? Press <↵>
---	---	-------------------------------	--

- 3 Run the lift with emergency electr.operation through the whole shaft as far as **beyond** the top landing.

- 4 Terminate the shaft teach-in by closing the dialogue:

P +0012560 R05 Zone F0 R0 Di- Teach-in compl. ? Press <↵>	Teach-in ! completed Press <↵>	Commissioning >Shaft teach-in Encoder exchange LON-network
--	--------------------------------------	---

- 5 Check the shaft teach-in. For that, call successively in the main menu:

Main menu Drive >Shaft Door parameters	Shaft LDG swtchg.points >Terminal landing LDG description	Terminal landg: 05	Shaft LDG swtchg.points >Terminal landing LDG description
---	--	--------------------	--

Check whether the no. of teached-in landings corresponds to the no. of actually existing ones.

If not, check the zone switches and execute the shaft teach-in again.

Call successively in the main menu:

Main menu Drive >Shaft Door parameters	Shaft LDG swtchg.points Terminal landing >LDG description	Landing: 05 Pos [mm]: 012230 Side: FD_FV Text: 3 Knd: NORM	Shaft LDG swtchg.points Terminal landing >LDG description
---	--	---	--

Zone side, door side and landing position must correspond to the actual shaft.

**ATTENTION:** Terminate the shaft teach-in always by dialogue (not by reset!), otherwise a block hecking fault may occur! All parameters that have been set before will be overwritten with basic values.

- 7 Run the lift with emergency electr.operation as far as **under** the top landing. Disengage the limit switches.
- 8 Set rated speed and ramps at the frequency inverter.
- 9 Set minimum travelling and deceleration distances in the menu:

Main menu ↓ Drive >Shaft Door parameters	Shaft ↓ LDG description LDG offset >Decl./Mintrav.dst.	V_range Vmax-0 Decl.Dst [mm] : 3300 Mintrv.dst [mm] : 6600	Shaft ↓ LDG description LDG offset >Decl./Mintrav.dst.
---	---	--	---

- 10 Set stopping distances.  
For that, disengage **Relevel ON** (Set the value **00**):

Main menu ↓ Drive >Shaft Door parameters	Shaft ↓ >LDG swtchg.points Terminal landing LDG description	Swtchg.point [mm] : Shutdown U:35 D:35 Relvl.ON: 00 Relvl.OFF U:10 D:10	Shaft ↓ >LDG swtchg.points Terminal landing LDG description
---	--	--	--

Run the lift with emergency electr. control to about 0,5 m beyond a landing. Change into normal operation, lift will run with levelling speed downwards and will stop at the nearest landing.

Shaft ↓ >LDG swtchg.points Terminal landings LDG description	Main menu ↓ Drive >Shaft Door parameters	*** LC 2005 *** * NORMAL R03 F0,0 P+000010mm D00 D- FD][ RD][
---	---	--

Example: Lift stops above the landing => **Stopping B**: new value **35 - 000010mm = 25**.

For **Stopping T**: proceed in the same way i.e. run lift about 0,5m under any landing.....

Now, the stopping values for the releveling can be established. Proceed in same way as done for the stop switch. The value for initiation of releveling (**Relvl. ON**) must be set.

Check all lift-specific parameters and modify them if required. Now, you can change into normal operation.

**ATTENTION:** With the lift standing off-landing, an adjustment travel to the next landing will be initiated automatically

### 3.6 Checking of the level position

For lifts with absolute encoding the level position of the car is to be checked:

- ❶ Check the level position of the car in each landing and measure the difference.

If needed make necessary corrections in menu **LDG-description**.

Main menu           ↕	Shaft                   ↕	Landing:               04	Shaft                   ↕
Drive	LDG swtchg.points	Pos [mm]: 010230	LDG swtchg.points
>Shaft	Terminal landing	Side:       DF_VF	Terminal landing
Door parameters	>LDG description	Text: 2    Knd: NORM	>LDG description

- ❷ Increase or lower the mm-indications of the respective landing position by the difference measured.

### 3.7 Reset to the CPU







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