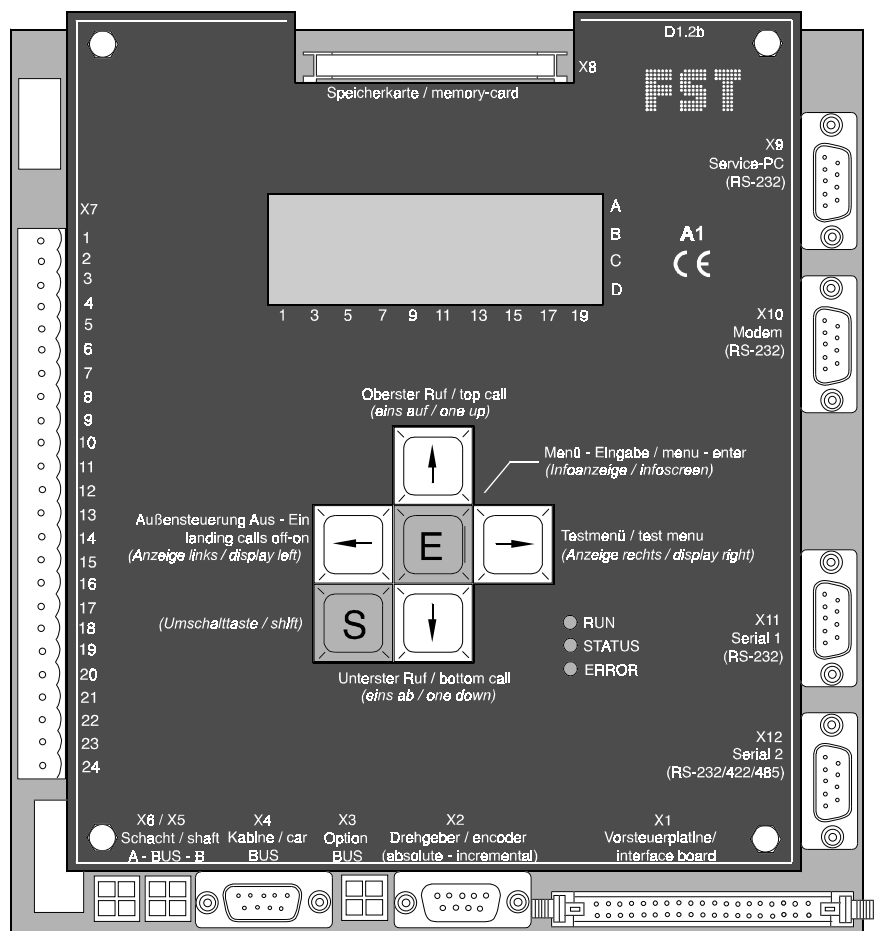


Field Bus Control



Installation & Commissioning

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1 About this manual

Before installing and starting up the FST Control, you should carefully read this manual first. The instructions in Chapter 2 "General safety provisions" always take precedence. How to operate the FST Control is outlined in Chapter 4.2 "User interface of the FST Control".

1.1 General information

This manual is intended to facilitate the assembly and commissioning of the FST Control and its components.

This assembly and operating manual contains important instructions for the safe and proper assembly and commissioning of the FST Control.

Observing them helps to:

- avoid dangers
- minimise repair costs and downtime
- increase the reliability and service life of the FST Control and the lift system.

In addition to this assembly and operation manual, the valid accident prevention and environmental protection regulations in the respective country and locality must be observed.

Only those sub-assemblies supplied by NEW LIFT are described in this manual.

Information about components of the control system not produced and supplied by NEW LIFT can be obtained from the user documentation provided by the respective manufacturer or supplier.

1.2 Signs and symbols employed

The following signs and symbols have been used for operational instructions:

- Symbols**
- **Activity symbol:**
The activities described after this sign should be carried out in the prescribed sequence.
 - ✓ **Outcome symbol:**
The outcome of an activity is described.
 - + **Key combination:**
Press the linked keys simultaneously.

Warning signs General danger point



This sign appears before activities where personal injuries may arise due to various causes.

Risk of crushing injuries



This sign appears in front of activities where there is a danger of receiving crushing injuries.

Danger of falling



This sign appears in front of activities where there is a danger of falling.

Suspended load



This sign appears in front of activities where there is a danger of direct impact from a falling load.

High voltage



This sign appears in front of activities where there is a danger of an electric shock, with possibly fatal consequences.

Material damage



The instructions provided here are intended to prevent any material damage to sub-assemblies and devices.

2 General safety provisions

All the most important safety provisions and regulations are compiled in the Chapter 2 "General safety provisions".

Anybody who is assigned to work on the installation and commissioning of the FST Control, must have read this chapter and put its provisions into practice.

Over and above any safety provisions specified in this manual, the laws, regulations, guidelines and standards in force in the respective country should be observed.

2.1 Qualifications of the installing engineer

The installing engineer must:

- be 18 years of age or older (exception: trainees of 16 years or older, under the constant supervision of a master craftsman).
- be able to carry out first aid.
- know and be able to implement the fire and explosion protection regulations applicable for his work area.
- be able to recognise, avoid and protect himself against all the dangers arising in conjunction with his work in the lift shaft and in the operating areas.
- be able to identify and rectify all irregularities and faults arising during installation and operation of an lift system.
- understand and be able to apply the technical basis of the mode of operation of electrical controls and drive systems and their operating requirements.

All installation and commissioning work on the electrical and electronic components of the FST Control are to be carried out under the direction and supervision of a qualified electrician.

In Germany, someone is defined as a qualified electrician, who due to his technical training, knowledge and experience and acquaintance with the relevant provisions, is able to evaluate the work assigned to him and to identify the possible dangers (UVV, VGB 4, §2 (3)).

2.2 Residual dangers

- Danger for personnel**
- Risk of electrocution on touching parts under voltage during work on the electrical installations.
 - Risk of fatal injuries due to falling down the lift shaft.
 - Risk of injuries when lifting and transporting the switch cabinet if this falls or tips over.
 - Risk of dangers to persons, who are in the lift shaft when the car is in motion.
 - Risk of injuries due to unforeseen car movements.

- Risk of material damage**
- Destruction of the FST Control and its electronics modules by short circuiting or excess loading.

2.3 Safety provisions

- General information**
- The instructions of the manufacturer and the information in this manual must be observed when the lift is being installed and commissioned.
 - The lift shaft must be secured against unauthorised access during installation and commissioning.
 - Sub-assemblies, devices and cables should be installed securely and permanently.
 - Loads should be transported with suitable aids (e.g. lift trucks, lifting gear etc.).
 - Sharp or pointed tools or other potentially dangerous objects may not be carried in clothing, unless protected by sufficient protective measures.
 - The consumption of alcohol and drugs before and during installation and commissioning is forbidden.

- Documentation** A copy of the installation and commissioning manual must be available to the installation engineer when the FST Control and its components are being installed and commissioned.
- A copy of the installation and commissioning manual together with the circuit diagrams should always be kept in the switch cabinet on completion of commissioning.
- The supplied circuit diagrams for the FST Control are binding. Alterations may only be made in consultation with NEW LIFT and should be documented in writing on the system.
- The on-site test logs for the FST Control are retained by NEW LIFT.
- Electro-technical work** The regulations for setting up and operating electrical systems (VDE 0100) as well as the special guidelines of the local power utilities should be observed.
- The prescribed spacings between the individual electrical assemblies should be observed.
- Assembly work may only be carried out when the equipment is shut down and voltage-free.
- Cables and lines should be provided with sufficient strain relief.
- The neutral and ground lines should be separately routed.
- A clockwise rotary field must be applied at the switch cabinet.
- Working in the lift shaft** If the car is being used as assembly platform, the regulations from VGB 35: "Bauaufzüge" (building elevators) apply for the whole lift system:
- During work in the lift shaft, there must be unimpaired and continuous communication between the supervisor at the FST Control in the machine room and the workers.
- ““The components in the lift shaft must be arranged or secured so that persons who are in the lift shaft for inspection, maintenance or repair work purposes are not endangered.” (AufzV, Appendix 2.1.5)
- The permitted load for the lift system may not be exceeded.

The prescribed overruns for the emergency limit switches in relation to the lift speed must be observed.

The emergency installations may not be activated during normal operation.

All emergency installations and braking systems must be checked before each shift for perfect functioning.

The car must be moved to the lowest resting position during breaks, the control switched off and the power supply permanently interrupted.

Assembly and operation are prohibited when other persons could be endangered.

Personnel must be protected against falling.

Personal safety equipment for the installing engineers

- Eye protection
- Safety boots
- Hard hat
- Safety harness
- Clothing appropriate to the environmental conditions at the installation site
- Jewellery, wrist watches and suchlike may not be worn.

Handling electronics modules

Keep the electronics modules in the supplied packing until installation.

Touch a grounded piece of metal before opening the packaging in order to electrically discharge your body.

All non-assigned bus inputs or outputs should be provided with a terminal resistance (terminator).

Disposal

The packaging material is to be disposed of in an environmentally friendly way.

Hand in paper, plastic, metal and electronics components for recycling.

Adhesive residues should be disposed of in an environmentally responsible way in accordance with the appropriate laws and regulations.

3 Assembly work

All the important information on the installation sequence, installation conditions and settings of the NEW LIFT components are described. Special features on-site could mean that deviations from the recommended installation sequence recommended below are necessary.

3.1 Installation sequence

NEW LIFT recommends the assembly work according to Fig. 3.1 on Page 14. First all those NEW LIFT components are installed, connected and set, which are required for commissioning the car. Once the car is ready, "installation runs" are made to install the NEW LIFT components in the shaft, such as linear copying control, LON bus and zone magnets. The FST Control is then commissioned (See Page 43).

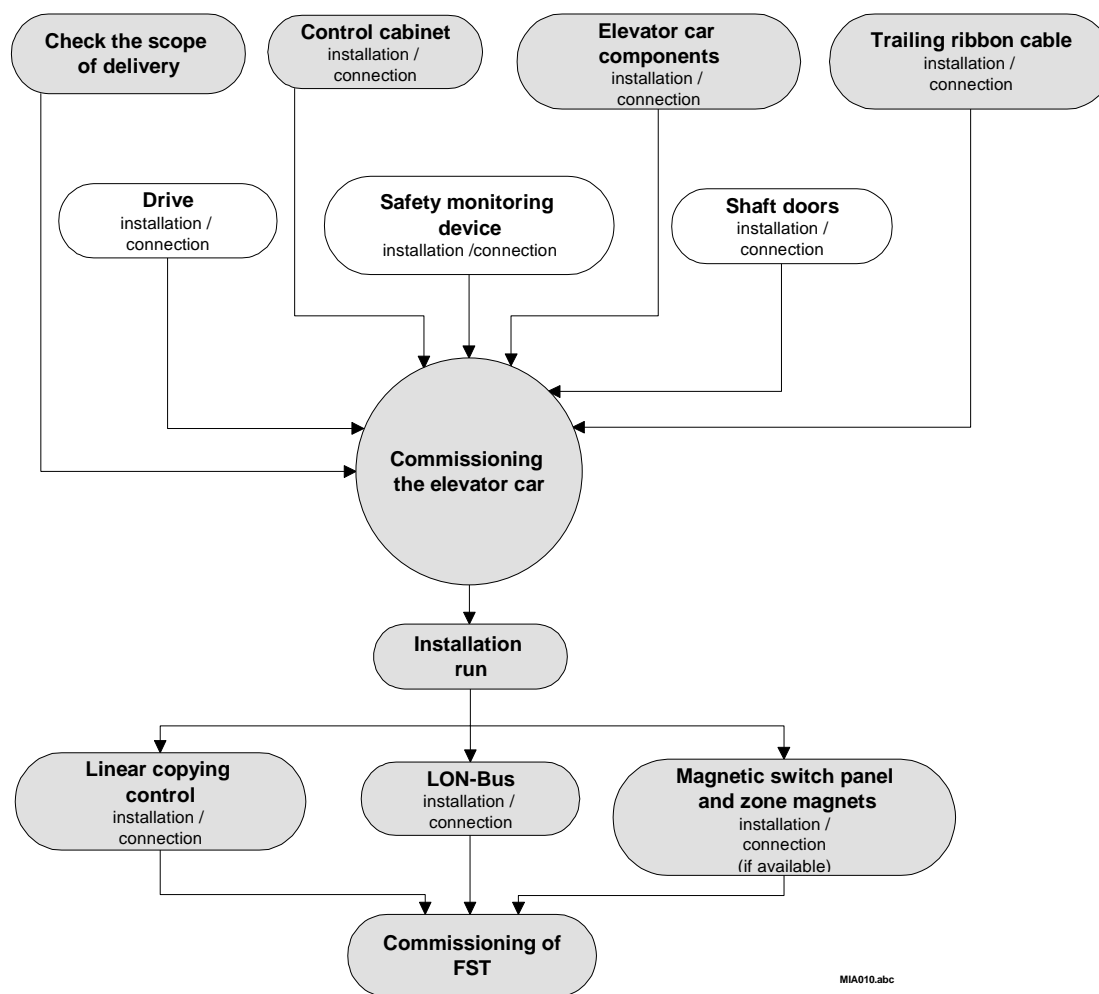


Fig. 3.1 Recommended installation sequence for NEW LIFT components

3.2 Bus Plan

Each lift system consists of specific electronics modules and cables. NEW LIFT creates a bus plan for the configuration of each individual lift control, enclosed with the circuit documentation. All electronics modules and their connections are presented in the bus diagram with the associated LON bus cables. For each electronics module, its installation site, the associated bus and with LON bus cables, the respective length are all specified. Each electronics module is labelled. With this labelling, it is possible to unambiguously assign components with the bus plan.

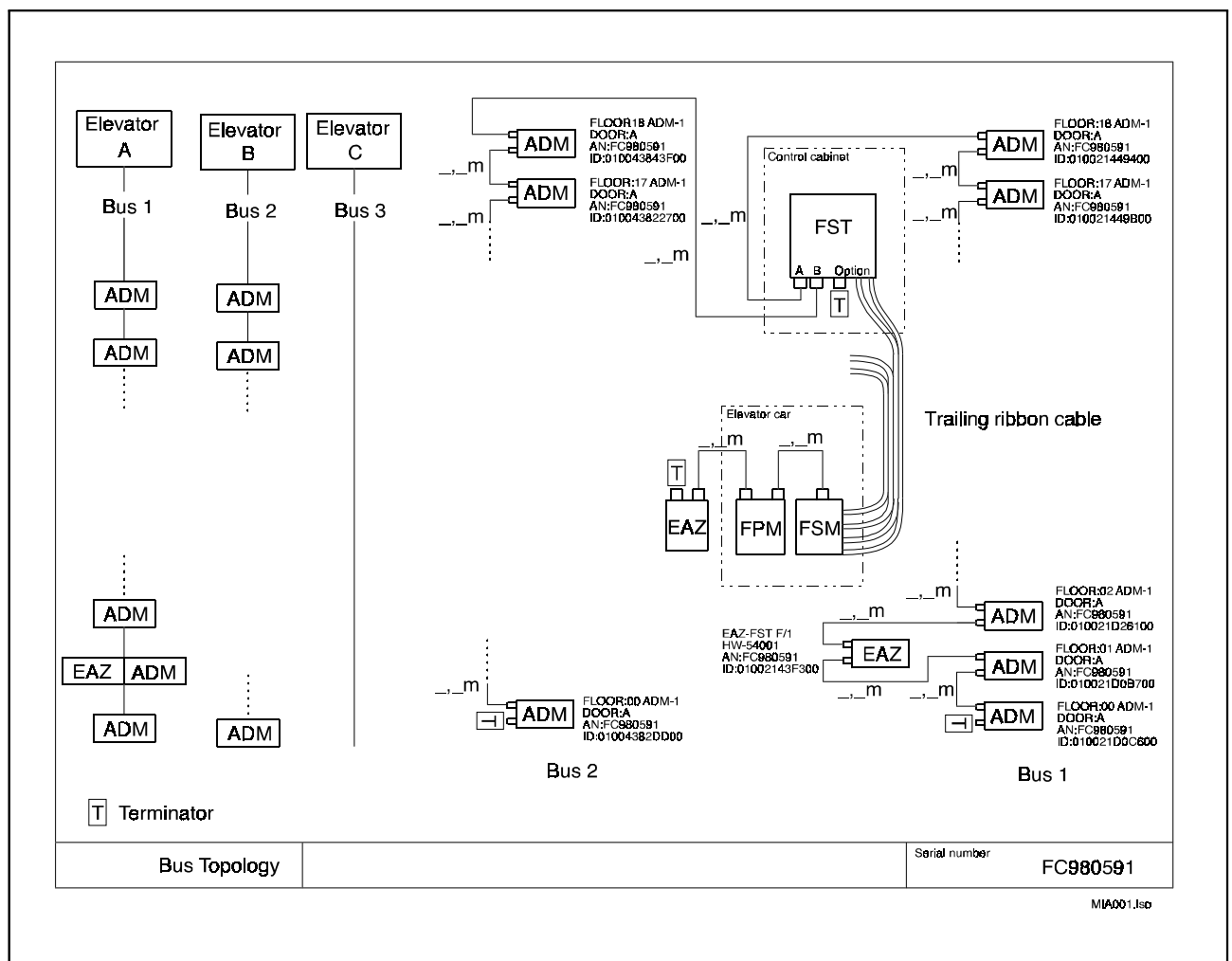


Fig. 3.2 FST Control bus plan

3.3 Scope of delivery

NEW LIFT components and documentation:

- Switch cabinet with integrated FST Control
- Electronics modules according to bus plan
- Ready-made LON bus cables according to the bus plan
- Ready-made trailing ribbon cable according to the bus plan
- Terminal resistances (terminators)
- FST manual (glued into switch cabinet)
- FST installation & commissioning manual
- Circuit diagrams
- Bus Plan

Check the scope of delivery

Check the delivery of NEW LIFT components for completeness against the packing list. Simultaneously make a visual inspection of the delivered items for damage.

When unpacking the delivery, check against the bus plan:

- whether mechanical damage to the NEW LIFT components can be identified.
- whether the labelling of the NEW LIFT electronic assemblies agrees with the labelling on the bus plan.
- whether the LON bus cables and the trailing ribbon cable are of the lengths specified in the bus plan.



NOTE!

Electrostatic discharges, mechanical loading, dampness and dirt can damage or even destroy electronics modules.

- Keep the electronics module in the supplied packing until installation.
 - Touch a grounded piece of metal before opening the packaging in order to electrically discharge your body.
-

- | | |
|--|--|
| Claims for damage during transport | If damage arises during transport, a claim must immediately submitted to the haulier. |
| Ordering NEW LIFT components separately | <p>If NEW LIFT electronics modules or cables are missing, you should report this immediately to the NEW LIFT hotline. We will require the following information to ensure rapid processing:</p> <ul style="list-style-type: none">- 8 digit NEW LIFT serial number, e.g.: FC980591
(obtained from the bus plan)- Name of the missing NEW LIFT components
(obtained from the bus plan)- Missing cable type and length
(obtained from the bus plan)- Your telephone/ FAX number or e-mail address for any queries |

3.4 Control cabinet

Installing the control cabinet

Transport the control cabinet to and install it at the planned installation site (see "Technical details" on Page 21). The fixings depend on the nature of the installation site and the weight of the control cabinet and are to be selected by the installation engineer.



DANGER!

The control cabinet may fall over during transport or installation.

Danger of limbs being crushed.

- Only transport and lift the control cabinet with suitable aids (e.g. lift truck, lifting gear etc.).

The personnel must have been instructed in the use of these aids and observe the special accident prevention rules applicable for them.



DANGER!

Electric shock or escaping gas due to holes drilled in supply lines.

Severe, possibly even fatal injuries.

- Ensure before starting work that no supply lines are routed through the installation site.

The planned installation site can only be changed in exceptional cases since it is unlikely that the ready-prepared cable lengths are sufficient. Please inform the NEW LIFT hotline so that a solution can be worked out.

Connecting the control cabinet

The cable diameters of the supply, drive and ground lines are determined by the load connected to the control cabinet and can be obtained from the enclosed circuit documents.



DANGER!

Electric shock from electrically live lines and parts.

Severe, possibly even fatal injuries.

- Check and ensure voltage-free condition.
- Only carry out installation work on electrical components when they are switched off and voltage-free.

Equipotential bonding is to be carried out according to the valid electrical engineering regulations and specifications (VDE, DIN, EN and ISO), depending on the output load.

The neutral and ground lines should be routed separately!

All lines should be secured against being pulled out by adequate strain relief.

When attaching the trailing ribbon cable, the correct installation direction of the cable should be observed (see "Assignment of terminals and plugs of the trailing ribbon cable to the modules" on Page 34).

Starting up the control cabinet

Check the following before switching on the FST Control:

- clockwise rotary field
- proper functioning of fuses
- proper functioning of control cabinet components

The display and operation of the FST Control is explained in Chapter 4.2 on Page 44.


- Switching on the FST**
- Turn on control cabinet at main switch.
 - Turn on FST power supply circuit at the fuse.
 - ✓ The FST Control is rebooted.

On completion of the booting procedure, 15 "✓" are briefly displayed on the bottom line and then switches to the standard display.



If SAFETY CCT CLOSED is not displayed on line A, there is a break in the safety monitoring device wiring or it is faulty and has to be checked, extended or repaired.

If INSTALLATION MODE is not indicated in line B, then installation mode should be set.

- Select MAIN MENU - INSTALLATION - INSTALLATION MODE.
- Select YES.
- Confirm selection with .
- ✓ INSTALLATION MODE is set.

- Switching off the FST**
- Turn off the FST power supply circuit at the fuse.

Technical details

Output load The output load depends on the drive load and lifting height of the lift.

4 kW / 16 A - 46 kW / 120 A

Weight The weight of the control cabinet depends on its size and the output load.

50 - 200 kg

Safety clearances The safety clearances specified in the "Technical Rules for Elevators" are to be observed, even when the control cabinet door is open.

Dimensions

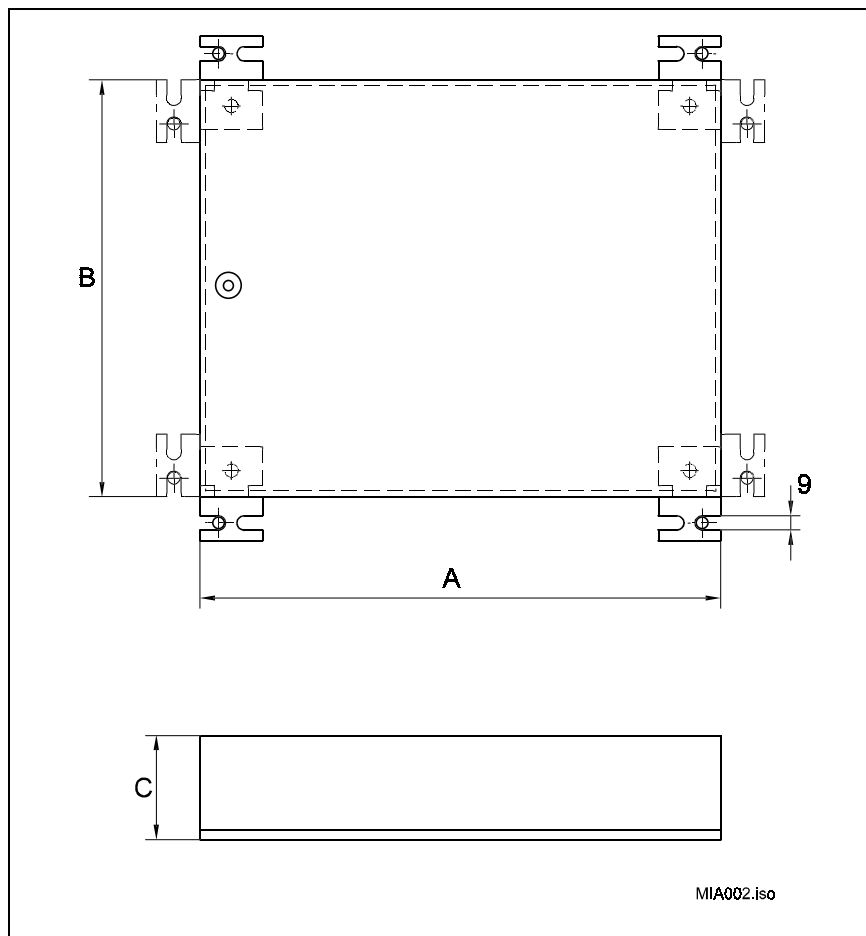


Fig. 3.3 Dimensions of the control cabinet

A [mm]	B[mm]	C [mm]
800	1000	200
800	1000	300
600	1000	200
1000	800	350
1000	1200	350
1200	1200	400

Installation The scope of delivery includes the angle brackets but not the actual fixings. The diameter of the boreholes is determined by the size of the fixing screws selected.

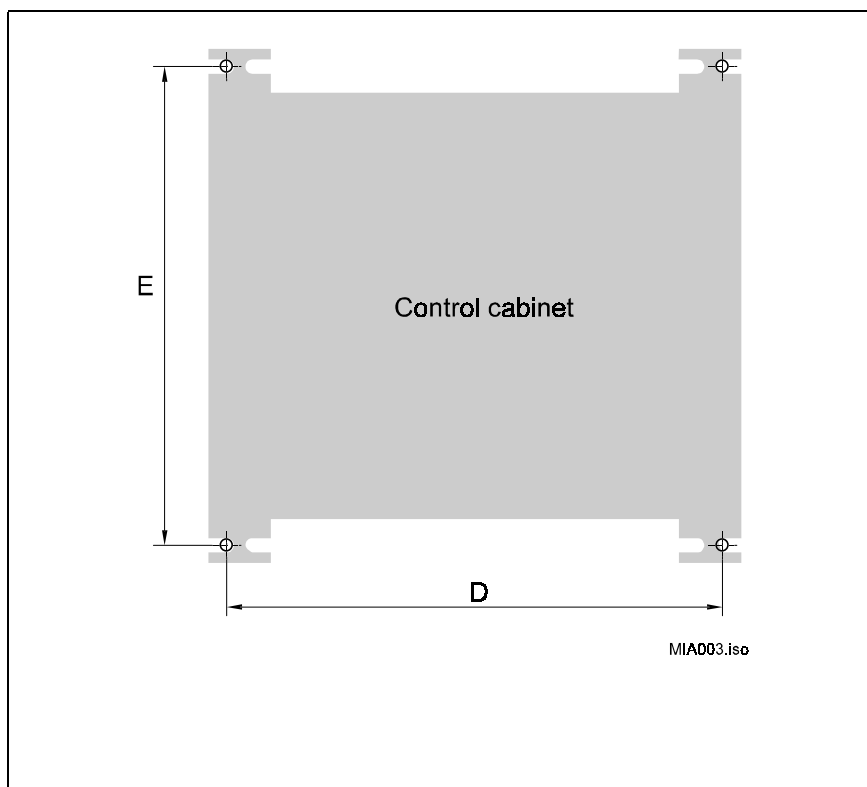


Fig. 3.4 Fixing pattern: Top /bottom angle brackets

Size A/B [mm]	D [mm]	E [mm]
800/1000	780	1030
600/1000	580	1030
1000/800	980	830
1000/1200	980	1230
1200/1200	1180	1230

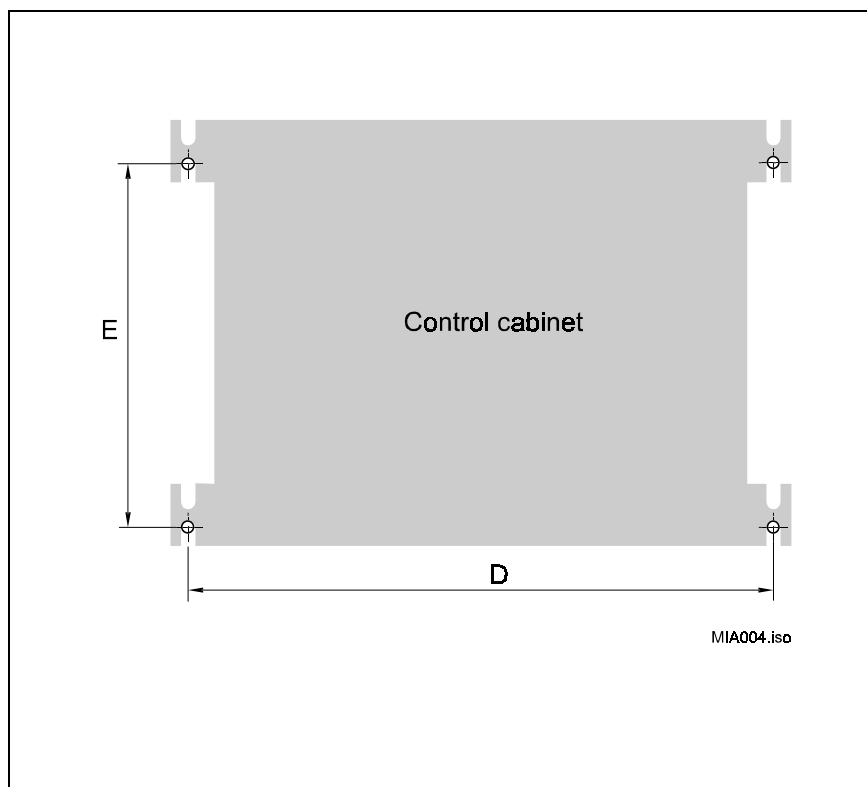


Fig. 3.5 Fixing pattern: Side angle brackets

Size A/B [mm]	D [mm]	E [mm]
800/1000	830	950
600/1000	630	950
1000/800	1030	850
1000/1200	1030	1150
1200/1200	1230	1150

3.5 Car components

Installation locations of the car components

The FSM car control module and the terminal rail are installed in the service box on the roof of the car or behind the car button panel in the elevator wall.

The FPM car operating panel module and the EAZ position indicator are installed in close proximity to the car button panel.

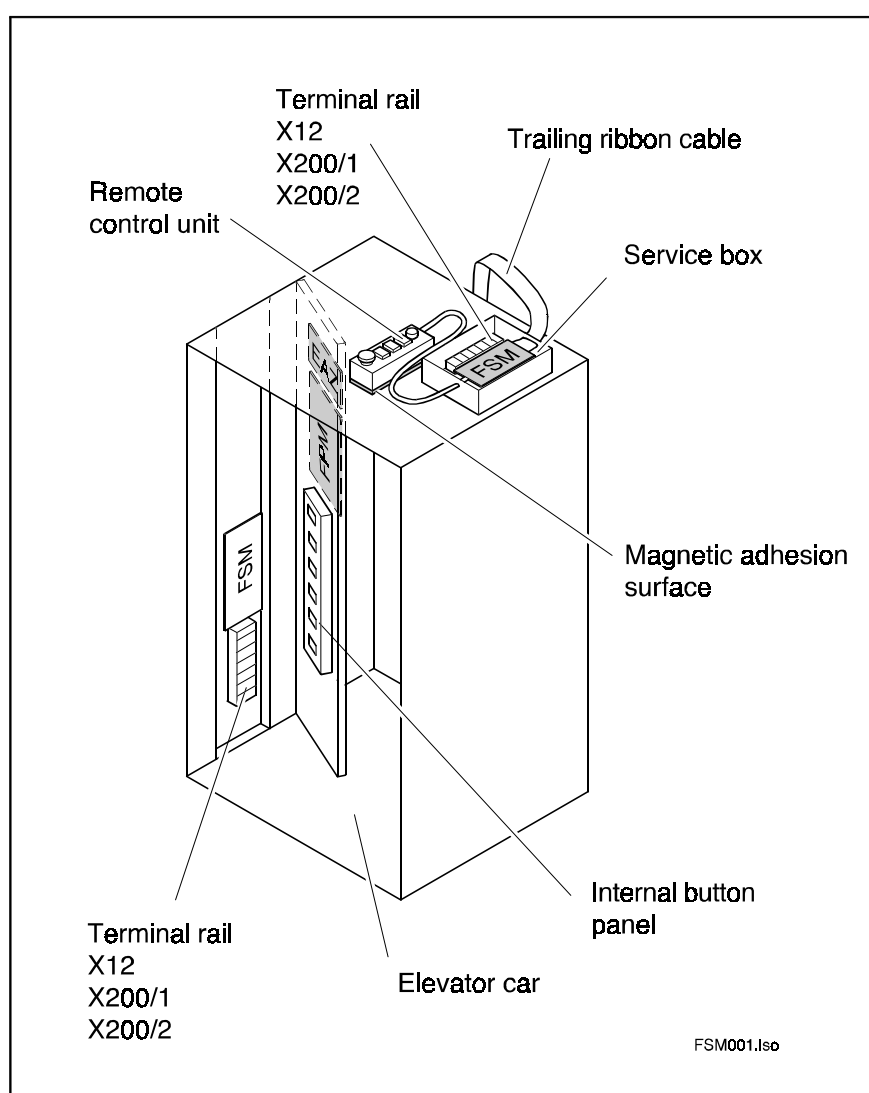


Fig. 3.6 Installation locations of the car components

Installing car components



DANGER!

Fitting engineers and unauthorised persons could fall down the lift shaft.

Severe, possibly even fatal injuries.

- Cordon off access to shaft.
- Only carry out work on or in the lift shaft with suitable protection (e.g. safety harnesses, scaffolding, etc.).
- Observe the accident prevention regulations for operating building lifts and assembly platforms.



DANGER!

Parts or equipment falling down the shaft.

Severe, possibly even fatal injuries.

- Cordon off access to shaft.
- Remove all loose objects from the lift shaft before starting installation work.



DANGER!

Objects projecting into the lift shaft.

Severe, possibly even fatal injuries.

- Remove all foreign objects and installation aids which are no longer required from the lift shaft.



NOTE!

Electrostatic discharges, mechanical loading, dampness and dirt can damage or even destroy electronics modules.

- Touch a grounded piece of metal before adjusting or examining the electronics modules, in order to electrically discharge your body.

Installing electronic modules on the car

The following electronics modules are ready installed:

- the FPM car operating panel module in the car button panel
- the FSM car control module in the service box.

The EAZ position indicators are installed at the planned location.

Setting electronic modules

The electronics modules are adapted to the respective lift system by means of plug-in jumpers. Settings are made ex-works and must be checked during installation:

- Plug-in jumpers for FPM car operating panel module
(See Page 30)
- Plug-in jumpers for FSM car control module
(See Page 31)

Connecting car components

Connecting electronic components

The electronics modules are connected according to the bus plan (see Page 15) and unassigned bus inputs or outputs for the electronics modules are terminated with a terminal resistance (terminator).

Non-terminated, open bus inputs or outputs can result in malfunctioning of the FST Control.

Connecting the remote control unit

The remote control unit is attached by the magnetic surface to the metal part of the car roof (see Page 25).

The remote control unit is connected to the FSM:X12 car control module and the X200/3 terminal block.

The remote control unit remains attached to the car roof after commissioning.

Connecting door control

Connect the door control to the FSM car control module.

With doors without limit switches:

The limit switch inputs on the FSM car control module must be bridged (see Page 32).

Connecting the trailing ribbon cable

Connect the trailing ribbon cable to the FSM car control module and the terminal blocks (see Page 34).

Note the direction of installation of the trailing ribbon cable!

Connecting the car button panel

Connect the 9 pin D-SUB plug for the car emergency lighting and the emergency call to the FSM:X3 car control module.

Commissioning the car components



DANGER!

Risk of electric shocks from electrically live lines and parts.

Severe, possibly even fatal injuries.

- Check and ensure voltage-free condition.
- Only carry out installation work on electrical components when they are switched off and voltage-free.



NOTE!!

Electronic components can be destroyed by defective, reversed or incorrectly connected plugs.

- Check plugs for any mechanical damage.
- Do not modify ready-made plugs!
- Attach loose or pulled out wires according to the circuit diagrams.

Requirements

- car installation is concluded
- trailing ribbon cable is connected
- safety monitoring device is active
- non-assigned bus inputs or outputs are terminated
- the lift control is not in INSPECTION or AUXILIARY mode.

Checking the EMERGENCY STOP remote control unit

- Pull the **EMERGENCY STOP SWITCH** next to the remote control unit.
- ✓ **EMERGENCY STOP** appears in line A of the FST display.

If this is not the case, there is an installation fault which must be rectified.

- Release **EMERGENCY STOP SWITCH lock**.
- ✓ **'SAFETY CCT CLOSED'** appears in line A of the FST display.

Checking cage functions

All cage functions must be checked with the aid of the circuit diagram.

Technical details - FPM car operating panel module

The FPM car operating panel module is supplied by the manufacturer of the panel board, ready assembled and wired.

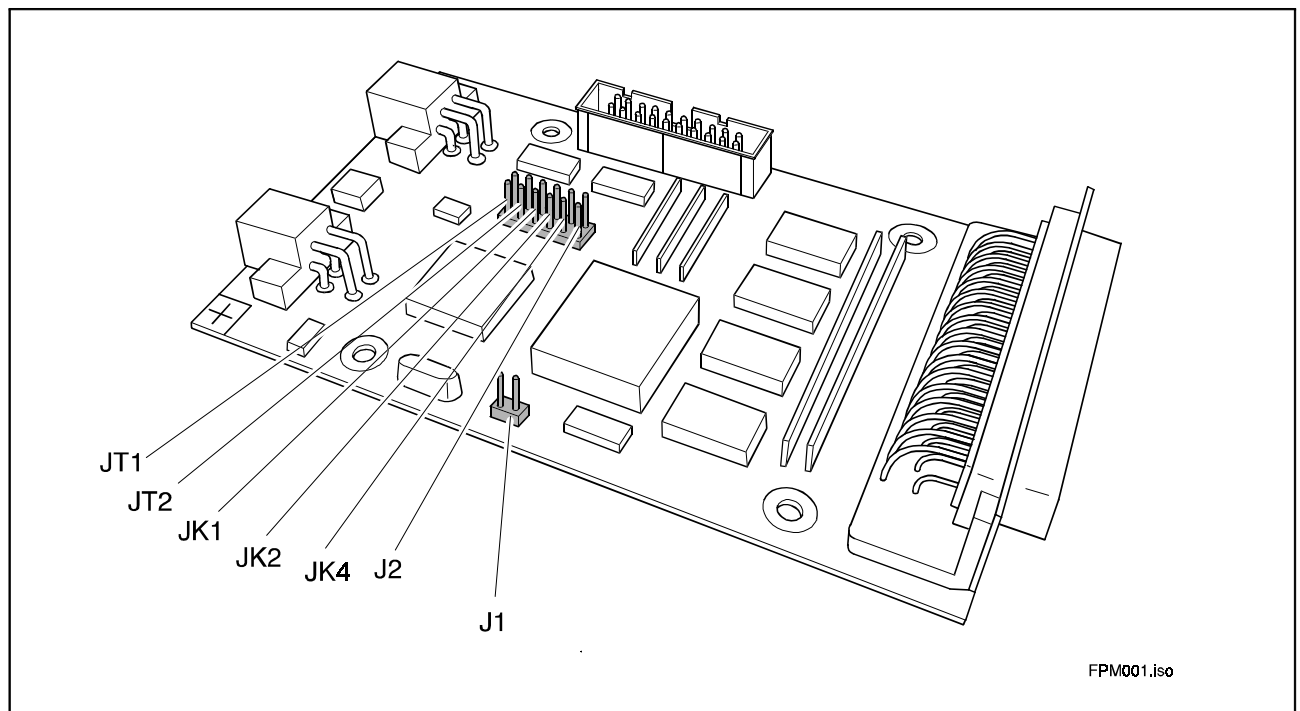


Fig. 3.7 Plug-in jumpers for FPM car operating panel module

Free plug-in jumpers

Not plugged in:

- J1 (service plug-in jumper)
- J2 (no function at present).

Setting the doors The car doors are set with the plug-in jumpers JT1 and JT2.

Setting	JT1	JT2
Door A	open	open
Door B	plugged in	open
Door C	open	plugged in
not applicable	plugged in	plugged in

Conforming a car to individual operation

Setting	JK4	JK2	JK1
FST A	open	open	open

Conforming a car to group operation

If several FSTs and cars are co-ordinated by one GST Group Control (see the "GST manual"), the respective car is assigned to its FST Control via the plug-in jumpers JK1, JK2 and JK4.

Setting	JK4	JK2	JK1
FST A	open	open	open
FST B	open	open	plugged in
FST C	open	plugged in	open
FST D	open	plugged in	plugged in
FST E	plugged in	open	open
FST F	plugged in	open	plugged in
FST G	plugged in	plugged in	open
FST H	plugged in	plugged in	plugged in

The car assignment with the FSM car control module and the FPM car operating panel module must be identical.

Technical details - FSM car control module

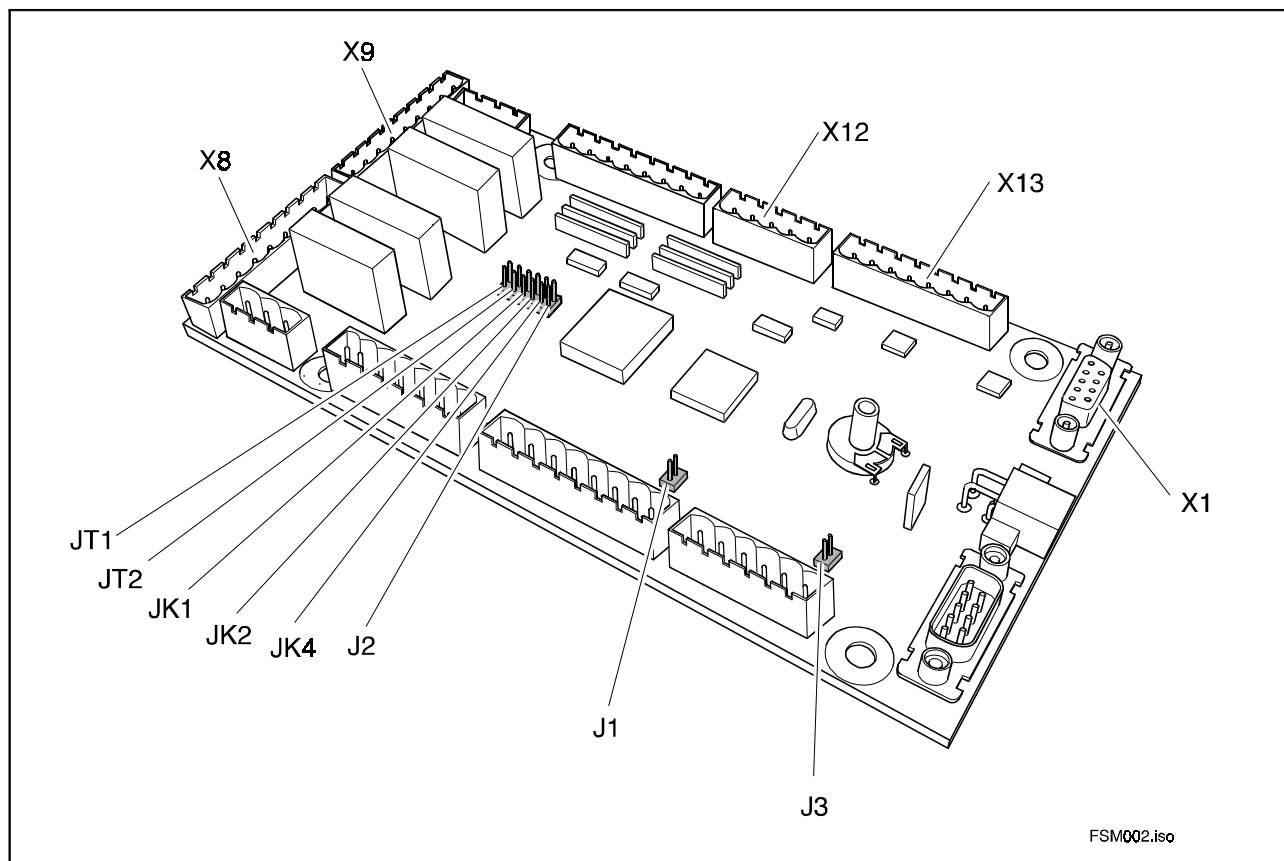


Fig. 3.8 Plug-in jumpers and plugs on the FSM car control module

Free plug-in jumpers

Not plugged in:

- J1 (service plug-in jumper)
- J2 (no function at present).

Setting the doors

The car doors are adjusted with the plug-in jumpers JT1 and JT2.

Setting	JT1	JT2
Door A or Door A & B	open	open
Door C	plugged in	open
not applicable	open	plugged in
not applicable	plugged in	plugged in

**Conforming the car
to individual operation**

Setting	JK4	JK2	JK1
FST A	open	open	open

**Conforming the car
to group operation**

If several FSTs and cars are administered by one GST Group Control (see the "GST manual"), the respective car is assigned its FST Control via the plug-in jumpers JK1, JK2 and JK4.

Setting	JK4	JK2	JK1
FST A	open	open	open
FST B	open	open	plugged in
FST C	open	plugged in	open
FST D	open	plugged in	plugged in
FST E	plugged in	open	open
FST F	plugged in	open	plugged in
FST G	plugged in	plugged in	open
FST H	plugged in	plugged in	plugged in

The car assignment for the FSM car control module and the FPM car operating panel module must be identical.

**Setting doors without limit
switches**

If doors without limit switches are used, the door relay enabling must be bypassed.

The following are bypassed:

- X8:1 with X8:2
- X8:3 with X8:4
- X9:1 with X9:2
- X9:3 with X9:4.

The jumpers must be long and clearly visible!

3.6 Installing and connecting the trailing ribbon cable

The suspension brackets for the trailing ribbon cable are installed in the shaft and the trailing ribbon cable is then laid.

Note:

- the turning point of the trailing ribbon cable is half way up the shaft
- the outer and inner side of the trailing ribbon cable.

The trailing ribbon cable is connected to the NEW LIFT components on the car and the control (see Page 34).

Technical details

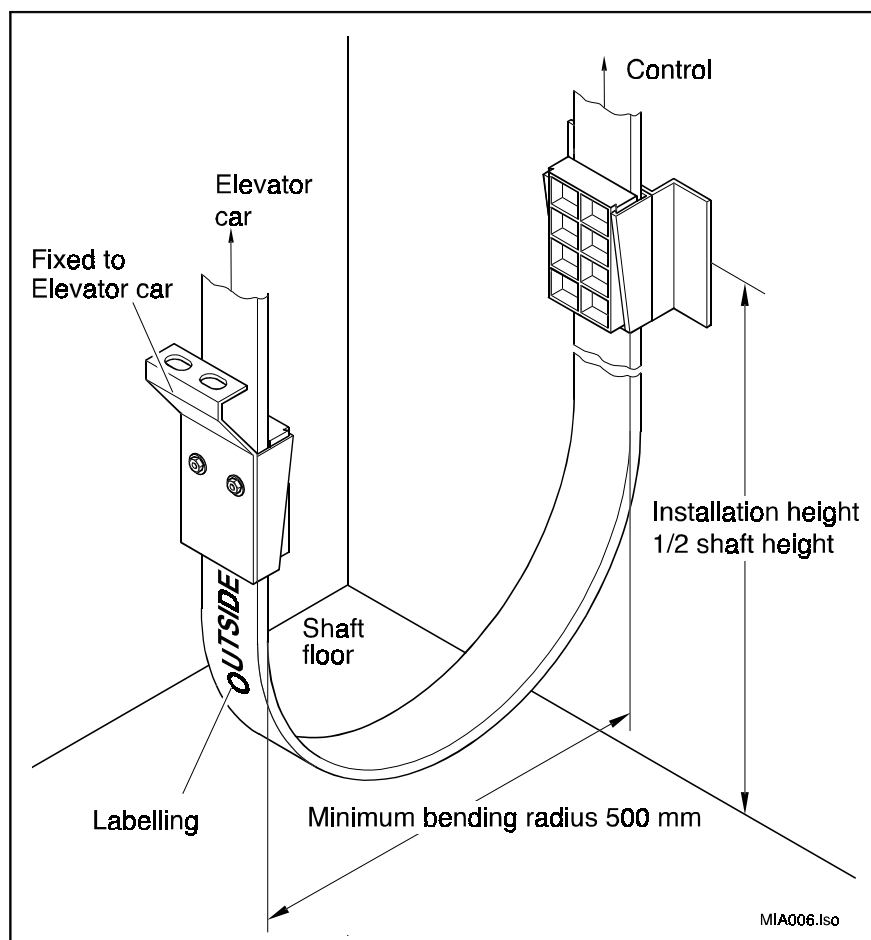


Fig. 3.9 Example of installation of trailing ribbon cable in the shaft

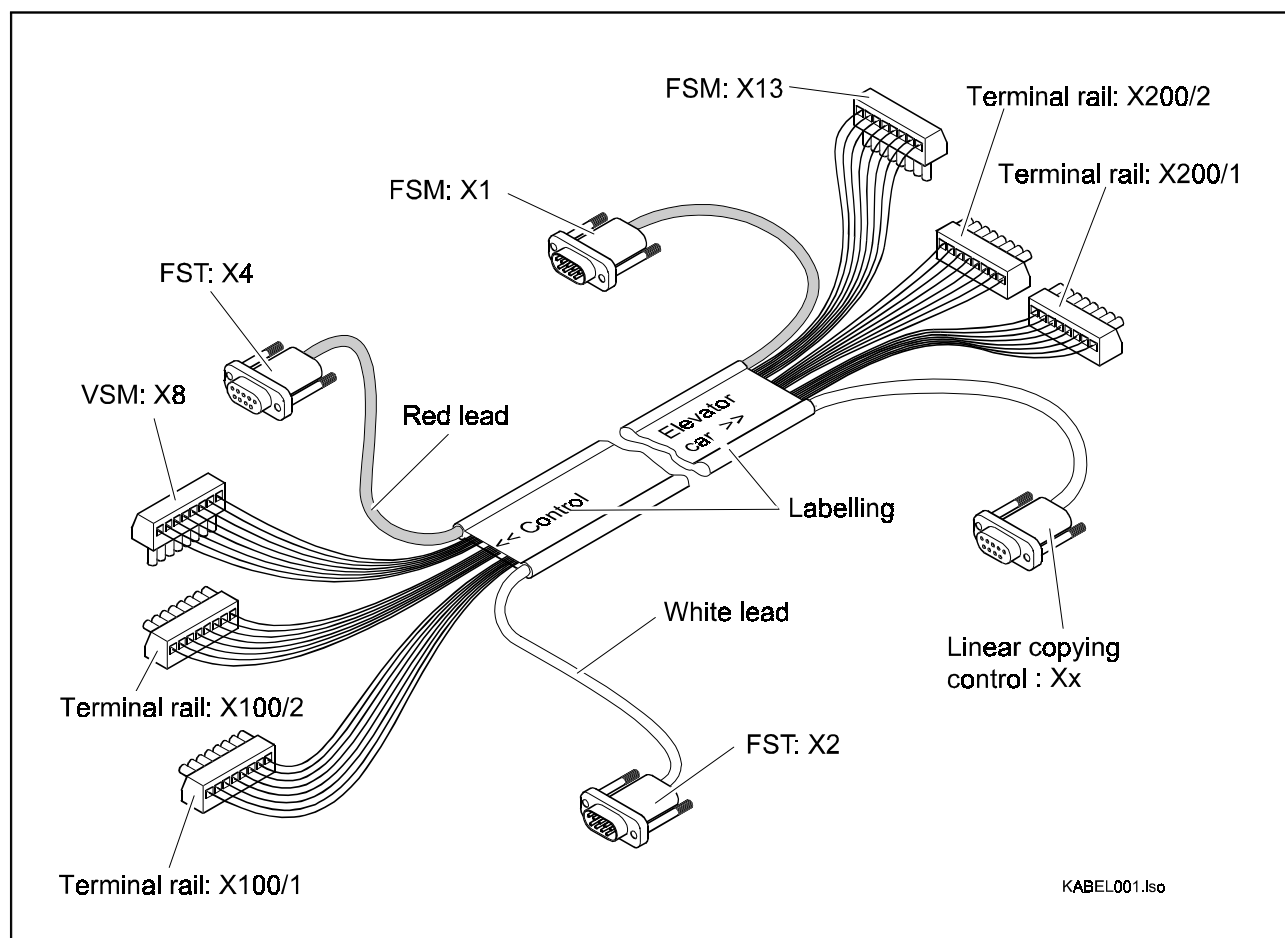


Fig. 3.10 Assignment of terminals and plugs of the trailing ribbon cable to the modules

3.7 The installation run

In order to install the remaining shaft components - the LON bus, zone switches / magnets and the linear copying control; installation runs can be carried out with the aid of the remote control unit on the car roof or the auxiliary control in the control cabinet.

During the installation run, the shaft components are installed from the roof of the car. The car is controlled by the installing engineer on the car roof by means of the remote control unit. When the inspection control is active, all other commands are suppressed and it should be switched off before each installation run.

Before an installation run is undertaken, the specified conditions must be fulfilled and the following safety instructions and the applicable accident prevention regulations must be observed.

- Requirements**
- FST Control is in **INSTALLATION MODE** (see Page 20)
 - FST Control is in **INSPECTION** or **AUXILIARY** mode.
 - safety monitoring device is operational
 - safety catch checked for proper functioning
 - car is operational
 - drive is operational
 - knowledge of all dangers arising in the shaft and how to avoid them
 - emergency stop button of the remote control unit tested for proper functioning.



DANGER!

Fitting engineers and unauthorised persons could fall down the lift shaft.

Severe, possibly even fatal injuries.

- Cordon off access to shaft.
- Only carry out work on or in the lift shaft with suitable protection (e.g. safety harnesses, scaffolding etc.).
- Observe the accident prevention regulations for operating building lifts and assembly platforms.



DANGER!

Parts or equipment falling down the shaft.

Severe, possibly even fatal injuries.

- Cordon off access to shaft.
 - Remove all loose objects from the lift shaft before starting installation work.
-



DANGER!

Objects projecting into the lift shaft.

Severe, possibly even fatal injuries.

- Remove all foreign bodies and no longer required installation aids from the lift shaft.
-



DANGER!

Unforeseen car movements.

Severe, possibly even fatal injuries.

- Cordon off access to shaft.
 - Ensure before the start of work that no-one is still in the lift shaft.
 - Prevent unauthorised operation of the control.
-

Connecting the LON bus

Checking the modules

The labelling on the electronics module must agree with the specifications in the bus plan (see Chapter 3.2 on Page 15) as well as with the actual installation location. It is possible to modify the module settings on the FST Control later, but this is time consuming.

Connecting the LON bus

The ADM landing call modules for the next floor are connected to the FST Control according to the bus plan. The LON bus is looped through from ADM to ADM and/or to the EAZ position indicator, the bus cable is laid in the lift shaft and the non-assigned bus inputs or outputs are terminated with a terminal resistance (terminator).

Non-terminated, open bus inputs or outputs can result in malfunctioning of the FST Control.

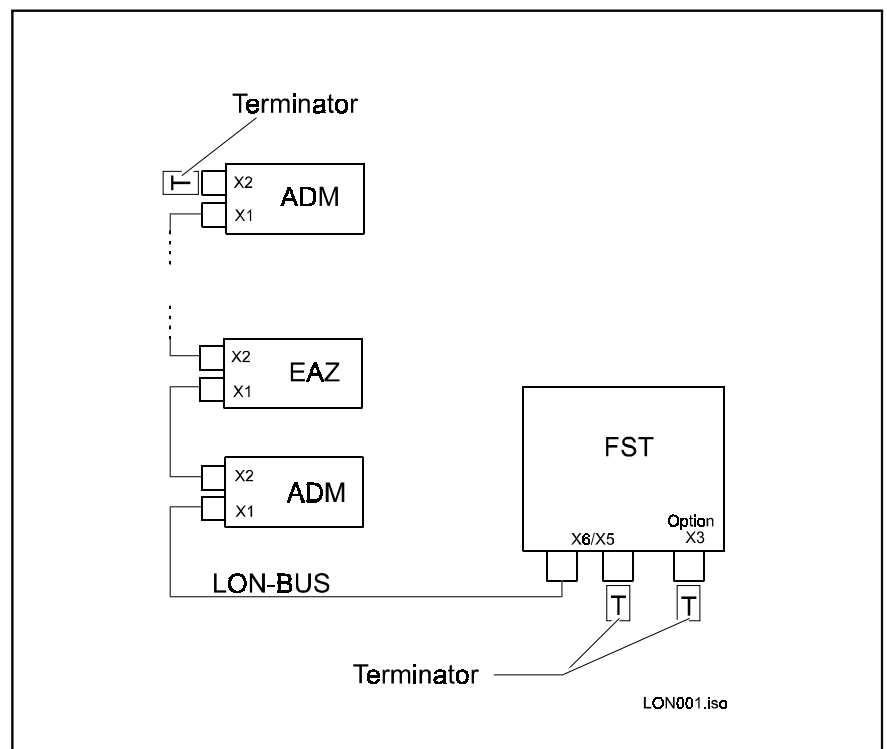


Fig. 3.11 Looping through the LON bus

Installing zone switches and magnets

The pre-assembled magnetic switch panel is installed on the cage beam. The car is then moved during an installation run so that its floor is flush with each floor of the building and the zone magnets are attached to the guide rail.

Technical details

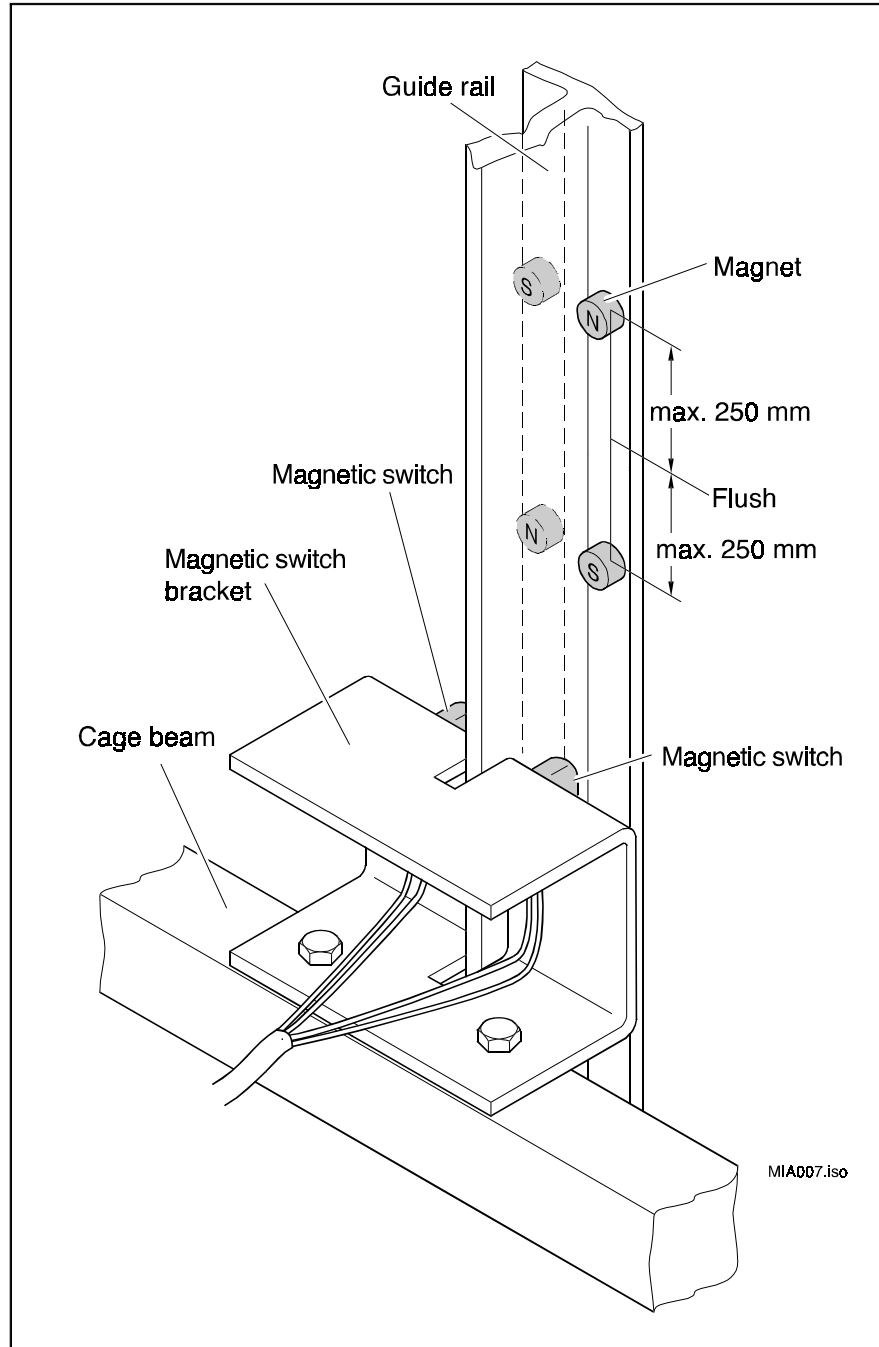


Fig. 3.12 Installation of the zone switches and magnets

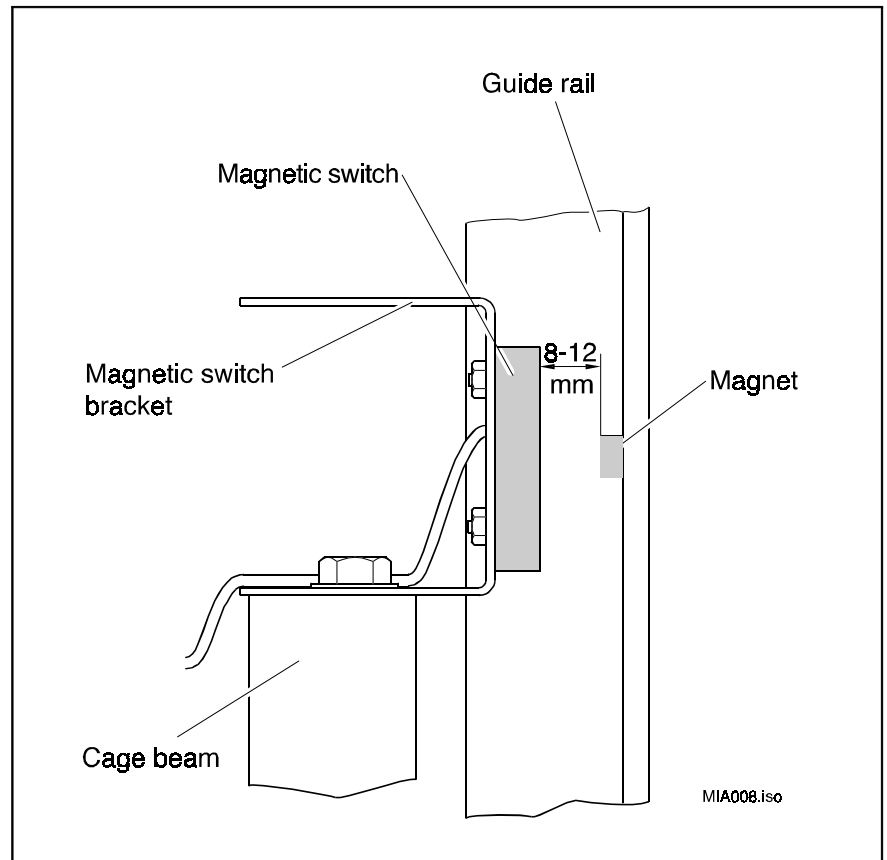


Fig. 3.13 Distance between the zone switches and magnets

If the specified distance between magnet and magnetic switch is not observed or the play of the cage on the guide rails is too large, it may result in malfunctions in A6 Safety Monitoring Device.

Installing and setting the linear copying control

The following versions of the linear copying control are possible:

- a) absolute value encoder on car with permanently tensioned toothed belt
- b) absolute value encoder in the shaft head/pit with continuous toothed belt loop
- c) cable tension sensor in the shaft head /pit.

Only option a) is described below.

Installing the absolute value encoder

The absolute value encoder is installed on rubber buffers on the cage beam. The rubber buffers prevent noises caused by the rotation of the toothed wheel and the tension roller being transmitted to the car. It must be ensured after the absolute value encoder is installed and that the toothed wheel and the tension roller are plumb.

Installing the toothed belt

The car is moved to the top limit and the vertical distance of the ceiling plate above the toothed wheel of the absolute value encoder is determined. After the ceiling plate is installed, the toothed belt is fastened to the ceiling plate (see Page 42) and fed between the absolute value encoder toothed wheel and the tension rollers.

Make sure when moving the cage to the bottom limit that the toothed belt does not become twisted.

The loose end of the toothed belt is fixed to the floor plate (see Page 42). In order to determine the vertical distance of the floor plate, it is allowed to hang from the toothed belt just above the floor. The floor plate is then installed.

Fine adjustment of the toothed belt

The toothed belt must be centered and plumb as it runs over the absolute value encoder toothed wheel.

Wing nuts on the ceiling or floor plate are released to align the toothed belt. The central, moveable plates are displaced so that the toothed belt is centered and plumb as it runs over the toothed wheel. On completion of fine adjustment, the winged nuts are tightened.

Connecting the linear copying control

The absolute value encoder is connected to the trailing ribbon cable LIK:Xx (see Page 34).

Technical details

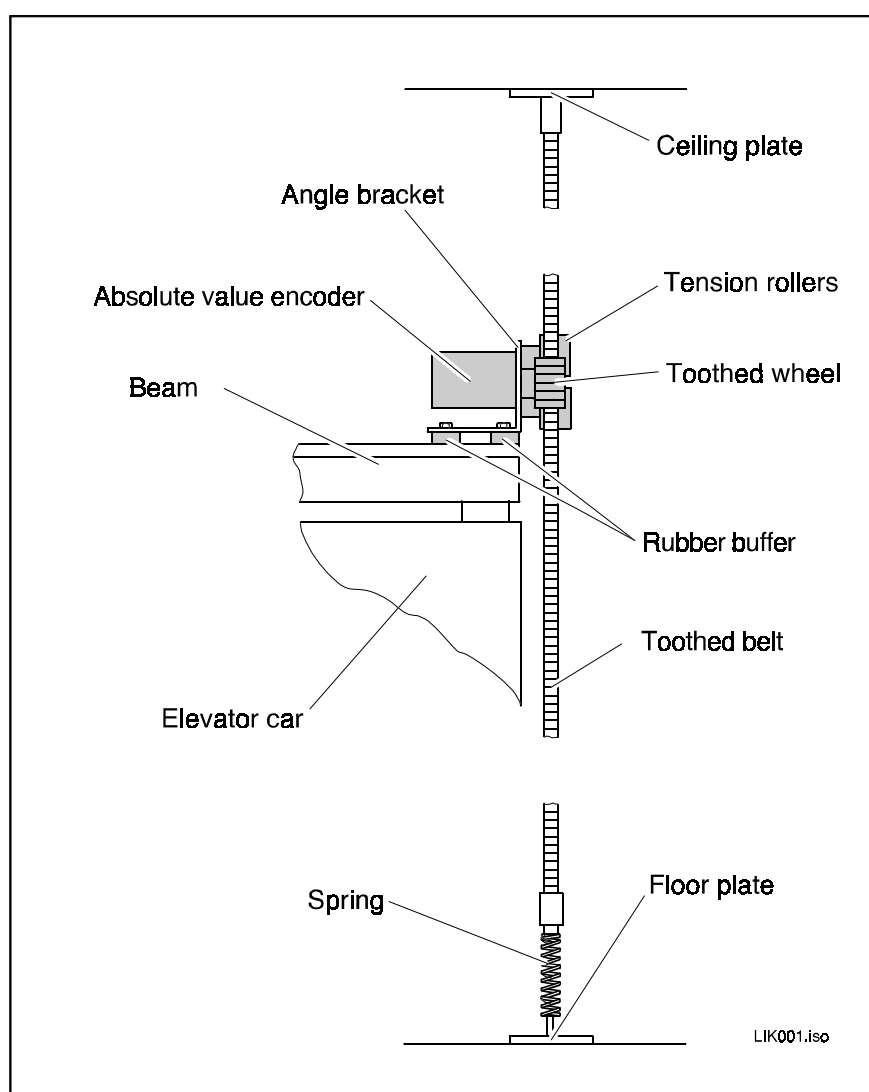


Fig. 3.14 Installing the absolute value encoder on the car

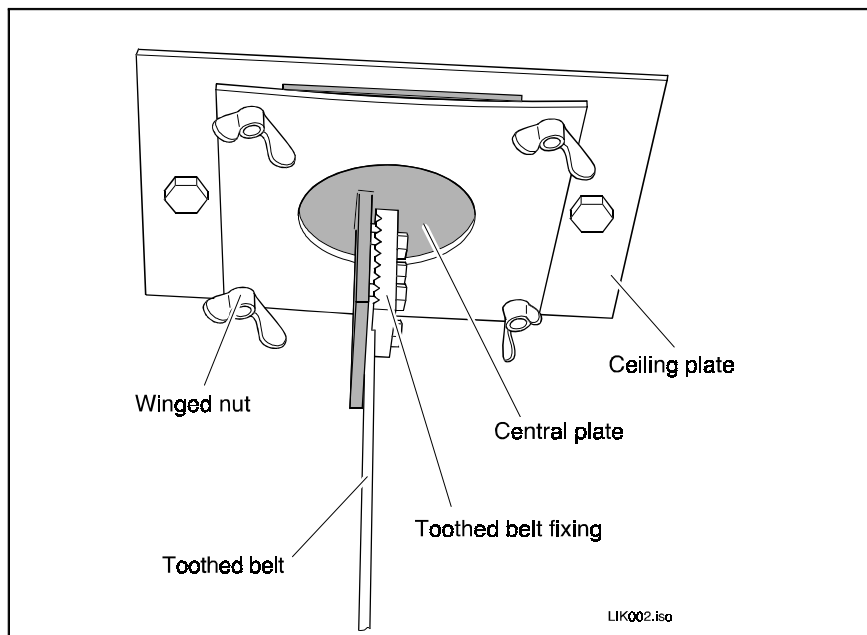


Fig. 3.15 Installing the ceiling plate

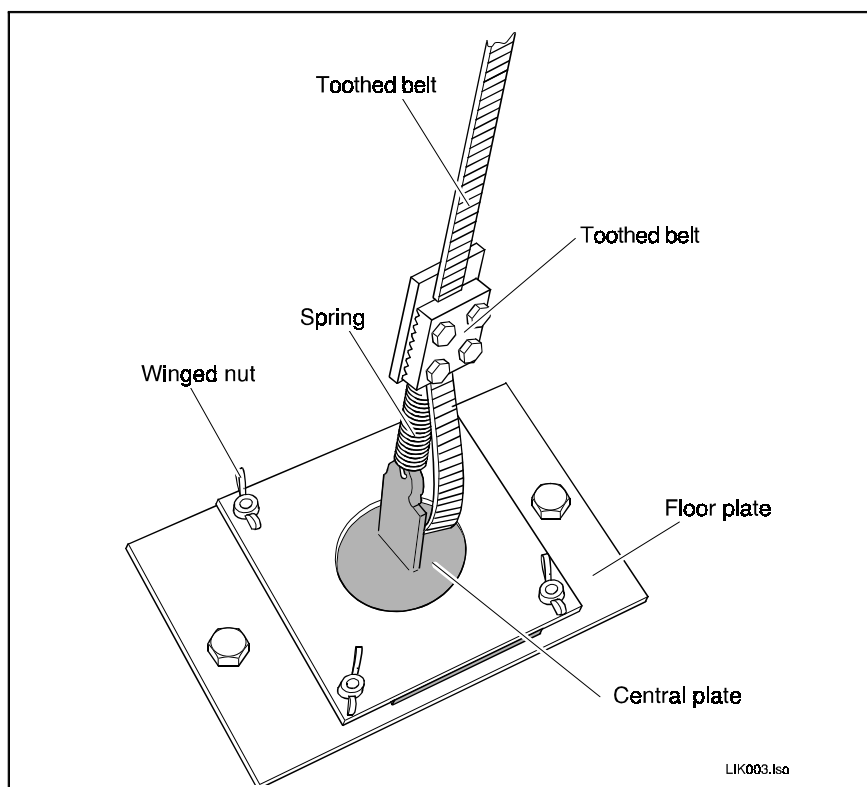


Fig. 3.16 Installing the floor plate

4 Commissioning the FST Control

The FST Control is commissioned on completion of all the installation work. This chapter contains information relevant to the operation and commissioning of the FST Control.

4.1 Commissioning sequence

The prerequisite for commissioning the FST Control is that all NEW LIFT components are installed, connected and adjusted (see Fig. 3.1, Page 14). The FST Control is to be commissioned exactly in accordance with the steps in Fig. 4.1. The individual steps are explained from Chapter 4.3, Page 49 onward.

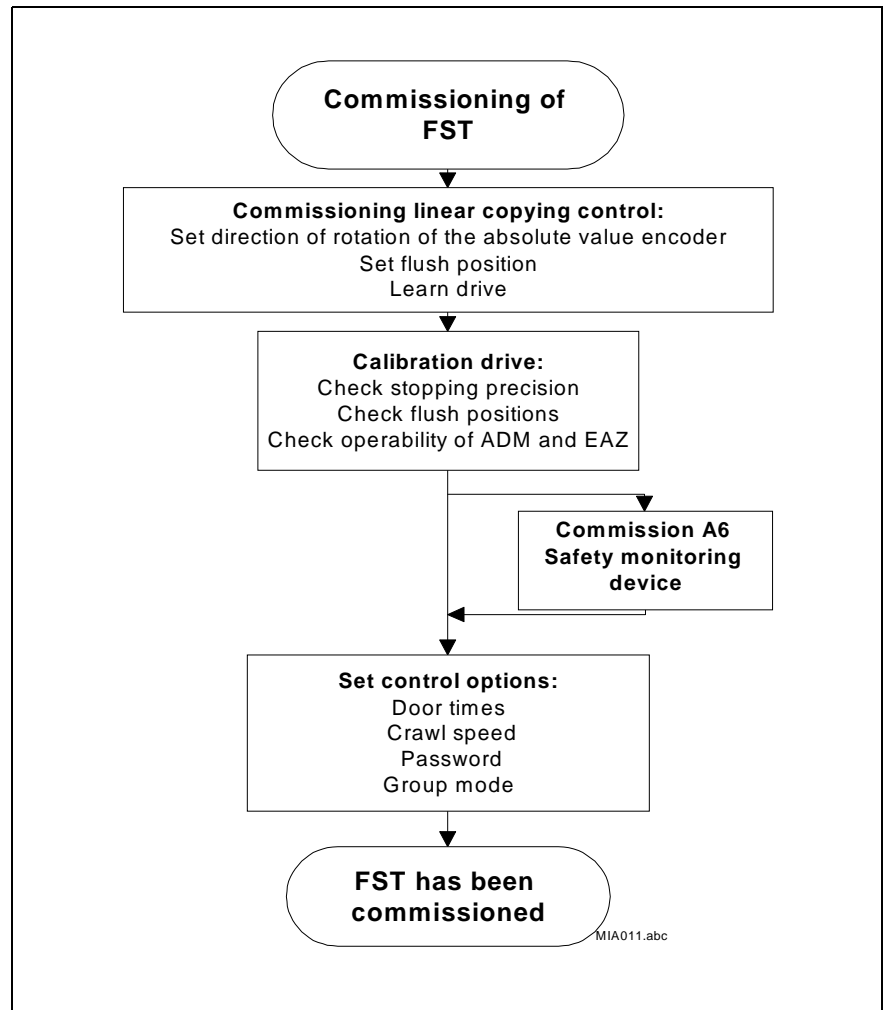


Fig. 4.1 Commissioning the FST Control

4.2 User interface of the FST Control

The user interface of the FST Control is depicted below. The display and operation of the FST Control is explained to the extent required for commissioning. You can obtain detailed information on operation in the "FST manual".

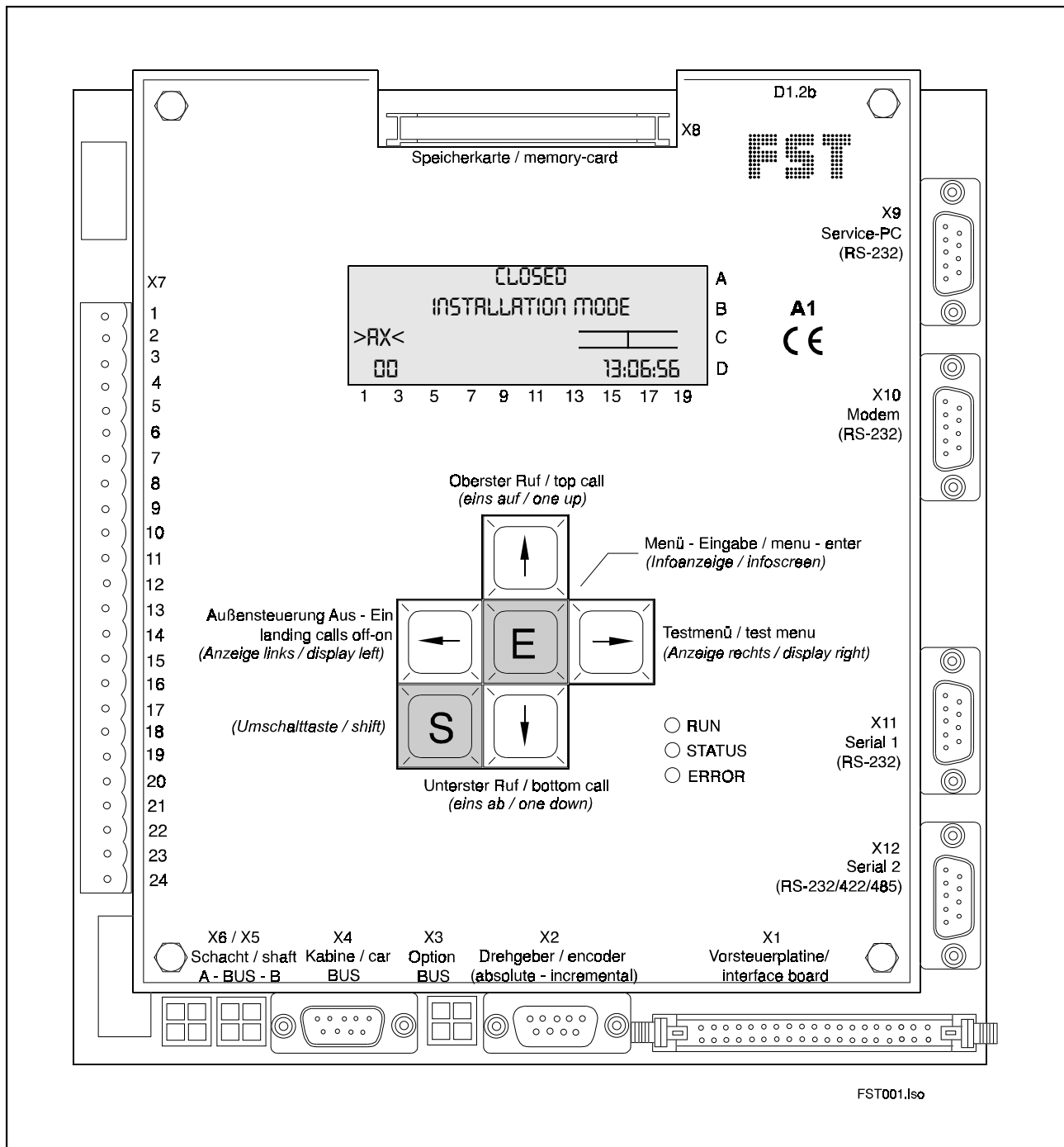


Fig. 4.2 User interface of the FST Control

The display

The FST display consists of four lines each with 20 columns.

Line A displays the highest active condition of the safety monitoring device.

Line B shows the active condition and errors.

Line C displays the current status of the lift system. Two status messages can be displayed simultaneously side-by-side. When delivered, the FST Control is set to display the door status on the left and the flushness status on the right (see status messages, Page 46).

Line D shows data on the current drive mode of the FST Control.

Drive mode messages in line D












Column	Display	Description
1	T	Shows autotest mode.
2	↑	Direction of movement upwards
	↓	Direction of movement downwards
3-4	10	Next floor
5-8	[13]	Car and landing calls for target floor
	[13]	Car call for target floor
	13]	Landing call for target floor
	X13	Car calls blocked
	13X	Landing calls blocked
9		not assigned
10	G	FST is linked to a group control.
11	R	Flashes during data recording onto PC card.
12		not assigned
13-20	10:44:12	Actual time

**Status messages
in line C**






Status	Display	Description
Door	<R>	Door A is open.
	>R<	Door A is closed.
	<-R->	Door A is opening.
	->R<-	Door A is closing.
	<R*>	Photocell or reversing contact for door A is active.
	<RX>	Door A is locked.
	- R -	Door A is blocked.
	?R?	Fault has occurred at door A.
	<<R>>	Door OPEN button is active.
	<>R<>	Door CLOSE button is active.
Flushness	Z	Zone message is active.
	-	Car is flush.
	----- -----	Deviation of car position from flushness (each pixel = 2.5 cm)
Position of car	P=6200	Current position of car relative to lowest floor level in mm.
	Pd=6200	Current position of car relative to the next floor level in mm.
Car speed	V=1300	Actual speed of the car in mm/s.
Operating hours	BS=4351	Cumulative operating hours of drive.
Journey counter	FZ=123456	Number of journeys completed.
Occupied memory	REC: 45%	Occupied memory on the PC card during ongoing recording.

The keyboard






Key functions of the main screen

Keys	Function
	Set a car call for the top floor.
	Opens the test menu.
	Set a car call for the bottom floor.
	Switches the lobby control on and off (switch function).
	Opens the main menu.
	Set a car call for the next floor above.
	Selects the next status message to the right in line C.
	Set a car call for the next floor below.
	Selects the next status message to the left in line C.
	Shows the FST information page.
	Switches the diagnostic function in line C on and off.

Key functions in the main and test menu

Keys	Function
	Cursor moves up.
	Jumps to indicated sub-menu.
	Cursor moves down
	Jumps one menu level up.
	Opens a selected menu item.

Key functions in the menu items

Keys	Function
	Increases a numerical value.
	Moves the cursor in the line to the right.
	Reduces a numerical value.
	Moves the cursor in the line to the left.
	Confirms the change and quits the menu item.

The LEDs

LED	Colour	Condition	Description
RUN	green	on	The FST Control is switched on and is functioning perfectly.
		off	The FST Control has no power supply.
STATUS	green	on	The drive processor is functioning perfectly.
		flashing	The lobby control is switched off.
		off	There is a fault in the drive processor.
ERROR	red	on	A run is not possible.
		flashing	One or more errors have been logged in the error list.
		off	No error or event has been logged.

4.3 Commissioning the linear copying control

- Conditions**
- The installation and functional testing of all safety-engineering relevant components, both mechanical and electrical has been completed.
 - The linear copying control has been fine tuned.
 - The drive is completely parameterised.

If one of these set values is changed after commissioning of the linear copying control, the measured values must be checked and if necessary adapted. In all events, a new calibration drive will be necessary.

Checking the direction of rotation of the absolute value encoder.

In order to check the direction of rotation of the absolute value encoder, the car must be moved up and down a few centimetres.



DANGER!



Unforeseen car movements.

Severe, possibly even fatal injuries.

- Cordon off access to shaft.
- Ensure before the start of work that no-one is still in the lift shaft.
- Prevent unauthorised operation of the control.

Resetting lift system





- Turn off the entire system at the main switch.
- Wait for approx. 10 seconds so that all capacitors are discharged.
- ✓ The lift system is reset.
- Switch on the system.

Checking direction of rotation ➤ Press  +  until "P = 00" appears in line C.

The numerical value gives the current absolute value encoder position in mm.

- Move the cage up and down with the auxiliary control.
- Note the change in the encoder value.
- ✓ As the cage ascends, the encoder value increases, and as it descends, the value decreases. If the encoder value is negative, the direction of rotation of the absolute value encoder must be reversed.

Reversing the direction of rotation








- Select MAIN MENU - POSITIONING - GLOBAL - DIRECTION.
- Confirm selection with .
-   changes the direction of rotation.
- Confirm selection with .
- ✓ Direction of rotation of the absolute value encoder is reversed.
- Check the direction of rotation again.

Checking flush position with A6 Safety Monitoring Device



The preset floor spacings must be checked and adapted to conditions on site.

The POSITIONREL value of FLOOR {0} is the reference point for all floor values.

Zeroing the bottom floor

- Move the cage with the auxiliary control so that it is flush with Floor 0.
- Select MAIN MENU - CONFIG - INSTALLATION.
- Select SET FLOOR {0} with .
- Set FLOOR 0 with  .
- Confirm setting with .
- Set YES with  .
- Confirm selection with .

Checking relative flush position

- Select MAIN MENU - POSITIONING - FLOOR.
- ✓ In FLOOR [0], the POSITIONREL value is 000000.
- Select all floors with  +  and check the POSITIONREL value.

The POSITIONREL corresponds to the theoretical distance of the floors from the flush position of Floor 0.

If necessary the POSITIONREL values should be adapted to conditions on-site according to the system drawing.

Checking flush position with A6 Safety Monitoring Device

If the FST Control is equipped with an A6 Safety Monitoring Device, the flush positions can be automatically determined and logged by a so-called "learn drive".

The FST Control assumes that the flush positions are at the half-way point between zone magnets A and B for a floor, in relation to Floor 0. This value is automatically entered in MAIN MENU - POSITIONING - FLOOR - POSITIONABS.

Some of the terminals on the VSM preselection module in the control cabinet must be jumpered before a learn drive can be undertaken.



DANGER!

Electric shocks from electrically live lines and parts.

Severe, possibly even fatal injuries.

- Check and ensure voltage-free condition.
- Carry out installation work on electrical components when they are switched off and voltage-free.

Carrying out jumpering on the VSM preselection module

Terminals X5:5 and X5:6 are disconnected and jumpered. Terminal X8:6 is disconnected and remains free (see Fig. 4.3).

The jumpers must be long and clearly visible!

Check whether pins 2 and 3 on the VSM preselection module are plugged in.

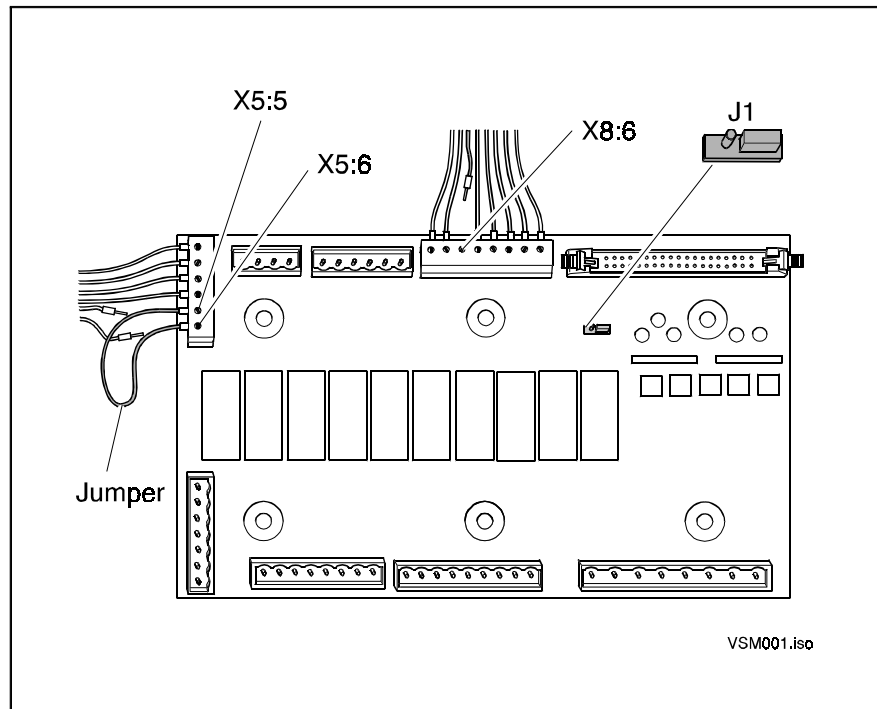


Fig. 4.3 Jumpers and plug-in jumpers on the VSM preselection module

Carrying out the learn drive

- Select MAIN MENU - CONFIG - INSTALLATION.
- Select LEARN DRIVE with **E**.
- Set YES with **←→**.
- Confirm selection with **E**.
- ✓ A learn drive is carried out and the values for the flush position is entered in MAIN MENU - POSITIONING - FLOOR - POSITIONABS .

Removing jumpers from VSM preselection module

On successful completion of the learn drive, the jumpers on the VSM preselection module should be removed and the original wiring re-established.

4.4 Carrying out a calibration drive

During a calibration drive, the retardation distances at all possible drive speeds are determined. The switch-off points for all speeds are computed with these values.



DANGER!

Unforeseen car movements.


Severe, possibly even fatal injuries.

- Cordon off access to shaft.
- Ensure before the start of work that no-one is still in the lift shaft.
- Prevent unauthorised operation of the control.

Conditions

- manually checked flush positions or learn drive has been carried out
- linear copying control is operational
- The INSTALLATION MODE is switched off, if not line B displays the FST display INSTALLATION MODE.





Switching off installation mode

- Select MAIN MENU - INSTALLATION - INSTALLATION MODE.
- Select OFF.
- Confirm selection with .
- ✓ INSTALLATION MODE is switched off.


Approaching the bottom floor

- Position the car with the auxiliary control so that its floor is flush with that of the bottom most floor.

Carrying out a calibration drive

- Select MAIN MENU - CONFIG - INSTALLATION - CALIBRATION DRIVE.
- Set YES with  .
- Confirm selection with .
- ✓ Four measuring runs are automatically executed for each drive speed.
- CALIBRATION-START flashes several times in line B of the FST display.
- During the measuring runs, CALIBRATION  is displayed several times. The figure specifies the number of measuring runs still to be executed.
- If the measuring runs have been successfully completed, the message CALIBRATION-OK flashes several times in line B.

Checking stopping precision

- Set "Pd =  in line C.
- Select TEST MENU - TEST DRIVE ON .
- Approach each floor once from below and once from above.
- ✓ If the deviation of the Pd value per floor is smaller than or equal to ± 2 mm, then the calibration drive has been successfully concluded.

With larger deviations:

- check the stopping precision of the motor
- check the load dependency of the motor
- adjust the motor regulator
- execute another calibration drive.

Checking flush positions

Each floor is approached by the cage and the stopping precision is measured and logged.

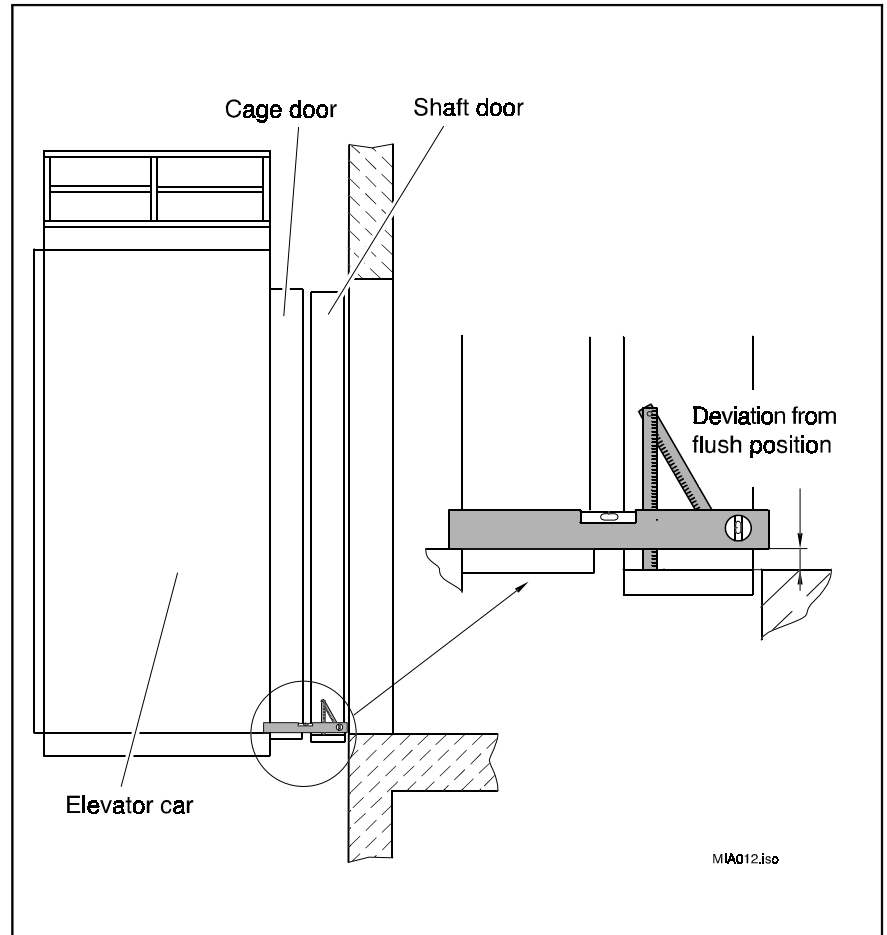


Fig. 4.4 Measuring deviation from flush position

Correcting flush position

- Select MAIN MENU - POSITIONING- FLOOR.
- Select POSITIONABS with **[E]**.
- Correct POSITIONABS value with **[↑][↓]** in order to correct the measured deviation from the flush position.
- Confirm selection with **[E]**.
- Select all floors with **[S]+[↑][↓]**.
- Correct the POSITIONABS value as described.




After the absolute flush positions have been corrected, the stopping precision must be checked once more at all floors.

Checking the proper functioning of all ADM landing call modules	Approach all floors and operate the lobby buttons at each floor. The lamp of the lobby button acknowledges a landing call by lighting up. The cage visits all the floors in the sequence set by the landing calls.
Checking the proper functioning of all EAZ floor level displays	Select all floors with the car button panel and observe how the EAZ floor display changes. The floor display must show the inputs made at the car button panel.




4.5 Commissioning the A6 Safety Monitoring Device

The A6 Safety Monitoring Device makes it possible for the car to approach to the stopping position with its doors already open. With the A6 Safety Monitoring Device, the car is also held the flush position when the doors are open (adjustment).

Approach with open doors

- Select MAIN MENU - DOORS - DOORS-BASIC.
- Select PRE-OPENING with .
- Set YES with .
- Confirm selection with .

Adjustment with open doors





- Select MAIN MENU - DRIVE.
- Select RE-LEVELLING with .
- Set YES with .
- Confirm selection with .

Checking flush positions and approach performance

- Approach all floors and check whether
- the doors open during approach.
 - the car is flush.

4.6 Setting control options

Crawl drive

- Setting crawl drive**
- Select MAIN MENU - POSITIONING - GLOBAL.
 - Select CRAWL DISTANCE with .
 - Set CRAWL DISTANCE with  .
 - Confirm selection with .





Password

The password protection of the FST Control prevents unauthorised modification of the set control parameters and hence any possible endangerment of persons using the lift or impairment of its operation. Three security levels for the activities of commissioning, customer service and maintenance are available.


Security levels

Level	No.	Access	Activity
high	1	unlimited	Commissioning
medium	2	limited	Customer service
low	3	non-editable menus	Maintenance





The password for the FST Control is four digit. The first three digits can be freely chosen while the fourth digit specifies the security level. On delivery the password is set as "0000".





- Setting the password**
- Select MAIN MENU - SYSTEM - PASSWORD SETTING.
 - Select LEVEL 1 with .
 - Set password for LEVEL 1 with  .
 - Confirm password with .
 - ✓ The password you selected has been set.





Proceed in the same way for Levels 2 and 3.













- Blocking the main menu**
- Select MAIN MENU - LOCK MENU.
 - Activate password settings with .
 - ✓ The next time that you change over from the main screen to the main menu, you will be prompted to enter your password.

Door times

- Setting the opening time** Opening and closing time for doors without limit switches.
- Select MAIN MENU - DOORS - DOORS-SELECTIVE.
 - Select OPENING TIME with .
 - Set OPENING TIME with  .
 - Confirm selection with .

- Setting the open hold time** Time for which doors remain open without waiting car or landing call.
- Select MAIN MENU - DOORS - DOORS-SELECTIVE.
 - Select OPEN HOLD TIME with .
 - Set OPEN HOLD TIME with  .
 - Confirm selection with .

- Setting reversing time** After a photo-cell signal, the door is kept open for the REVERSE TIME.
- Select MAIN MENU - DOORS - DOORS-SELECTIVE.
 - Select REVERSE TIME with .
 - Set REVERSE TIME with  .
 - Confirm selection with .


- | | |
|--|---|
| Setting change delay | Interval between a change in direction of movement of the doors. <ul style="list-style-type: none">➤ Select MAIN MENU - DOORS - DOORS-SELECTIVE.➤ Select CHANGE DELAY with .➤ Set CHANGE DELAY with  .➤ Confirm selection with . |
| Setting minimum wait at landing | Minimum stopping time at a floor when other landing calls are waiting. <ul style="list-style-type: none">➤ Select MAIN MENU - DOORS - DOORS-SELECTIVE.➤ SELECT MIN. WAIT LANDING with .➤ SET MIN. WAIT LANDING with  .➤ Confirm selection with . |
| Setting minimum wait for car | Minimum stopping time at a floor when other car calls are waiting. <ul style="list-style-type: none">➤ Select MAIN MENU - DOORS - DOORS-SELECTIVE.➤ SELECT MIN. WAIT CAR with .➤ SET MIN. WAIT CAR with  .➤ Confirm selection with . |

Group operation

The operation and programming of the GST Group Control is described in the "GST Manual".

5 Event and fault messages

5.1 LED messages on the user interface

LED	Colour	Condition	Cause	Remedy
RUN	green	on	The power supply for the FST Control is switched on. The hardware of the FST Control is running properly.	
		off	The FST Control has no power supply.	Check the 24 V power supply to the FST Control.
			The hardware of the FST Control is defective.	Restart the FST Control If the condition remains unchanged, inform the NEW LIFT hotline.
STATUS	green	on	The drive processor is functioning perfectly.	
		flashing	The lobby control is switched off.	 switches the lobby control on again.
		off	Fault in the drive processor.	Restart the FST Control If the condition remains unchanged, inform the NEW LIFT hotline.
ERROR	red	on	A run is not possible.	Line B indicates the cause of the fault. A new run is not possible until the fault has been rectified.
		flashing	One or more errors have been logged in the error list.	When the error list is called up, the LED ERROR goes out.
		off	No error or event has been logged.	

5.2 Error list

The FST Control saves up to 100 event and error messages. If required to optimise the configuration of the control, these messages can be retrieved at any time.

Calling up the error list

Select the **MAIN MENU - SERVICE- ERROR LIST**. General information on the operation of the FST Control can be found in Chapter 4.2, on Page 44.

```
ERROR(00037/00040)
28.09 10:18:26 (012)
DOOR CLOSE FAILED
FLOOR: 03 V00 R01 I00
```

Display in detail

```
ERROR(00037/00040)
```

The 37th event or error of the 40 registered.

```
28.09 10:18:26 (012)
```

Date and time of the event or error as well as the message code (012). The tables in Chapters 5.3 and 5.4 are arranged in ascending order according to the message code.

```
DOOR CLOSE FAILED
```

Event or error in clear text (= error code (012)).

```
FLOOR: 03 V00 R01 I00
```

The event or fault has arisen on the 3rd floor.

V00 signals generated by the FST Control.

R01 signals actually reported to the FST Control.

I00 first information byte.



With , the 2nd to 8th information byte is displayed.

```
ERROR(00037/00040)
28.09 10:18:26 (012)
DOOR CLOSE FAILED
01 02 00 00 00 00 00
```

```
01 02 00 00 00 00 00
```

Second to eighth information byte.

The current conditions of the elevator system are coded in the information bytes (hexadecimal).

The individual error messages can be selected with +.

5.3 Event messages

Message		Description	Cause
128	COLDSTART	The power supply to the FST has been interrupted and re-established.	<ul style="list-style-type: none"> - The FST Control has been turned off and on again at the fuse or at the main switch. - There has been a power cut.
129	INSPECTION	Inspection work is being carried out.	The inspection switch on the cage roof is turned to INSPECTION.
132	REMOTE RESET	The FST Control has been reset by the GST Group Control.	The FST Control has been reset via the serial interface.
133	CALIBRATION START CALIBRATION 02 CALIBRATION OK!	Conditions and progress of the calibration procedure are displayed.	A calibration drive has been triggered.
134	LEARN DRIVE-START LEARN DRIVE-02 LEARN DRIVE-OK!	Conditions and progress of the learn drive are displayed.	A learn drive has been triggered.
	AUXILIARY MODE	The auxiliary control is active.	The return switch in the switch cabinet door is turned to AUXILIARY MODE.

5.4 Error messages

Message		Description	Cause
1	MMI	Serious error in the CPU established by the ...monitoring.	Internal error
3	EMERGENCY STOP	The "ON" and "OFF" conditions of the triggered emergency stop device are displayed.	Break in the safety monitoring device in the emergency stop circuit.
5	DRIVE BOOT	Error during start up of drive process.	Internal error
6	DRIVE-WATCHDOG	Serious CPU error in the drive process area determined by the monitoring.	Internal error
7	DRIVER-EXER	Error during transmission of the data relevant to the drive process.	Internal error
9	OPEN DOOR LOCK	Door contact open during the run. INFO-BYTE 1: Status of the safety monitoring device.	Break in safety monitoring device in door circuit during run.
12	DOOR CLOSE FAILED	Door cannot be closed. INFO-BYTE 1: 0 = Door A 1 = Door B 2 = Door C INFO-BYTE 2: 1 = does not close because the opening switch is still active. 2 = does not close completely, the closed switch has not yet been reached.	- The cage door is mechanically or electrically blocked. - The door limit switched not activated.
Continued overleaf			

Message		Description	Cause
13	DOOR LOCK RETRY CNT	<p>Error when the doors close.</p> <p>INFO-BYTE 1: 0 = Door A 1 = Door B 2 = Door C</p> <p>The closure attempts made are shown under MAIN MENU - DOORS-BASIC - LOCK FAULT .</p>	The shaft door contact (lock) does not close in spite of n attempts.
14	DMF-START PROBLEM	<p>The drive does not start up.</p> <p>Reset in TEST MENU - FAULT RESET.</p>	The cage does not start moving although preselection is active.
15	DMF-DRIVE MONITOR	<p>Monitoring or drive error. A movement of the car during the run could not be established.</p> <p>INFO-BYTE 1-4: Display of the relative position in mm.</p> <p>Reset in TEST MENU - FAULT RESET.</p>	<p>The encoder position does not change although the preselection is active:</p> <ul style="list-style-type: none"> - the encoder is defective - no electrical connection to the encoder - the drive is not moving
16	DMF-ENCODER FAILURE	<p>Plausibility test of the car position via the encoder is faulty.</p> <p>Reset in TEST MENU - FAULT RESET.</p>	<ul style="list-style-type: none"> - the encoder is defective - check the electrical connection to the encoder.
17	DMF-CAR COMMS FAIL	Communication between the FST Control and the FSM car control module is disrupted.	<ul style="list-style-type: none"> - Plug-in connections of the trailing ribbon cable are not plugged in or loose. - Line rupture in the trailing ribbon cable.
18	DMF-END FLOOR SPEED	Reset in TEST MENU - FAULT RESET.	The retardation control circuit at the top and bottom limits has been activated.
Continued overleaf			

Message		Description	Cause
19	DMF-MISSING ZONE	No zone. INFO-BYTE 1-4: Display of the relative position in mm. Reset in TEST MENU - FAULT RESET.	The car has reached the flush position, but has not received a zone message from A6 Safety Monitoring Device. Check A6 Safety Monitoring Device and the zone magnetic switches.
20	DMF-BRAKE FAILURE	The brakes do not respond or cannot be triggered. Reset in TEST MENU - FAULT RESET.	- The brake does not open although preselection is active. - The brake does not close despite stop. Monitoring via input VSM:X4.7
21	DMF-MOTOR FAILURE	Motor error	Overheated motor Monitoring via input VSM:X4.5
22	CONTRACTOR MONITOR	Fault in motor contacts. Reset in TEST MENU - FAULT RESET.	The main contacts do not release after the flush position is reached. Monitoring via input VSM:X4.6
27	SLIP OUTSIDE LEVEL	Unforeseen car movement out of stopping position. INFO-BYTE 1-4: Display of the relative position in mm.	The drive does not stop in the flush position despite removal of the preselection. The retardation distance of the drive is too long.
28	SLIP OUTSIDE ZONE	Unforeseen car movement out of the zone. INFO-BYTE 1-4: Display of the relative position in mm.	The drive does not stop in the flush position despite removal of the preselection. The retardation distance of the drive is too long.
30	BUS-IF TIMEOUT	Error at LON bus interface.	Internal error
31	START-ABORT	Start up of motor is interrupted.	Internal error
32	STOP-ABORT	Motor stop interrupted.	Internal error
Continued overleaf			

Message		Description	Cause
33	RELEVELLING ABORT	An error has occurred during correction and interrupted it.	The zone circuit A6 has a fault.
34	BYPASS FAILURE	The safety bypass during approach with open doors is missing.	The zone circuit A6 has a fault.
35	DOOR LOCK TIMEOUT	The delay between activation of the cage door contact and lock contact is in MAIN MENU - DOORS-BASIC - DOOR LOCK TIMEOUT.	The cage door is closed, however the lock contact does not close in the specified time.

6 Terminal and pin assignment

Only the terminal and pin assignments relevant to installation and commissioning of the FST Control are specified below. A complete overview of the terminal and pins of the FST Control and its components is contained in the FST manual.

Trailing ribbon cable

For a description of the pins of the trailing ribbon cable see Fig. 3.10 on Page 34.

FST: X2	Colour code	Description
1	rs	Data signal "A"
2	ge	Clock signal "A"
3	rt	Encoder signal "A"
4	br	+24 V DC
5	ws	GND
6	gr	Data signal "B"
7	gn	Clock signal "B"
8	bl	Encoder signal "B"
9	Shielding	PE

FST: X4	Colour code	Description
1	rs	Bus signal "A"
2	ge	Telephone "A"
3	rt	Voice "A"
4	bn	Emergency power supply (HSG)
5	ws	+ 8 - 24 V DC (power supply for backup power unit)
6	gr	Bus signal "B"
7	gn	Telephone "B"
8	bl	Voice "B"
9	Shielding	PE

VSM: X8	Description
1	+24 V DC
2	+24 V DC
3	GND
4	GND
5	Zone switch A
6	Zone switch B
7	Correction switch, top
8	Correction switch, bottom

FSM: X1	Colour code	Description
1	rs	Bus signal "A"
2	ge	Telephone "A"
3	rt	Voice "A"
4	bn	Emergency power supply (HSG)
5	ws	+ 8 - 24 V DC (power supply for HSG)
6	gr	Bus signal "B"
7	gn	Telephone "B"
8	bl	Voice "B"
9	NC / Shielding	not connected / shielding of FST

FSM: X13	Description
1	+24 V DC
2	+24 V DC
3	GND
4	GND
5	Zone switch A
6	Zone switch B
7	Correction switch, top
8	Correction switch, bottom

The labelling and assignment of terminals X100/1, X100/2, X200/1 and X200/2 can be obtained from the system-specific circuit diagrams.

LON bus

PIN	Colour code	Description
1	sw	Bus signal "A"
2	ws	Bus signal "B"
3	rt	+ 24 V / 4 A
4	vi	GND

VSM preselection module

X5	Colour code	Description
1	rt	+24 V DC
2	vi	GND
3	rt	Zone enabling
4	rt	Zone signal
5	vi	Zone switch A
6	vi	Zone switch B

FSM car control module

X12	Description
1	+24V DC
2	Inspection ON
3	Inspection UP
4	Inspection DOWN
5	Inspection FAST

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