INSTRUCTION
PLATFORM LIFT
2-6 Floors

This is a translation of the original instruction IQ70-10

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Object:_____
Lift no:_____

Contents

Description and technical data
Vertical lifting platforms intended for use by persons with impaired mobility.

EC Type examined according to the Machinery Directive 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL Harmonized Standard EN-81-41 and the latest version of the
Certificate No. 85618-2010-CE-NOR-DNV

Field of application:	Private and public environment. Schools, hospitals, residences, industries, offices, banks, libraries, stadiums, hotels, parish halls, etc. Use may be restricted by Member states
Lifting height:	Max 13.0 metre.
Landings:	2-6 Landings.
Rated load:	400–500kg or 5-6 persons, and max area of 1.96 m2
Supply voltage:	Single phase 230-240V 10A
Drive system:	Guided chain system with life cycle greased gear, and 0.55 kW asynchronous motor. Including safety gear with integrated self-supervised over speed governor.
Lift shaft:	Self-supported. The shaft consists of modules assembled at the construction site. Shaft height on the top floor is 2200 mm
The shaft finish:	The flat sheet surface factory painted in broken white RAL 9010.
Doors:	Swing door 900x2000 mm on main floor. Swing door 900x2000 or 1300mm on top floor. Manual doors with door closer. The standard door is 1d.
Pit:	60-mm depth or 60-mm ramp
Platform:	L- Shaped platform with safety edge.
Lighting:	LED lighting in shaft ceiling, the platform is also equipped with emergency lighting of LED type.
Manoeuvring:	Hold to run on the platform, and single push on landings The size of control buttons is 45x60 mm.
Control system:	Micro processor system. Cabinet has encapsulation IP20
Manual emergency operation:	The lift is equipped with emergency manual operation, which lowers the platform to the nearest landing. Electrical emergency lowering function can be available as an option.
Airborne noise emission:	The airborne noise emission does not exceed 70 dB(A)
Warnings:	The platform shall not be used with loads higher than 500 kg, and the loads shall not be higher than 2000 mm.
Options:	Automatic swing doors, Automatic lock function, Fault alarm, Fire drive, Parking, Electrical emergency lowering, Voice and floor indicator on the platform.

Work in pit!
Warning!
Risk of getting jammed!
Risk for crushing!

There is a mechanical device, when in activated position stops the platform 0.5 meter from the pit floor and on the device there is a safety switch which electrically prevents the lift from starting.

Warning sign with a pictogram in the pit

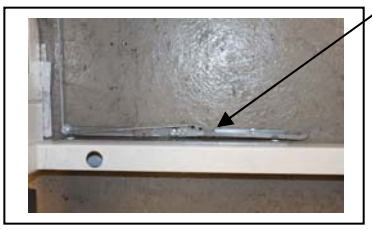
Risk for crushing!

The mechanical device in normal position: No green light it's not safe to work in pit

The mechanical devise in active position: Green light it's safe to work in pit

The mechanical device in the ground floor door frame

Activate the mechanical device.



Stop button and mechanical device indication light. Enter the pit when light is green only.

After work in the pit a reset must be done in the lift computer to get the lift back in normal service.

Made by: Johan S
Approved of: Stefan W
Date: 2014-01-23

Motala MC2000

Replace: 2013-12-12

Fuses and switches

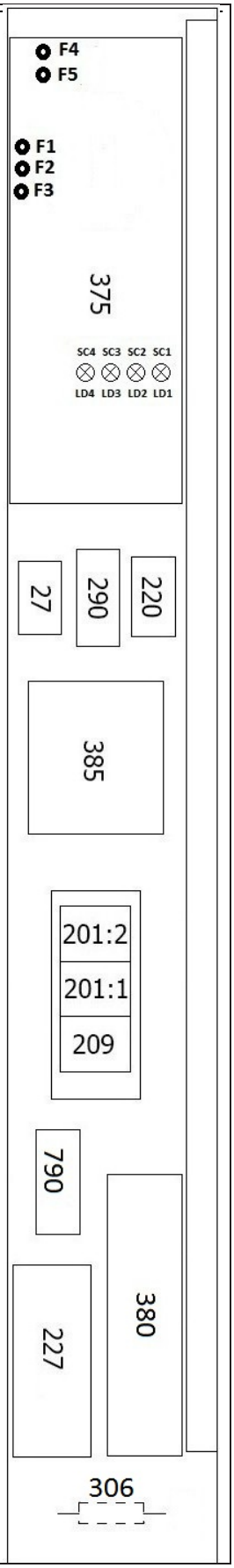
Warning!
Main switch 220: disconnects lift functions only.
Shaft light and its control will still be alive. To switch off the shaft light also the switch 290 must be switched off.

Warning!
Before making reset of the lift!
Check that nobody is in the pit.
Reset the lift in the lift computer reset menu.

Fuses and switches
220…….Main switch.
290……..Switch/Fuse 6A Shaft light
27…… Over connection during emergency drive (option)
F1…….4AT 24VDC MH automatic doors (option)
F2…….T1.25A 24VDC Safety circuit
F3……..T4A 24VDC Electronics, Logic voltage
F4……..T3.15A 230VAC Faac automatic doors (option)
F5……..T1.25A 230VAC Primary transformer

Indications
SC1 = Safety circuit 1 (stop circuit)
SC2 = Door circuit floor 1
SC3 = Door circuit floor 2-6
SC4 = Lock circuit

Components
201-209 = Contactors
227 = Battery
306 = Brake resistor (behind panel)
375 = Lift computer
380 = Inverter 12-230V emergency drive (option)
385 = frequency drive
790 = Contactor evacuation emergency drive (option
For more information see position list in the electrical drawings



User manual

Use of lift

- Push the call button once and the lift will come to you automatically if it's not in use. The lift stops when it reaches the floor, the door opens automatically if the lift is provided with automatic door opener (optional)
- Enter the lift.
- On platform push and hold the destination button. (Hold to run) the lift will start when the door is closed. The lift will stop automatically when it reaches the destination floor. Release the button when the lift has stopped completely.
- The door will open automatically if the lift is provided with automatic door openers (optional), otherwise the door have to be manually opened by pushing. Leave the lift. The door will close automatically.

Lift doesn't start

Fault search

Stop button:
If this button is activated the lift will not start! Release the stop button by turning it clockwise.

Sensitive edges:
Around the platform there are movable sensitive edges that will stop the lift if an obstacle gets stuck in between the walls and platform.

Fault codes:
In case of a fault the lift can send out fault codes on the call station by flashing the indication lamps in different sequences. See page 26 for meaning of fault codes. If possible, note down the fault code and report it to the service company.

Alarm system

Emergency button:
When pushing this button the alarm buzzer will sound and after 5-10 seconds the auto dialler (if installed) will call for help. The main power that supplies the lift must be switched ON all the time otherwise the alarm system that has battery backup may not work.

Emergency situations

If there is need to open the door in an emergency/or emergency lower of the lift. See instruction on page 7 - 8

Cleaning of lift

See maintenance instruction on page 18

Emergency opening of swing doors

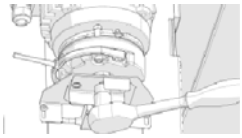
Warning! Risk of falling into the well!

Emergency open the swing doors when the platform is in floor zone.

Step	Action	Note
	Important! Before release trapped persons! **Inform the trapped persons of what is going to happen. Ask the persons to be placed centered near the control panel.** **Warning! Always if possible move the platform to door zone! Risk of falling into the well!** **Important! Afterwards. Check that all doors are closed before leaving the lift.**	 Emergency opening tool. 
1	Switch OFF the main switch 220	
2	There is a hole in the door frame, this hole can be covered by plastic cap, if so remove the cap.	
3	Insert the emergency opening tool and turn, at the same time pull to open the door.	Hinges on left side: Clockwise. Hinges on right side: Anti-clockwise.
4	After rescue, make sure door is closed.	
5	Reset of the lift is normally made automatically when the main power is back.	If the lift doesn't start make sure that the doors are closed

Manual emergency lowering

Important! This action shall be made by a trained person with full knowledge of the lift and must have full control of the lift during emergency lowering demonstration.

Step	Action	Note
	Important! Before release trapped persons! **Inform the trapped persons of what is going to happen. Ask the persons to be placed centered near the control panel.** **Warning! Always if possible move the platform to door zone! Risk of falling into the well!** **Important! Afterwards. Check that all doors are closed before leaving the lift.**	 Type 1  Type 2
1	Switch OFF the main switch 220	
2	Move the platform by using the emergency tools and turn the motor axle in the direction so the platform goes to the nearest landing. Note! On motor type 2 there is a hatch that must be opened before it's possible to attach the emergency tool.	The platform will move about 6mm/turn. There is an arrow, which shows the direction for lowering.
3	Rescue person/s on the platform. **Warning! Let only passenger leave the platform when the platform is in a door zone to prevent people from falling the well!**	
4	**Important! Check that all doors at each landing are closed and locked before leaving the lift.**	
5	In case of power failure. Put the main switch back to the ON position first after that the power has coming back and check all safety functions. In case of lift malfunction, call your service provider.	

Electrical emergency lowering system (Option)

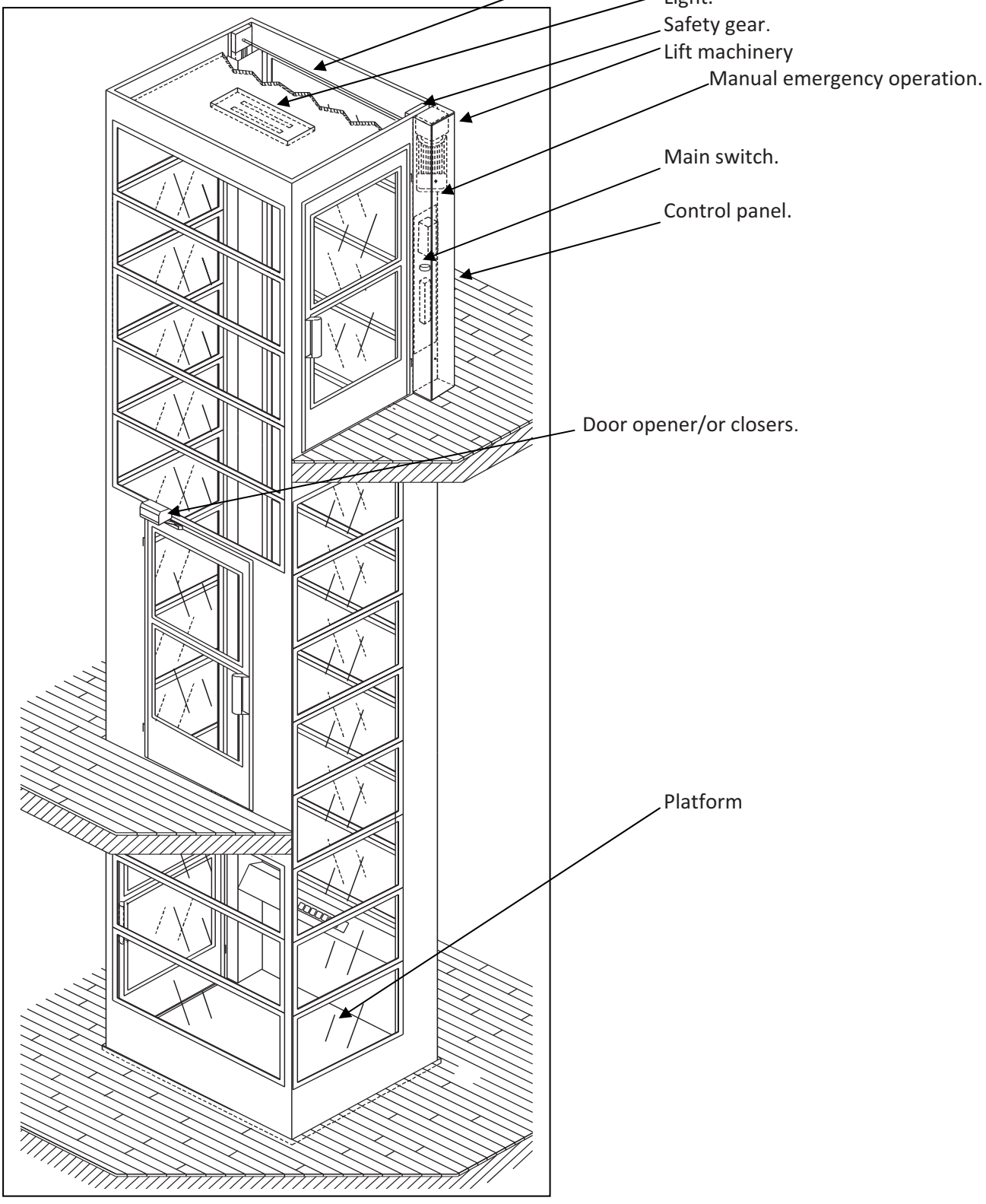
Important! This action shall be made of a trained person with full knowledge of this lift and must have full control of the lift during emergency lowering.

Warning! The lift system will for a short while go live by a battery backup system when the main power is gone!

Warning! When pushing the button 27 the safety circuit will be shorted out except for the emergency lowering contact 28, safety gear contact 127, stop in pit 112 and the pit prop 155.

Information! In case if the lift power supply is lost. Normally the trapped person can be able to drive the lift by himself to nearest exit floor. Limitations! It's only possible to drive downwards. The lift must also be between two floors when the power disappears.

Step	Action	Note
	Important! Before release trapped persons! **Inform the trapped persons of what is going to happen. Ask the persons to be placed centered near the control panel.** **Warning! Always if possible move the platform to door zone! Risk of falling into the well!** **Important! Afterwards. Check that all doors are closed before leaving the lift.**	**Note!** It's in some situations not possible to move the lift with the electric lowering function! Use the standard tools in case of need to move the platform. See instruction for manual emergency lowering
1	Push once on the button 27 to get to the emergency menu automatically in the lift computer menu system or press **Enter** and then step to the menu **Emerg. OP** (Emergency operation) Chose the menu **E-Drive** (Emergency drive) Drive the lift up or down by push the arrow **up** or **down**. **Note!** It's only possible to also drive upwards when the lift has main power feed. **Note!** The platform will stop by itself at the next floor in the down direction or at an evacuation floor if it's set in menu F.6.1	**Note!** The lowering speed is 0.01 meter/second if the safety circuits are over connected with the 27 button. The emergency battery must be in good condition. **Note!** It's not possible to perform an automatic emergency drive if the lift is placed at a floor with the landing door lock open. **Note!** It's not possible to E-drive if some of the safety circuits are gone!
2	**Warning!** If necessary, some of the safety circuits can be shorted out by pushing the **button 27**. Make sure you have full control of what happens on the platform and around the lift. **Warning! The lift can then be lowered with landing doors open!**	
3	Rescue person/s on the platform. **Warning! Let only passenger leave the platform when the platform is in a door zone to prevent people from falling into the well!** **Important! Check that all doors on each landing are closed and locked before leaving the lift!**	

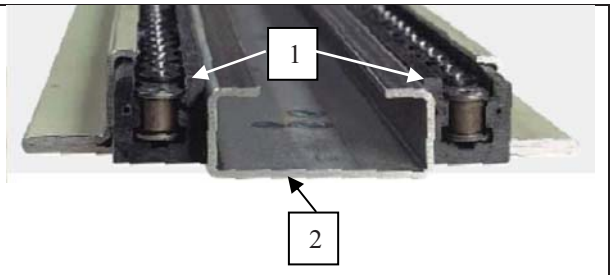

Driving axle.
Light.
Safety gear.
Lift machinery
Manual emergency operation.
Main switch.
Control panel.
Door opener/or closers.
Platform

Made by: Johan S
Approved of: Stefan W
Date: 2014-01-23

Motala MC2000

Description of this lift type drive technique

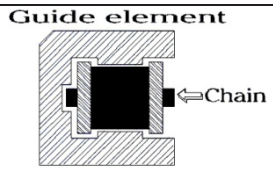
In normal use the platform is suspended by two independent chains. In case of rupture of a chain the platform will be supported instead, this since the chain can't leave its track.



The plastic guiding elements (1) for the chain are situated in a special steel profile transmission unit. In the middle is the C-profile guide (2) where the lift shoes runs inside.

Guided Chain Drive system can take the load both supported and suspended because the chain is guided all the way around and, is confined in its track.

Example. Showing general principle of chain and guide layout.



The chain is fixed in both horizontal and vertical planes inside the guide element.

Control instructions

**** Control before first use and once a year.**
*** Control before first use only.**

****Control of the brake:**
The brake torque shall be measure with a torque wrench on the emergency axle.
The measurement shall be at least: 8 Nm and maximum 10 Nm.
Control of brake distance is checked as follows:
Run the lift downwards from the platform with maximum load and stop the lift by using the emergency stop.
The brake distance shall not exceed 30mm.

****Control and test of the safety gear and the safety gear contact:**
The safety gear is provided with a catch tap which trips the safety gear contact.
To test the safety gear, open the control panel on the top floor. Inside the panel there is a string to trip the safety gear, by pulling this string will lift up the shuttle and trip the safety gear.
Put the platform with no load on the top floor. Go into the lift computer tools menu, chose test limit, pull the string and at the same time in the menu choose test safety gear. The lift moves downwards and the safety gear will trip.
The lift shall stop at a distance of 175 mm.
Now, normal operation shall not be possible. Reset the safety gear. See instruction on page 20.
Note! The tripping speed of the over speed governor is checked at the factory before delivery.

***Test of insulation:**
The control of insulation shall be checked according to instruction on page 15

Control of the safety circuit:

****Control of the emergency lowering contact:**
The emergency lowering contact is fitted at the end of the motor shaft.
Apply the emergency tools to the motor, the lift shall not be able to run, reset the lift.
When the platform is between two floors the reset shall be possible from the platform or by open and close a door contact or in the lift computer menu system.

Control of final limit switch 51 at the top landing.
Place the platform at the very top floor. Go into the lift computer menu system and choose ***tools/test limits*** and then ***upper limit***. Run upwards by pushing arrow up. The lift should stop within 15 mm. Restore the lift by lowering the platform to the top landing, by using the hand-winding tool. Check that the platform stops correctly at top landing.

Control of final limit switch 51 at the ground landing.
Place the platform at the very bottom floor. Go into the lift computer menu system and choose ***tools/test limits*** and then ***lower limit***. Run downwards by pushing arrow down. The lift should stop within 15 mm. Restore the lift by rise the platform to the ground landing, by using the hand-winding tool. Check that the platform stops correctly at ground landing

**** Control before first use and once a year.**
*** Control before first use only.**

****Control of the ground floor door contact at the landing.**
The ground floor landing door contact is supervised in such a way that if the door is opened when the platform is not at the ground landing, the system will be blocked. Test by open the door using the emergency opening tool when the platform isn't there. Note! The first safety circuit must be OK (pit-prop etc) to make the system detect that the door has been opened. Reset is made in the lift computer menu system.
Reset/low pit
Note! The supervision has a small time delay before it will trip just to avoid unnecessary stops.

****Control of the door contacts:**
All door contacts shall be checked on each floor to be sure that the lift can does not start unless all doors are closed. Check the contacts by running the platform and open the door at each landing, the lift shall not be able to run. Check also if the lift can run with open doors, all doors shall be checked. Note! When the ground floor contact is broken during a run, you must reset the system to bring back to service.

****Control of the door locking contacts.**
Control the engagement of the locking bolt when the lift is at a landing.
Push and hold the locking bolt to its inner position; give a destination, release the Locking bolt carefully until the platform just starts moving. Measure the distance between the door frame and the top of the locking bolt (chamfered parts of the locking bolt shall be excluded) reduce the length with the gap between the door and the door frame (at the position of the locking bolt). The resulting figure gives the engagement of the Locking bolt into the door. This distance shall never be less than 7 mm

****Control of pit-prop and stop button in the pit:**
1. Park the platform at the topmost landing.
2. In the control panel check that the LED SC1 is illuminated.
3. Open the ground floor door by using the emergency opening tool.
4. Activate the mechanical pit-prop.
5. Check that the green lamp is illuminated. This lamp indicates that the pit prop is in safe entry position.
6. Close the door and check that SC1 is OFF and the lift computer gives alarm for low pit. It shall not possible to run the lift.
7. Open the door again and activate the emergency stop button in the pit.
8. Leave the pit and deactivate the pit-prop and then close the door.
9. Check that SC1 still is OFF and it shall not possible to run the lift.
10. Open the door again and activate the mechanical pit-prop. Enter and reset the stop button.
11. Leave the pit and deactivate the pit-prop and then close the door and the check that it's not possible to run the lift.
12. Before reset to normal service! Check first that there is nobody in the pit. Reset in the lift computer reset menu.

****Control of the emergency stop on the platform:**
Activate the emergency stop, the lift shall not be able to run from the call buttons. Reset of the lift can only be done from the car call buttons or by open and close a door contact, and by making a reset in the lift computer menu system.

**** Control before first use and once a year.**
*** Control before first use only.**

****Control of the sensitive edges on the platform:**
Activate the sensitive edges, the lift shall not be able to run from the call buttons. Reset of the lift can only be done from the car call buttons or by open and close a door contact, and by making a reset in the lift computer menu system. Check all positions.

****Trip control of the safety circuit" fuse F2":**
The fuse F2, shall be checked so the right fuse value is installed, see the wiring diagram.
Short the safety circuit to ground by connecting a wire from the very end of the safety circuit (XH1/4) to ground, the fuse F2 shall trip. Replace the fuse and make sure the value is right.

Remaining control:

****Control of the precision on the landings:**
Take the platform to a landing, and measure the distance between the landings and the platform, the distance shall not exceed 10mm. Check from both drive directions.

***Control of the overload:**
It shall not be possible to start from a floor if the load exceeds the max load. Difference can be up to +75kg.

***Dynamic test with test factor 1.1 of max load:**
The lift shall work with the max load.

***Static test with test factor 1.25 of max load:**
Load the lift with max load multiplied with 1.25. The lift shall not get any permanent deformations.
Note you shall drive the lift with this load, just load the platform!

****Control of the door slits:**
The door slits shall not exceed 6mm.

****Control well and platform clearances:**
Check that the distance between the platform sensitive edges and the shaft wall does not exceeds 15mm.
Check inside lift well that the unevenness is less than 2mm.
Check that there is no damages, sharp edges etc.

****Control of emergency alarm and light:**
Cut the main power to the lift. Check that light and emergency alarms, telephone systems are working (Cut the feed fuse, not the main switch 220 in the control panel)

**** Control before first use and once a year.**
*** Control before first use only.**

****Control of electrical emergency lowering system: (Option)**
Cut the main power to the lift. Check that it's possible to emergency lower the lift.
(Cut the feed fuse, not the main switch 220 in the control panel) See instruction on page 8.

****Control of light:**
Check all light in ceiling and at all floors is working.

****Control of chain guide wearing:**
See instruction on page 17.

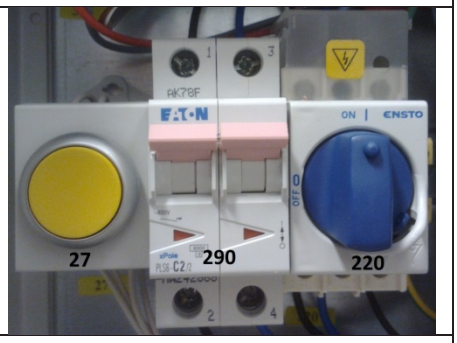
****Control of signs, emergency tools etc:**
Control panel
Control panel sign.
Tools for emergency opening of doors and lowering the lift.
Before emergency lowering cut the main power
Direction arrow for emergency lowering
Sign for main power switch.
Lift manufacturing sign
Service book

Bottom floor door and pit
Danger reduced bottom clearances
Stop sign

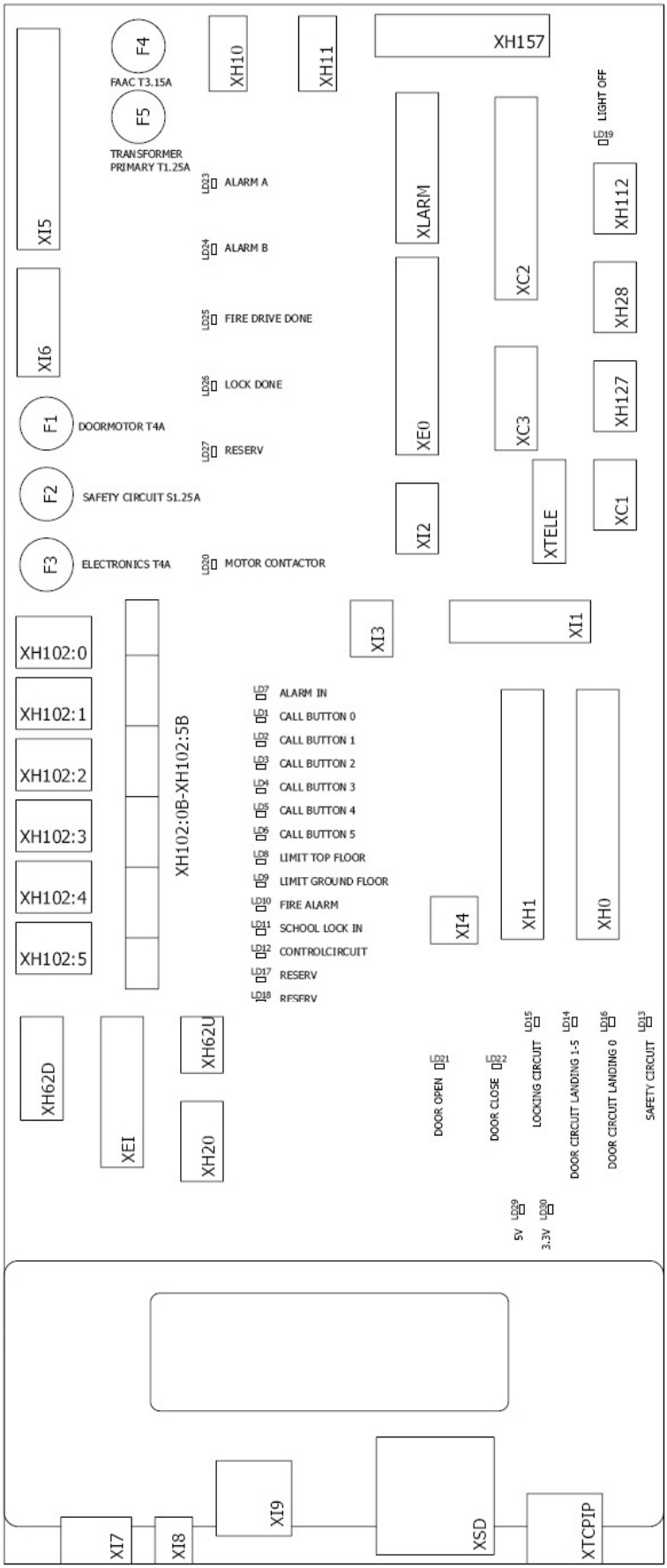
Shaft top
Warning this roof is not load bearing (If any)
Important after tripping the safety gear
Attention after unintentional tripping.

On the platform
Possible emergency phone sign

Insulation control

Step	Action	Note
1	Place the platform between two floors to make the whole safety circuit OK.	Check that the safety circuit is OK. SC1 till SC4 shall be illuminated.
2	Switch OFF the main power switch 220 and also 290 if any.	
3	Disconnect temporarily the battery and also unplug the terminal XTele where external 12V equipment may be connected.	
4	Temporarily disconnect the earth connection between controller and earth bar by disconnect terminal X16/3 on the controller.	See layout on next page for fuse and terminal positions.
5	Lift all the fuses F1-F5. Note! Be careful not drop any fuse holder!	Note! It might be necessary to temporary disconnect extra equipment e.g. Faac door operators etc.
6	Check that the safety circuit is ok, check by measuring between terminal XH112/1 and XH1/4. Use an ohmmeter.	
7	The measuring of the insulation shall be done between earth bar and safety circuit. Measuring between earth and terminal (XH1-6 terminal 4) Isolation resistance shall be $\geq$ 0.5 MΩ	Important! The control voltage on the insulation tester shall be 500V.
8	The measuring of the insulation on the motor shall be done between phase and earth. Isolation resistance shall be $\geq$ 0.5 MΩ. Measuring between the contactors where the motor cables are connected. Terminal 2 on contactor 201:1 and on contactor 201.2 terminal 2 and 4	
9	Shaft light if this is connected to the lift control panel. Measuring shall be done between terminal XH157/4 and earth. Isolation resistance shall be at least, $\geq$ 0.5 MΩ.	The switch 290 must be switched OFF
10	After final isolation tests put all terminals back. X16/3 and terminal XTele. Fuses, battery and at last switch on the main power switch 220 and switch 290. Test the lift and fill in the test record.	

MHC1 Layout

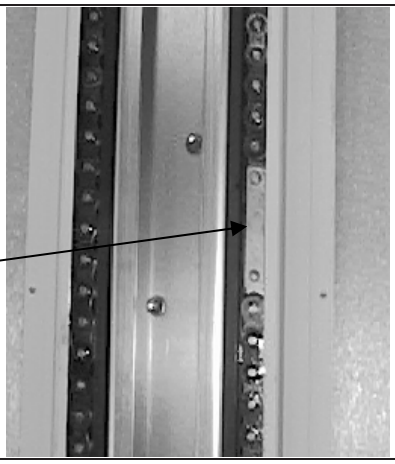

F4
FAAC T3.15A
F5
TRANSFORMER PRIMARY T1.25A
F1
DOORMOTOR T4A
F2
SAFETY CIRCUIT S1.25A
F3
ELECTRONICS T4A
XH10
XH11
XH157
XI5
XI6
XLARM
XC2
XE0
XC3
XI2
XTELE
XH112
XH28
XH127
XC1
LIGHT OFF
LD19
LD23 ALARM A
LD24 ALARM B
LD25 FIRE DRIVE DONE
LD26 LOCK DONE
LD27 RESERV
LD30 MOTOR CONTACTOR
XH102:0
XH102:1
XH102:2
XH102:3
XH102:4
XH102:5
XH102:0B-XH102:5B
XI3
XI1
LD7 ALARM IN
LD1 CALL BUTTON 0
LD2 CALL BUTTON 1
LD3 CALL BUTTON 2
LD4 CALL BUTTON 3
LD5 CALL BUTTON 4
LD6 CALL BUTTON 5
LD8 LIMIT TOP FLOOR
LD9 LIMIT GROUND FLOOR
LD10 FIRE ALARM
LD11 SCHOOL LOCK IN
LD12 CONTROLCIRCUIT
LD17 RESERV
LD18 RESERV
XI4
XH1
XH0
XH62D
XEI
XH62U
XH20
LD21 DOOR OPEN
LD22 DOOR CLOSE
LD15 LOCKING CIRCUIT
LD14 DOOR CIRCUIT LANDING 1-5
LD16 DOOR CIRCUIT LANDING 0
LD13 SAFETY CIRCUIT
LD29 5V
LD30 3.3V
XI7
XI8
XI9
XSD
XTCPIP

Made by: Johan S
Approved of: Stefan W
Date: 2014-01-23

Motala MC2000

Replace: 2013-12-12

Control of chain guides

Action	Note
Measurement of the wear shall be carried out by the use of a feeler gauge. Measure the gap between the chain connection bar and the chain guides. The gap must not exceed 2.0mm. If the gap is greater than 2.0mm the chain and guides must be replaced Chain joining connector bar for the chain.	

Maintenance instruction

Warning!

Regarding work in pit on the MC2000 platform lift without permanent rescue space! Before entry and work in the pit can begin the main switch must be set to OFF! The mechanical pit prop shall be in active position and the emergency stop shall always be used. The electrical contacts also prevent the lift from restart.

Maintenance shall be done at least twice a year depending of the frequency of use. It shall be performed of a person who has essential knowledge about this platform lift and its functions. Especially the safety requirements for this kind of product.
At maintenance at first the correct function of safety components shall be made, the safety circuit, the brake, the safety gear and the locking device.
If the lift is provided with automatic door machinery it shall be checked be checked, and adjusted if needed.
All work on this equipment, when it is powered on, shall been carry out by a person with qualification for that kind of work.

Safety

Check the lift safety functions by following the control instructions on page 11

Guides

The guides shall be greased at least once a year depending on the frequency of use, with Super Lube or equivalent.

Chains

The chains shall be lubricated at least twice a year depending on the frequency of use, with Cargoflow oil or equivalent. See separate instruction for control of wearing on page 17.

Safety gear

The safety gear is fitted in the upper corner inside of the lift well. The safety gear is of a type with built in over speed governor. If the safety gear trips the lift will stop mechanically and it's also supervised by a switch that will stop the lift electrically. A reset must be done after a safety gear test. The safety gear shall be inspected at maintenances and also after each test. See separate instruction on page 20
Do not lubricate the safety gear! (As this will cause friction problems with the shuttle)

Lock arms

Check that the door bolt opens enough. Adjust at the lock arm if necessary.

Retiring ramp

The lift has a battery backup electrical retiring ramp for the landing door locks. A landing door lock can only be open by the retiring ramp if the platform is placed in a landing zone. The retiring ramp will unlock in case of a main power failure. Important! The retiring ramp has moving parts! Before work on the retiring ramp! Switch of the main power and disconnect the emergency battery.

Shaft light

Note! Not concern lifts with 1300mm shaft height at top floor.
The lift controller controls automatically the shaft light via a relay for saving energy. The light is on when the relay is off. Warning! There is still power to the light even if the main switch 220 is set to OFF. Also turn of the light switch 290 before work. See the electrical drawings for more information.

Door closers

Check and adjust the door closers. (The doors shall not slam)

MH Door openers

Check and adjust the door openers, if necessary re-tighten the fastening screws. Check the close force and if necessary adjust it.

FAAC Door openers

See separate instruction following the openers.

Emergency Light

LED lights is placed under the platform control panel, these are both for standard and emergency light.
The emergency light and other emergency functions are backed up with a battery which shall be replaced every second year. In a case of a main power interruption the light will be switched off after 1 hour. The lift will go back in normal service when the main power is back. The LED lamps are integrated on the platform connection board. For saving energy during normal service can the light be shut off automatically when nobody using the lift.

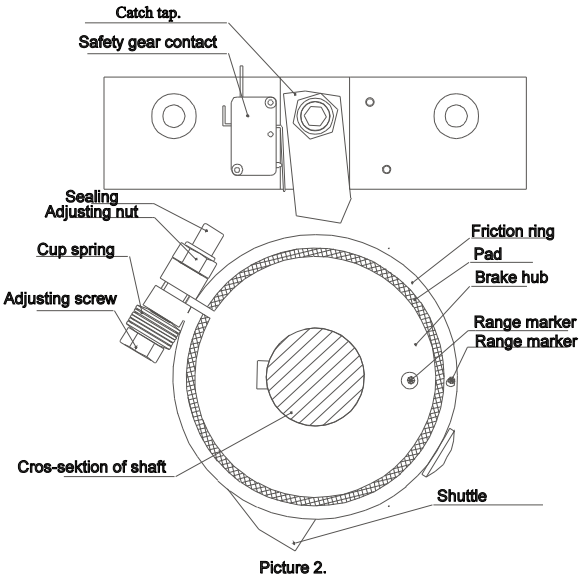
Cleaning

Areas inside, under and near the lift must be kept clean.
Push buttons: Generally it's sufficient to wipe with a damp cloth and polish afterwards. If cleaning agents is used. Do not use concentrated cleaning agents or concentrated disinfectant. Use only cleaning agents with medium PH level 6-8 or mild alkaline cleaners.

Reset of safety gear after test.

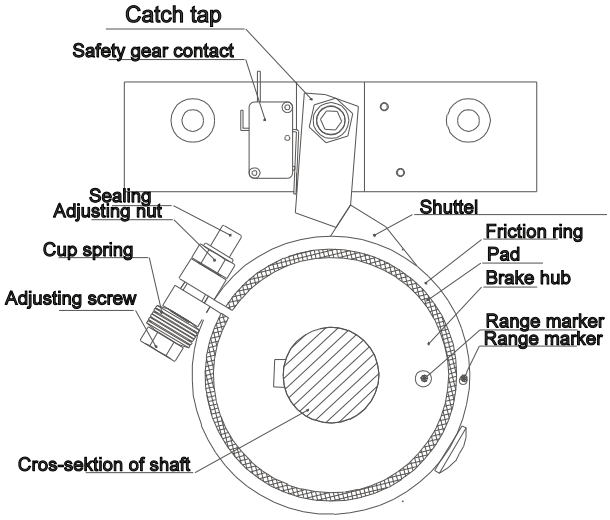
After test! Raise first the lift with the emergency tools so much that the shuttle is released from the catch tap.

Safety gear in normal position.



Picture 2.

Tripped safety gear.



Picture 1

The safety gear catch tap must be restored manually after test.

After tripping of the safety gear, see picture 1, must the brake hub must be manually reset!
The range markers must be opposite each other.

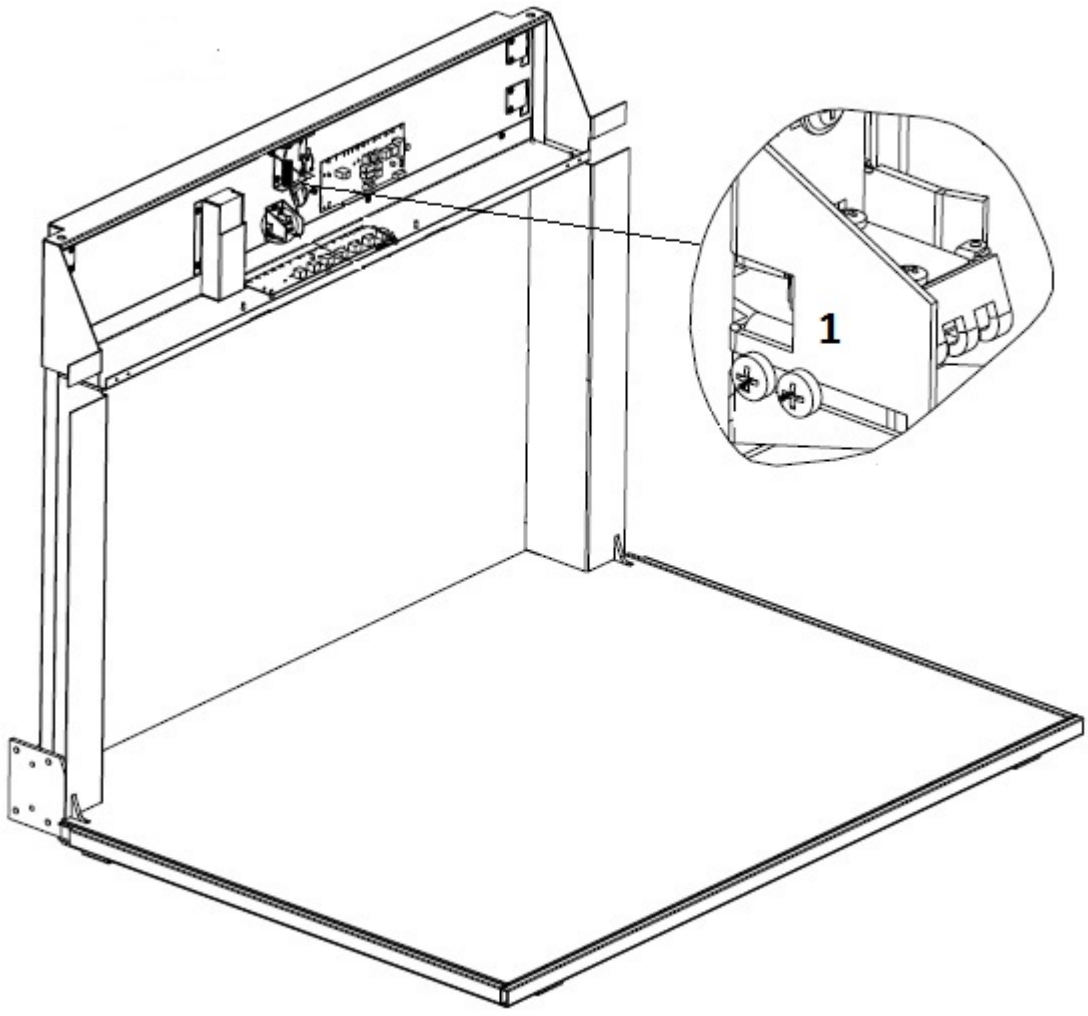
1: Loose the adjusting nut so much that the brake hub sets free.
Note: Don't lose so much so you damage the sealing.

2: Turn the whole friction ring with the shuttle, until the range markers are right opposite each other.

3: Tighten the adjusting nut.

4: Inspect the shuttle and catch tap, so they not have any trace of damage.
If there is a trace of damage, the part must be replaced.

Overload adjustment

Step	Action	Note
1	Put the nominal load scattered on the platform.	Loose the screws 1 for adjusting.
2	Adjust the contact 64 to be activated if the nominal load exceeds. -/0 +/75kg	
3		
4	It shall not be possible to start from a landing if the overload is activated. Note! It shall be possible if the platform is between two floors!	The overload shall indicate with sound and visually in the floor indicator or in a overload lamp.

Lift controller MHC1

The lift control panel can handle

2-6 Landings.
Automatic or manually swing doors.
Automatic locking of door
Hold-to- run from platform and single push from outside.

Floor limits

The control system counts flags on the shaft wall via a receiver fitted on the platform. Two terminal switches are fitted. 62:D for ground floor and 62:U for the top floor.

Supervision of the ground floor swing door

If the door at the ground floor is opened when the platform is not there, the lift will be set out of order. A reset of the lift is necessary to get the lift back in normal service.

Calls/Destination

It's not possible to make a call when someone travels on the platform and/or if the platform is not at a landing position. There is also a 2 second time delay from when the swing door has been closed before until a new call can be made.

Reset of the lift

Reset is made in the lift controller menu system.
The reset of the floor counting system must be done at the very bottom floor.
When the lift is in reset mode it's only possible to drive the lift with hold to run.
In reset mode the lift will drive to the bottom floor irrespective of what call/destination button that is pushed. The lift computer will display calibration.

Retiring ramp

This lift has an electrical retiring ramp that uses the power from the emergency battery. In case of a power failure the retiring ramp will unlock the door and, the swing door can only be opened if the platform is in a door zone. To avoid risc of getting jammed by movable parts during work, disconnect the battery and also switch off the main power.

Shaft light

Note! Not available if the shaft height is 1300mm
The lift computer controls the shaft light through relay. When the relay is off the light is on. Warning! There is still power to the light even if the mains witch 220 is off! Before work also turn off the switch 290! See electrical drawings for more information.

Emergency alarm and phone

Telephone line shall be connected to terminal marked XTele.
In case of an alarm, a time delayed signal (normally 10 seconds) is available on terminals XLarm/3=com XLarm/1=NO XLarm/2=NC
Important! The emergency system is provided with battery backup and therefore the main power shall be kept connected to ensure that the battery is fully charged in case of an emergency situation. If the power is missing or off for a longer period, the battery must be disconnected. Do not forget to re-connect the battery when the power is back. Note! The battery will discharge faster if other external equipment is connected to the alarm system!

Alarm and standby unit for battery charging

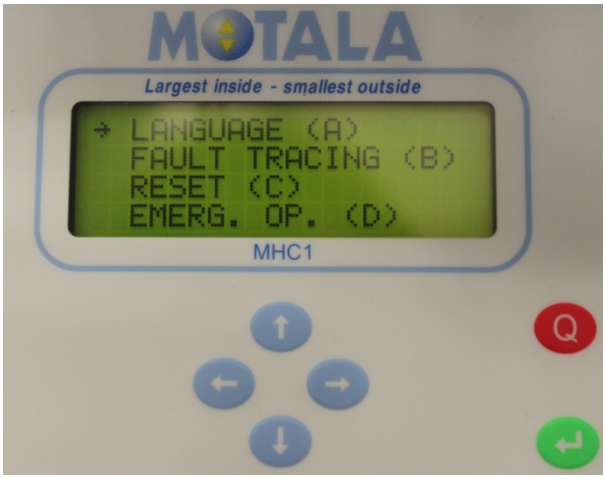
Important! The emergency system is provided with battery backup and therefore the main power shall be kept connected to ensure that the battery is fully charged in case of an emergency situation. If the power is missing or off for a longer period, the battery must be disconnected. Do not forget to re-connect the battery when the power is back. Note! The battery will discharge faster if other external equipment is connected to the alarm system!

Function

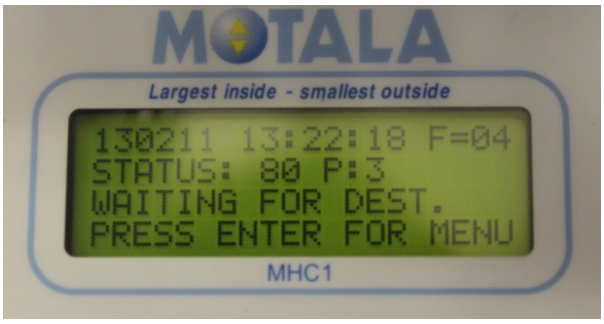
The standby unit is built in the controller. The battery is placed in the control cabinet. The alarm functions and the light at the platform are working for at least 1 hour after a power interruption. After that the standby unit will shut off the light.
Important! The battery will be damaged if it is completely discharged. In case of a planned power interruption to the lift, disconnect the battery by disconnect the plus lead to the battery.

Menu system MHC1

The controller has a display with four arrow buttons and one Enter button and a back button Q.



At normal service the display shows what's missing for letting the lift start.



In case of a fault the display will show a message and also a fault code. It's also possible to see fault history in the fault trace menu B-1. In the right upper corner beside the clock you could see the amount of stored faults. (F=4)

In some cases it's needed to make reset of some of the safety functions like e.g. supervision of the pit. Reset is made in the reset menu C-1

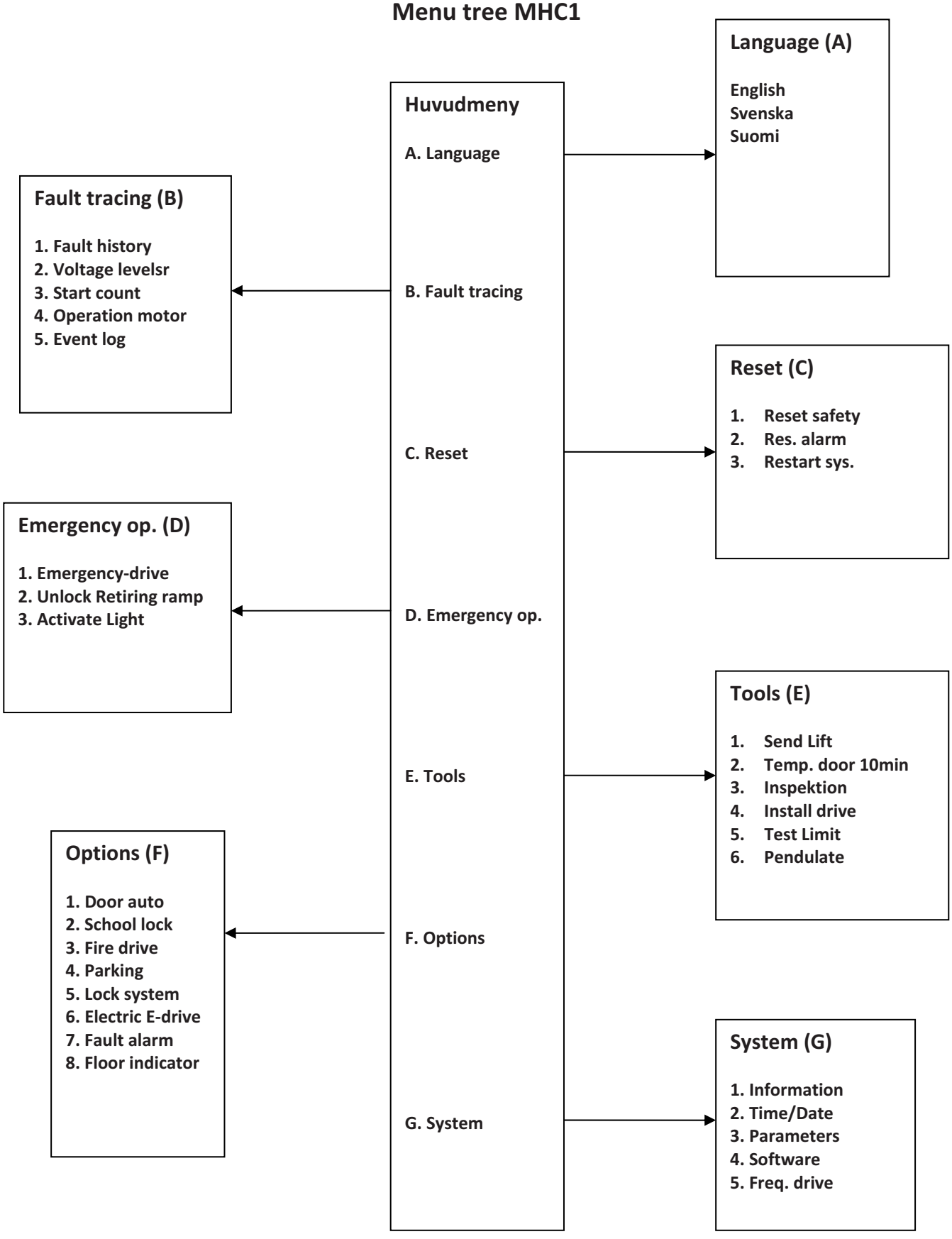
It's possible to send the lift to a certain floor in the tools menu E-1.

Some of the functions and parameters are protected by passwords for preventing mistakes.

In the option menu F you can find settings for different options e.g. the door auto timers etc.
Note! Some of the options may not be activated depending of what options the specific lift has.

If you have change language by mistake! From the start menu press enter twice and then change back to your language with the arrows. Press enter.

Menu tree MHC1



Fault tracing and fault messages

The controller can show fault messages in the display and also by different flash codes in the call buttons depending of type of actual fault.

Fault messages in the controller memory.
Check for stored faults in the menu B ”Fault tracing”
It’s also possible to reset the fault memory.
Note that code 20, 21, 30, 40 and 80-99 not are any fault codes, they are normal status.
Fault code 10-19 = Fault related toSC1 (safety circuit 1 stop, sensitive edges, pit prop etc. LED SC1)
Fault code 22-29 = Fault related toSC2 (Safety circuit 2 Lowest door. LED SC2)
Fault code 31-39 = Fault related toSC3 (Safety circuit 3 Other doors. LED SC3
Fault code 41-49 = Fault related toSC4 (Safety circuit 4 Locks. LED SC4)
Fault code 50-59 = Fault alarms from the frequency drive
Fault code 60-79 = System faults
Code 80-99 = Normal status

Fault codes 10-19 Stop circuit. (Call button is flashing 1 time each 5 second)			
Fault code	**Event**	**Meaning**	**Action**
10	Fuse for the safety circuit can be broken.	Fault	Check the fuse. See. *Fuse and switches page 5.* Check cause, repair and then replace the fuse.
11	Safety circuit 1 broken during travel downwards.	Fault	Check safety gear and its contact or other parts in safety circuit 1.
12	Safety circuit 1 broken during travel upwards..	Fault	Check sensitive edges or other parts in safety circuit 1.
13	Safety circuit 1 broken when the lift is at floor level.	Fault	Check first the stop button and the sensitive edges on the platform. Then check pit prop and stop button in the pit. The stop circuit also includes the contacts 28: 51: 127: See Electrical drawing and page for the safety circuit for more information.
14			
15			
16			
17			
18			
19			

Fault och status codes 20-29 Lowest door (Call button is flashing 2 times each 5 second)			
Fault code	**Event**	**Meaning**	**Action**
20	Door is open at floor 1	Status	Is the door closed? Check the door contact at this floor.
21	Door circuit floor1 broken during travel downwards.	Fault	The supervision for low pit has been activated because of one of the door that give access to the pit has been opened when the platform is not at that floor. Make reset only if nobody is located in the pit. Reed the instruction "*Work in pit"* on page *4.* Check the door contacts if no one has intentionally open any door at those floors. Reset of the lift is necessary to get the lift back in normal service.
22	Door circuit floor1 broken during travel upwards.	Fault	
23	Door circuit floor1 broken when lift is at floor level in floor 2-6	Fault	
24	Low pit floor 1	Fault	
25			
26			
27			
28			
29	Door open longer than 10 minutes.	Fault	Close the door.

Fault and status codes 30-39 Doors (Call button is flashing 3 times each 5 second)			
Fault code	**Event**	**Meaning**	**Action**
30	Door is open at floor 2-6	Status	Is the door closed? Check the door contact at this floor.
31	SC3 Door circuit floor2-6 broken during travel downwards	Fault	Check the function of the door contacts. I might be some contact problem at some door. See Electrical drawing page over the safety circuit for more information. The Fault alarm will reset itself when the circuit is normal again and the platform has arrived to a floor level.
32	SC3 Door circuit floor2-6 broken during travel upwards	Fault	
33			
34			
35			
36			
37			
38	The swing door automatic (if any) has tried to close the door 5 times.	Fault	Is the door closed? Check the door contact at this floor. If the door is not closing check for obstacles in the door way. Check the door machine and its fuse. If it's broken! Check cause, repair and then replace the fuse.
39	The door have been open more than 10 minutes	Fault	Close the door

Fault and status codes 40-49 Locks (Call button is flashing 4 times each 5 second)			
Fault code	**Event**	**Meaning**	**Action**
40	Lock circuit broken when lift is at floor level.	Status	The locks normally lock when the door has closed and a call/destination has been made.
41	Lock circuit broken during travel downwards.	Fault	Interruption in safety circuit 4 (Locks) when the lift is not at floor level. Check the door locks. See Electrical drawing page over the safety circuit for more information. The Fault alarm will reset itself when the circuit is normal again and the platform has arrived to a floor level.
42	Lock circuit broken during travel downwards.	Fault	
43	Unsuccessful to lock the door during start	Fault	Check that the door lock bolt is able to come out and that the retiring ramp tries to lock. The door play may need to be adjusted.
44	Unsuccessful to unlock the door at arrival.	Fault	Check that the retiring ramp tries to unlock. The door play may need to be adjusted.
45			
46			
47			
48			
49			

Frequency drive Yaskawa

Fault codes 50-51 frequency drive Type Yaskawa (Call button is flashing 5 times each 5 second)			
Fault code controller	**Fault code drive**	**Meaning**	**Action**
None	Hbb = Base block	No fault	Normal when the lift is not running up and down. (Motor contactors are not activated)
50	Call = Communication problem with the lift controller.	Fault	Check signal cable. Check choice of inverter type in parameter G.5 Yaskawa or Omron. Note! The alarm "Call" shows up during restart of the system and that's normal!
	PF = Output Phase Loss	Fault	Check the motor wiring. Make sure all terminal screws in the control panel and motor are properly tightened. Check contactors
	oL1 = Motor Overload	Fault	Check the motor wiring. Check if the lift is mechanical blocked.
	GF = Ground Fault	Fault	
	oC = Overcurrent	Fault	
	ou = DC Overvoltage	Fault	Check the brake resistor and its connections.
	LF = Input voltage drop or phase imbalance.	Fault	Check the power supply and connections.
	Uu1 = DC Undervoltage	Fault	
	Uu2 = Controller Undervoltage	Fault	

Frequency drive Omron

Fault codes 50-51 frequency drive Type Omron (Call button is flashing 5 times each 5 second)			
Fault code controller	**Fault code drive**	**Meaning**	**Action**
50	E41 = Communication problem with the lift controller.	Fault	Check signal cable. Check choice of inverter type in parameter G.5 Yaskawa or Omron. Note! The alarm "Call" shows up during restart of the system and that's normal!
	E81 = Excessive speed. The speed has been more than 15% above normal speed	Fault	Check the motor wiring. Make sure all terminal screws in the control panel and motor are properly tightened. Check contactors.
	E05 = Motor Overload	Fault	Check the motor wiring. Check if the lift is mechanical blocked.
	E14 = Ground Fault	Fault	
	E01 = Over current at constant speed E02 = Over current at retardation E03 = Over current at acceleration E04 = Over current other	Fault	
	E07 = DC Overvoltage	Fault	Check the brake resistor and its connections.
	E09 = Input voltage drop or phase imbalance.	Fault	Check the power supply and connections.

Fault codes 60-79 System Fault (Call button is flashing 6 eller7 times each 5 second)			
Fault code	**Event**	**Meaning**	**Action**
60	Contactor Fault	Fault	The lift computer has activated the contactors without getting a signal back that they are activated.
61	Travel time	Fault	The contactors have been activated more than 100 seconds without the controller has got a floor limit signal. Check the contactors and their circuits. Lifting height between two floor is very long. Reset of the lift may be needed to get the lift back in normal service.
62	Floor sensor fault. More than one sensor is activated at the same time.	Fault	Check which floor sensor that is active compared to lift. Change faulty sensor. Fault alarm will reset itself when the circuit is normal again and the platform has arrived to a floor level. Reset of the lift may be needed to get the lift back in normal service.
63	Call button have been activated longer time than normal	Fault	Check if any button is broken or stacked.
64	Destination button have been activated longer time than normal	Fault	
65	Sensor 62N Signal fault	Fault	Check connections of signal cables and sensor function. Change the sensor if it's broken.
66	Sensor 62U Signal fault	Fault	
67	Flag fault 62U/62N. The system gets the flag signals in wrong order of some reason. The fault can also turn up when the motor is running in wrong direction.		Check that the magnets are right fitted regarding the drawings. Check that the magnet sensors are right connected. If the motor direction is wrong. (The lift is going upwards during calibration) Swop the two of the motor wires.
68	Platform CPU communication fault	Fault	Check connections of signal cables.
69			
70			
71			
72			
73			
74			
75			
76	Emergency battery not connected.	Fault	Check battery connections.
77	Emergency battery low voltage level	Fault	Normal if the supply for the lift has been away for a time. Let the controller charge the battery and if the fault still remains measure the charging voltage and battery. Change
78	Emergency battery is bad	Fault	Low capacity in the battery. Change battery if necessary
79	System battery	Fault	Change battery. Set time and date.

Status codes 80-99			
Code	**Event**	**Meaning**	**Action**
80	Waiting for destination	Status	Everything is OK for start ☺
81	Calibration is needed	Status	The lift must drive to the bottom floor for making reset of the floor counting system. Note! The lift will only go with hold to run!
82	Travel downwards	Status	Normal service
83	Travel upwards	Status	
84	*Parking	Status	Parking of the lift.
85	*Fire drive	Status	Input for fire drive is not activated (Call button is flashing 8 times each 5 second) The system has detected that the fire drive signal has been activated.
86			
87	*Emergency drive downwards possible	Status	Emergency drive with battery power only (hold to run from the controller)
88	* Emergency drive up and downwards possible	Status	Emergency drive with main power supply (hold to run from the controller)
89	Inspection drive	Status	Everything OK for inspection drive. (hold to run from the controller)
90	Door open	Status	Swing door is open
91	Call OFF	Status	Option lock off lift is activated in the menu and the input XEI4 is activated (LD30 is ON)
92		Status	
93	Overload	Status	The system has registered that the lift has been loaded with too much weight.
94		Status	
95		Status	
96		Status	
97		Status	
98		Status	
99		Status	

*Option

Options (Extra equipment)

Note! All lifts doesn't have the options below available and it's then not possible to activate or change settings for these in the Option menus.

Automatic door opener type MH (Extra equipment)

The opening of the automatic doors is controlled by the control system and relay RE3. Closing of all doors is controlled by Relay RE4.
The door machines are open and closing by timers in the control system.
The door opening times for each floor can be set in the menu system.
The waiting time (hold open) is common for all doors and can be set in the menu system.
The door will close in a maximum time of 30 seconds. If the door is not closed within 30 second the door will stop for 30 seconds then try again for another 30 seconds. This will happen max 5 times then the door is stopped completely. The auto door can be started again by a new destination from the platform or by making a reset of the system. The auto door will also stop working if the stop button is activated.
Temporary extended waiting time. At actual floor push fast ten times is on the call button. (software 037 and later)
To adjusting the door times see below.

Note!
The lift can as an alternative be provided with Faac door openers. If these are fitted please refer to the appropriate manual for them.

Adjustment of timers in the menu system

Do like this
Park the lift at a floor.

Opening time:
Adjust the time for each floor in the menu F-1.2-7 "Options/door auto/opentime FL 1-6"

Waiting time:
Adjust the time for all floors in the menu F-1.1 "Options/door auto/Wait time"

Push to open:
If the function "pull to open" is not desired. Change F-1.11 "Options/door auto/pull to open"

Made by: Johan S
Approved of: Stefan W
Date: 2014-01-23

Motala MC2000

MH door operator and slow speed function

Connection:

1. Turn off the main power and then connect the cable from the door frame to the PCB terminal S1 or S2 (50-50 that the supply polarization is right from the beginning)
2. Close all doors manually.
3. Now turn the power ON and give the controller signal to open the door on the actual floor you want to adjust. Now watch what light is illuminated, red or green. (Do not care about what direction the door is moving at in this step)
4. When the control panel intend to open the swing door, the green LED shall always be active! If the red is active! Swop the S1/S2 supply plug. (Do not care about what direction the door is moving at in this step either)
5. Now when the supply polarization is right, you have to check the motor polarization. If the door is closing when the green LED is illuminated you only have to move the motor terminal connected to M1 or M2 one step.

Instruction adjusting the slow speed time delays and slows peed:

1. Turn up the opening time on the main controller so the door for sure opens 90 degrees.
2. Adjust the time delay before the slow speed is activated in the opening direction on the potentiometer P2 (Above green LED) Clockwise increase the time delay. The slow speed shall start just a little before fully open door.
3. You can if necessary adjust the slow speed on potentiometer P2 (Above blue LED)
4. Adjust the time delay before the slow speed is activated in the closing direction on the potentiometer P3 (Above red LED) Clockwise increase the time delay. The slow speed shall start just a little before the door hits the door frame.
5. When you are happy with the speeds adjust the opening time again on the main controller. The time shall not be much longer than it takes to open the door fully.

Meaning of the Potentiometers:

Red LED = Door is closing
Green LED = Door is opening
Blue LED flashing = Sensor has been activated. Timer count down before slow speed has started
Blue LED = Slow speed
Yellow LED = Sensor activated by the magnet. Normally when the door arm is in parallel position compared to the door frame.
P1 = Low speed adjustment
P2 = Delay before slow speed after the magnet has passed the sensor in open direction. 4 - 10 sec
P3 = Delay before slow speed after the magnet has passed the sensor in closing direction. 0 - 1.5 sec

Automatic locking of doors (Extra equipment)

Is activated in the menu F-2.1 “Options/school lock/”
The retiring ramp will lock the lift 5 seconds after that the door has closed. The delay time can be changed in the menu F-2.2
Note! The retiring ramp will unlock if the main power disappears!

Lock of lift (Extra equipment)

Key switch with function ON/OFF. The key can be removed in both positions. The key switch is installed at a suitable landing. When the lift is locked the indication lamp in the switch is off and the function automatic locking of doors is activated the landing calls is disabled. When the lift is unlocked, the indication lamp in the switch is ON and the function automatic locking of doors is disabled and the call buttons is enabled.

Fire drive (Extra equipment)

The lift will only travel once to a dedicated floor. The input for fire drive shall be active in normal mode and if not the fire drive is active. Chose dedicated fire escape floor in the menu F-3.1. The relay shall also light up a sign on escape floor. See the electrical drawings for details. Note! The sign is not provided from Motala.

Parking (Extra equipment)

Parking of the lift on a dedicated floor can be made in the menu F-4.1 and delay time in F-4.2

Fault alarm (Extra equipment)

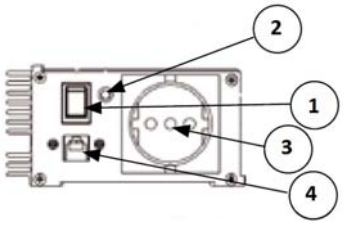
The system can sent a fault alarm through a relay. Connections can be on the terminal marked XLarm. See electrical drawings for more information. The alarm will go active if the safety circuit 1 has been broken for more than 30 minutes or/and the door circuit has been gone longer than 90 minutes. The alarm will automatically reset itself when all is back to normal.

Electrical emergency lowering system (Extra equipment)

Make it possible in case of a power failure to lower the lift by power.
The function uses a special high power battery and a DC-AC converter. The special battery replaces the standard battery. The battery and the converter are fitted in the control panel cabinet. Before use! See the instruction on page 8. If the lift is located between two floors when the main power disappear the controller will automatically switch to emergency drive and it will be possible to drive downwards only. The lift will stop automatically at the exit floor or on the bottom floor. Set the exit floor in the menu F-6.1

Inverter CMP INT-300

The inverter purpose is to supply the lift in case of a main power failure to make it possible to drive the lift to a rescue floor. The inverter is supplied by a high current battery. At wrong use in some cases will protections in the inverter send out an audiovisual alarm. INT-300/600 has a LED for indication that the inverter is in service. For position in the cabinet see the layout instruction IQ70-10 part ”Fuses and switches” position 380. **The button 1 shall at normal service be set to remote otherwise will not the inverter automatically start in a case of a main power failure.** The remote cable shall be connected to terminal 4. In case of an main power failure will the controller start the inverter for an certain time. During normal service will the inverter be switched OFF. Note that the lift will only switch to emergency drive if the main power is off in the main central. (Not only by the main switch 220)



1. Switch (ON/OFF/remote)
2. Inverter ON indication LED
3. Socket 230VAC
4. Remote terminal

Warning:

- The inverter shall only be used indoors and must be protected against moister and rain.
- If any fault, never open the inverter by yourself. Reparation and fault tracing shall be made by a specialist and with original spare parts to prevent personal injury and material damages.
- Always disconnect the inverter from the battery before any work on the system.
- Be careful to connect the inverter in right way and avoid sparks when connecting not sealed lead-batteries.
- Protect the inverter and its connections against unintended contact. Be aware of that the inverter live voltage is as dangerous as from an ordinary socket. Do not use any damaged connection cables etc. Use only original spare parts from the supplier.
- Be careful to connect with right polarity. Wrong connection can cause damage that not will be covered by warranty.
- Do not load the inverter during connection and disconnection.

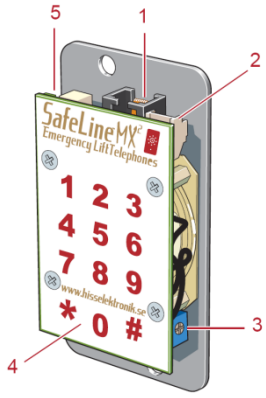
Made by: Johan S
Approved of: Stefan W
Date: 2014-01-23

Motala MC2000

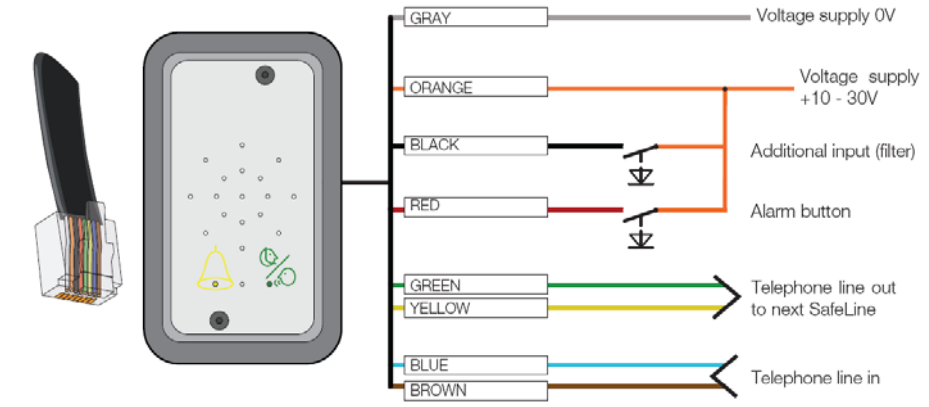
Safeline MX2 Emergency phone (Extra equipment)

Connection

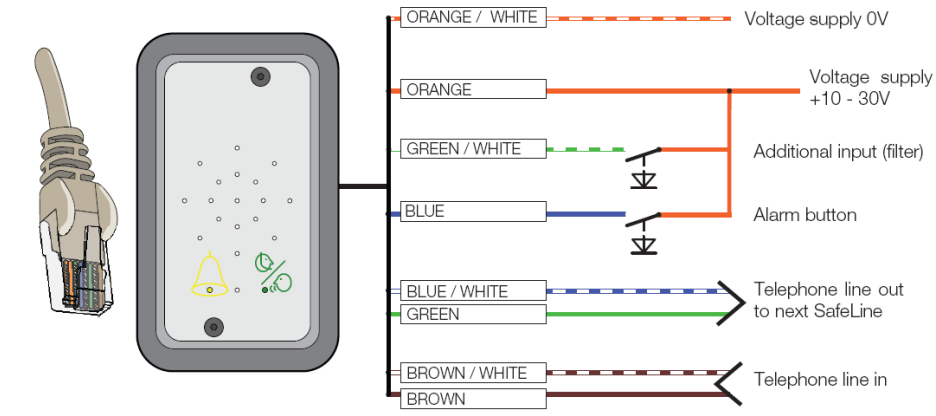
1. RJ45 connector.
Power, emergency button, phone line and auxilary input.
2. RS232 PC connection
Firmware update and programming with SafeLine Pro.
3. Volume control
Turn right to increase the volume.
4. Keyboard
Programming.
5. System LED



Colours when using flat cable



Colours when using round cable



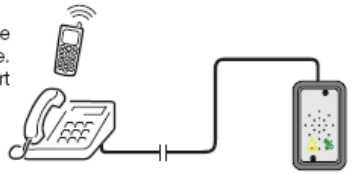
PROGRAMMING INTERFACES

NOTE! The unit have to be connected to a power source before the programming begins!

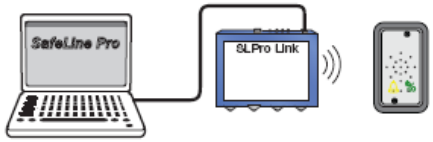
- **Keyboard programming**
  The integrated keyboard at the rear of the SafeLine enables a fast programming of the unit.

- **Programming with SafeLine Pro.**
  The unit can be programmed at the office prior to the installation or at site after installation, with a programming cable (*PCable)

- **Remote programming.**
  For remote programming, you can use any PSTN tone dial phone. Dial the phone number of the SafeLine. Enter the function codes on the phone keypad to start programming (password has to be entered).



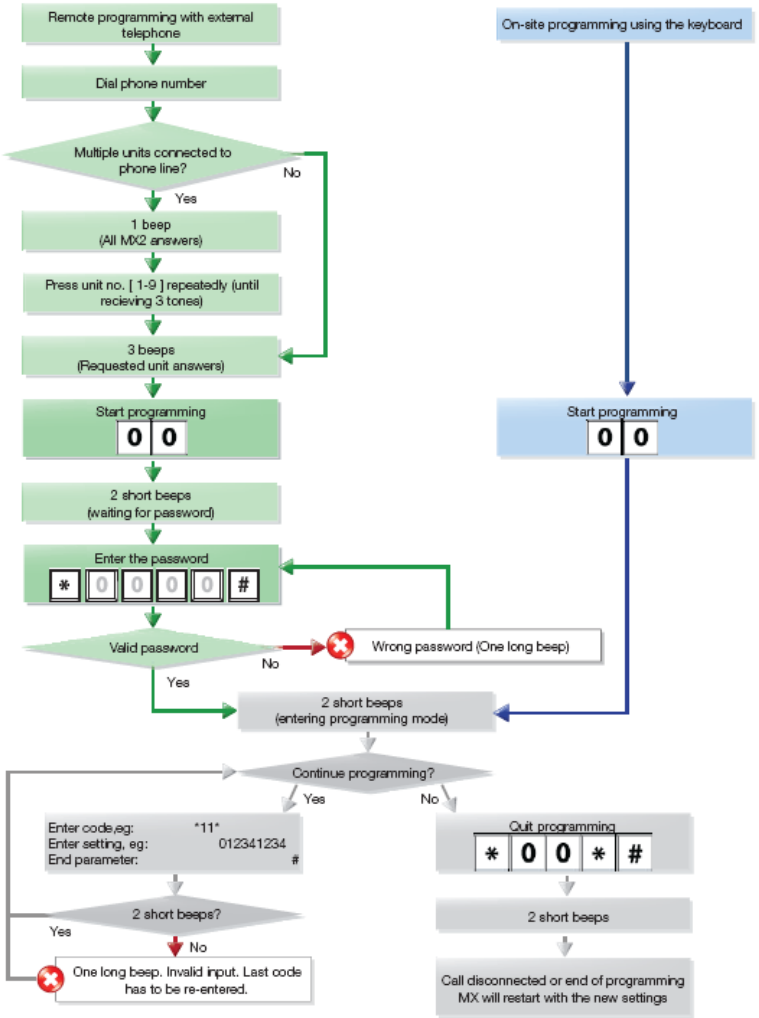
- **Remote programming with SafeLine Pro.**
  Connect an SLPro Link to a computer with SafeLine Pro and a serial cable.



- **Programming with hand unit (only from v. 2.5).**
  The unit can be programmed on-site with the hand unit. Plug the hand unit into the SafeLine, and enter function codes through the easy to use menu in the hand unit.

PROGRAMMING METHOD

If the time between the operation of two keys exceeds 10 seconds, the code has to be re-entered. time exceeds 30 seconds, the call is disconnected or programming mode is ended.

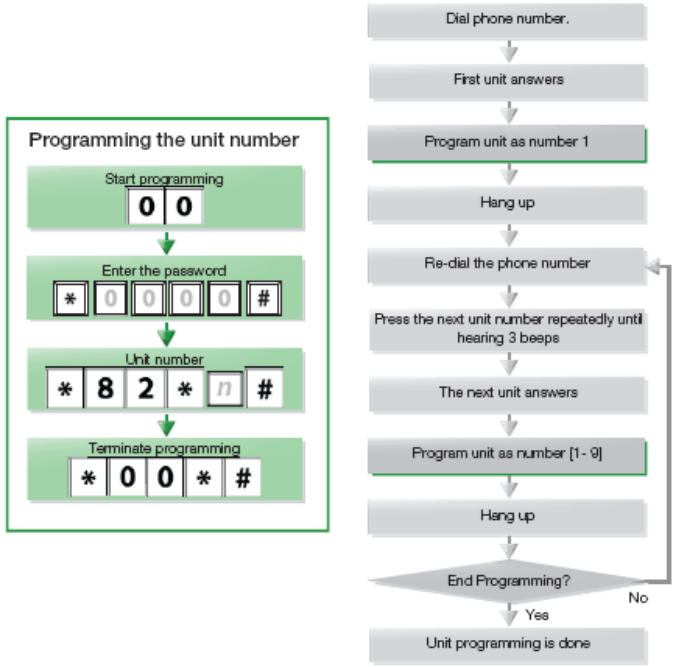


PROGRAMMING UNIT NUMBERS

To remotely program a parallel connected unit, the unit number has to be pre-programmec

If units are connected in series(daisy chain), unit numbers can be remotely programmed.

Remotely program unit numbers in SafeLines connected in series:



CONFIGURATION EXAMPLES - SAFELINE AUTODIALER UNITS

Example 1. Storing of two different telephone numbers, both to be answered as voice calls.
For test facility, see example 2.

1. Start configuration: 0 0
2. 1st phone number : * 1 1 * 1 2 3 4 5 6 7 8 #
3. 2nd phone number : * 1 2 * 2 3 4 5 6 7 8 9 #
4. Call type 1st number : * 2 1 * 1 #
5. Call type 2st number : * 2 2 * 1 #
6. Alarm button delay: * 8 7 * 0 3 # - Shown set for 3 seconds
7. End configuration: * 0 0 * #

If at any time you need to start over, use the factory reset command *99*1#

Example 2. SLCC and 3 day test. (SLCC – SafeLine Call Centre)

1. Start configuration: 0 0
2. Enter P100 ID code: * 0 1 * 4 5 6 4 5 6 4 5 #
   Lift ID code (each lift must have its own unique code)
3. Set test alarm type: * 3 1 * 0 #
4. Set number of days between test alarm: * 2 7 * 0 3 # - Shown set for 3 days
5. LMS phone number: * 1 6 * 9 8 7 6 5 4 3 2 #
   (Olny if using SLCC)
6. Test alarm: * 1 7 * 1 2 3 1 2 3 1 2 #
   (For P100 use telephone number of SLCC, for Caller ID set *31*4# and telephone number of GSM modem)
7. End configuration: * 0 0 * #

If at any time you need to start over, use the factory reset command *99*1#

Note! Please refer to the full configuration setup in the "Configurations codes table" as these are merely examples.

PARAMETER LIST

PROGRAMMING DATA	CODE	DATA	COMMENTS
Enter programming mode		00	
Enter password		* - - - - #	Default = 0000
Exit programming mode		*00*#	
ALARM CODES	**CODE**	**DATA**	**COMMENTS**
P100 ID code	*01*	- - - - - - - - #	P100 is always 8 digits
CPC ID code	*02*	- - - - - - #	CPC 6-9 digits
Q23 ID code	*03*	- - - - - - - - - - - - #	Q23 is always 12 digits
TELEPHONE NUMBERS	**CODE**	**DATA**	**COMMENTS**
1st Phone number	*11*	- - - - - - - - - #	Phone number to alarm receiver 0-16 digits. If calling through a switch board, delay time can be set by adding asteriskes between leading number of the switchboard and telephone number for the alarm receiver. Each asterisk is equal to one second delay. Example: *11*0)*-*1234567#
2nd Phone number	*12*	- - - - - - - - - #	
3rd Phone number	*13*	- - - - - - - - - #	
4th Phone number	*14*	- - - - - - - - - #	
CALL TYPE	**CODE**	**DATA**	**COMMENTS**
Call type 1st number	*21*	- #	Change the call type for the telephone numbers stored. 0 = P100 1 = VOICE (Default) 2 = Q23 3 = CPC Change this only if your alarm operator is using any of the mentioned protocols.
Call type 2nd number	*22*	- #	
Call type 3rd number	*23*	- #	
Call type 4th number	*24*	- #	
Call type LMS number	*30*	- #	LMS (Lift Monitoring System) call type 0 = P100 3 = CPC (Only battery alarm) 4 = Caller ID (Battery powered only)
TEST ALARM/BATTERY ALARM	**CODE**	**DATA**	**COMMENTS**
LMS phone number	*16*	- - - - - - - - - #	LMS (Lift Monitoring System) phone number to alarm receiver/ SLOC.
Test alarm	*17*	- - - - - - - - - #	Phone number to test alarm receiver/SLOC.
Days between tests	*27*	- - #	Number of days between test alarms, 00-99 days. Always two digits. Max 3 days according to EN 81-28. 00 = No test alarms
Test alarm protocol	*31*	- #	Protocol test alarm 0 = P100 3 = CPC 4 = Phone number used as ID.
ALARM CHARACTER	**CODE**	**DATA**	**COMMENTS**
Alarm character 1st number	*41*	- - #	Alarm character, only when using CPC as alarm protocol normally 10 or 27 check with your alarm company !
Alarm character 2nd number	*42*	- - #	
Alarm character 3rd number	*43*	- - #	
Alarm character 4th number	*44*	- - #	
Alarm character LMS	*45*	- - #	LMS (Lift Monitoring System) (Battery alarm) Normally 17
Alarm character Test alarm	*46*	- - #	Normally 28

DISTRESS MESSAGE	CODE	DATA	COMMENTS
Record distress message played in the lift car.	*51*	*Speak* #	This message will be played in the lift car when the emergency lift telephone starts calling the alarm receiving centre. Make sure that there is no noise in the background when recording the message. Example of message: Please do not panic, the emergency telephone is now calling the emergency call centre.
Record alarm message from Lift Car to alarm central	*52*	*Speak* #	This message will be played to the alarm receiver and in the car when the call is answered. Make sure that there is no noise in the background when recording the message. Example of message: This is an alarm from the lift on 5th avenue. To hear this message again, press *1*. To terminate the call, press *#* before hanging up.
Options for the recorded distress message	*61*	- #	0 = Disable recorded message. 1 = Enables recorded message.
	61	#	Play the the recorded message.
Options for the recorded message from lift car	*62*	- #	0 = Disable recorded message. 1 = Enables recorded message.
	62	#	Play the the recorded message.
OTHER CODES	**CODE**	**DATA**	**COMMENTS**
Emergency signal in speaker	*71*	- #	The speaker siren will sound at emergency call. 1 = On 0 = Off (Default)
Ring tone timeout	*72*	- - #	Number of ring signals before dialing the next number. (6 by default)
Additional input function	*73*	- #	Selects input function: 0 = None (Default) 1 = Filter, blocks the alarm input when active. 2 = LMS (Lift Monitoring System), sends a lift monitoring alarm at input activation. 3 = Clean/Maintenance
Additional input type	*74*	- #	0 = Normally-open contact, NO (Default) 1 = Normally-closed contact, NC
Hot Line	*75*	- #	Phone connects directly to a fixed receipient without dialing a phone number 0 = Standard phone line (Default) 1 = Hotline
Indicator mode	*78*	- #	0 = Standard, 1 = Strictly EN81-28 2 = Strictly single EN81-28
Voice communication time-out	*79*	- #	1 - 20 minutesxxx. Standard = 8 min
Reset active alarm automatically	*80*	#	0 = OFF. 1 = ON (Default)
Auto answer	*81*	- - #	No of signals before SafeLine answers incoming call. Can be set from 00-16 (Default = 02, 00=Unit will not answer).
Unit number	*82*	- #	Program Unit number 1-9 (Default = 0)
Detect dial tone	*83*	- #	0 = Off 1 = On (Default) Set to off if SafeLine has problem to detect the dial tone.
Receipt to alarm receiver with P100 protocol	*84*	- #	Select which message(s) to send to the alarm receiver at an alarm call. 0 = None (Default) 1 = Start of alarm 2 = Start+end of alarm

OTHER CODES	CODE	DATA	COMMENTS
Break on new alarm	*86*	- #	Disconnects a call longer than 60 seconds at new activation of the alarm button and calls the next emergency call number. 0 = OFF 1 = ON (Default)
Alarm button delay time	*87*	- - #	Delay time from pressing the alarm button until activating the alarm. 00-25 seconds. (Default = 05)
Alarm button type	*89*	- #	0 = Normally-open contact, NO (Default) 1 = Normally-closed contact, NC
Change password	*91*	- - - - #	Change password (default=0000)
Simulate an alarm event	*94*	- #	Triggers an alarm event after programming is terminated. 1 = Emergency call 2 = Test alarm 3 = Battery failure 4 = Microphone/Loudspeaker failure 5 = Receipt on voice call 6 = Maintenance 7 = Main unit power failure 8 = Stuck button alarm
Reset to default settings	*99*	- #	1 = Factory default 2 = Default P100(The following codes will be set): *21*0#, *22*0#, * 27*03#, *80*1#, *84*1#, *88*1# 3 = Default CPC(The following codes will be set): *21*3#, *22*3#, *27*03#, *80*1#, *84*1#, *88*1# 4 = Default VOICE(The following codes will be set): *21*1#, *22*1#, * 27*03#, *80*1#, *84*1#, *88*1#
Compatability mode	*77*	- #	0 = Automatic voice switching The call is validated when there is a voice response. The call is terminated by pressing "#". 1 = Kone ECII (lift telephone) When there is a voice response, some ascending tones will be heard. The call is validated by pressing "4". The call is terminated by pressing "0". The call is terminated without reciept notification by pressing "2"(the unit will call the next number). 2 = Manual voice switching When there is a voice response, some ascending tones will be heard. The call is validated by pressing "4". Unit is still in automatic mode. To enter manual mode and talk press "*". To listen press "7". Go back to automatic mode press "4". The call is terminated by pressing "#". It is possible to enter manual voice switching mode although the unit is programmed as automatic by pressing "*". No ascending tones will be heard. For repeating the voice message, press "1" in all modes.

LED INDICATION

Yellow LED "Call in progress"
The yellow pictogram LED, is lit as soon as the alarm button is pressed longer than the set delay

Green LED "Call connected"
The Green pictogram LED turns on as soon as the SafeLine unit detects a responding voice. The LED is turned off when the call is terminated.

System LED
The system LED is located on the backside of the unit.

Standard (*78*0#)

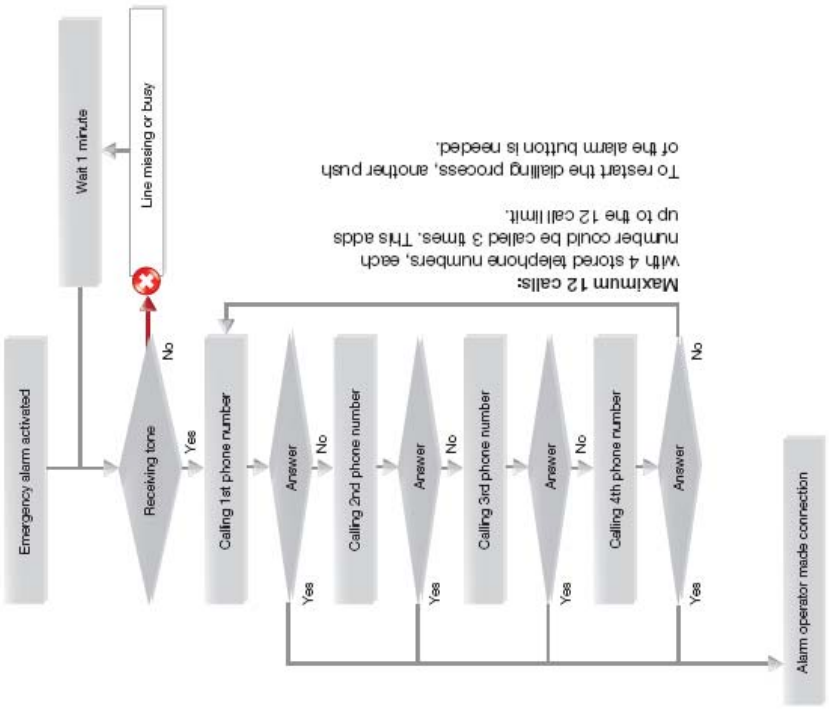
Yellow LED	Green LED	System LED
Light off: Telephone line OK, call terminated	**Light off:** Telephone line not OK.	**Flashing once every 5 seconds:** Telephone line OK.
Flashing once every 5 seconds: Telephone line not OK.	**Flashing once every 5 seconds:** Unit is OK. Phone line is OK.	**Flashing two times every 5 seconds:** No telephone connection available.
Flashing twice every second: Emergency signal button active.	**Flashing two times every 5 seconds:** Alarm filter activated.	**Flashing twice every second:** Calling out
Yellow steady: Activated alarm. Remains lit until reset.	**Green steady:** Call connected.	**Light steady:** Call connected.
	Continuous flashing: Telephone in configuration mode.	**Flashing rapidly:** Incoming call.

Strictly EN81-28 (*78*1#)

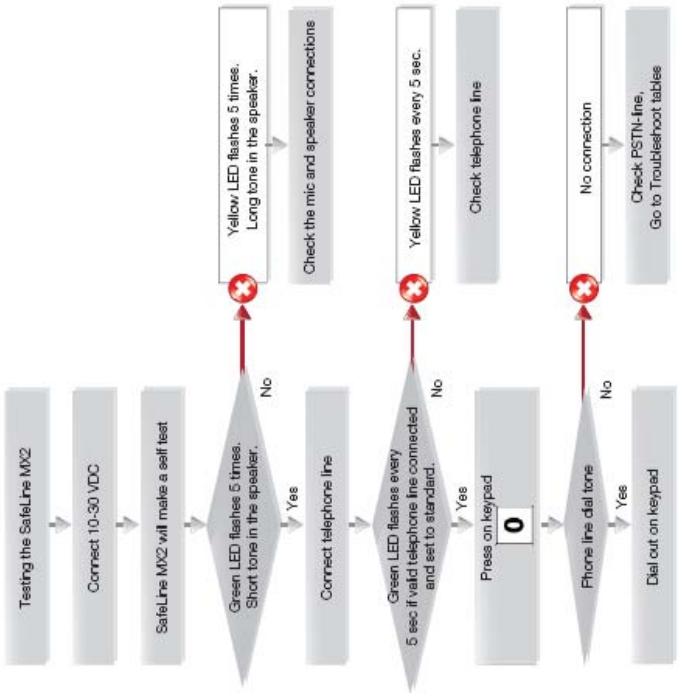
Yellow LED	Green LED
Flashing twice every second: Emergency signal button active.	**Green steady:** Call connected.
Yellow steady: Activated alarm. Remains lit until reset.	

Strictly single (*78*2#)
As strictly EN81-28 except that the LEDs will not be lit simultaneously, but one at a time.

EMERGENCY CALLING PROCESS



TESTING



TROUBLESHOOTING

The telephone beeps every 5 seconds.
This is to notify the passengers of the ongoing call (anti eaves dropping)

The unit makes an alarm call when powered up.

- Improper type of emergency button selected. Change from NC to NO or from NO to NC.
- Emergency button is stuck.

No sound transmitted from the lift car to the call receiver.
Press "0" to get an outside line. Make a call. If the sound transmission is OK in both directions, check if your emergency operator supports the chosen alarm type. If no protocol is used, change the call type to "VOICE". If no sound is transmitted from the lift car, check the microphone.

Poor/distorted sound quality.
Volume might be set too loud! Lower the volume and check again.

Interfering noise when the call is connected
The problem might be due to induction in the phone cable. According to the phone companies' regulations, the phone line must be installed in a separate cable.

GSM noise.
Change the antenna position when a call is connected until you find the optimal antenna position. Do not install the antenna near the unit or close to the cabelling.

Can not dial out

- Broken line connection. (LED not blinking green)
- No money on refill SIM-card, verify the SIM-card by inserting it into a normal mobile phone.

No voice switching

- The volume is set too high.
- The problem might be due to induction in the phone cable.

The unit can not make an alarm call.
At least one phone number (and one ID code if using data identification) must be programmed to enable making a call from the unit. Refer to the parameter list (*11*).

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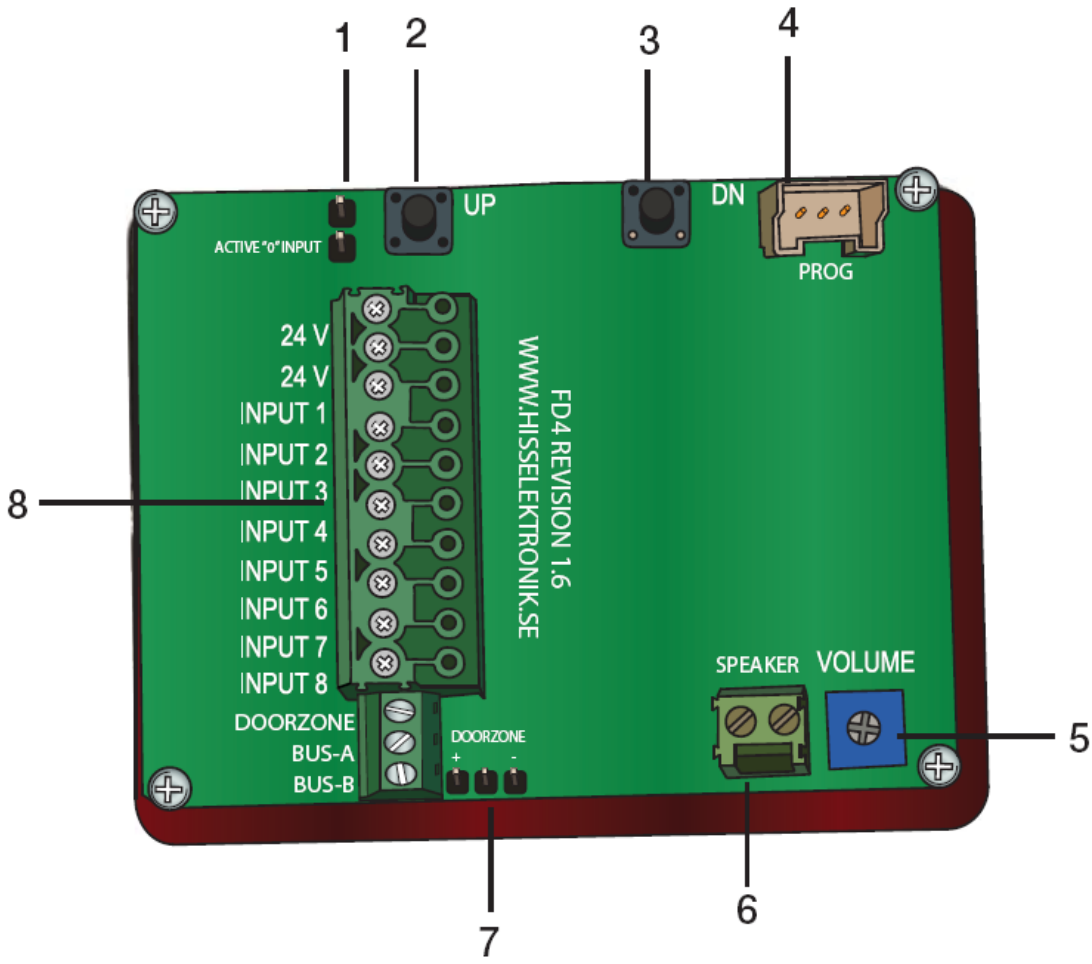
safeline.eu/support

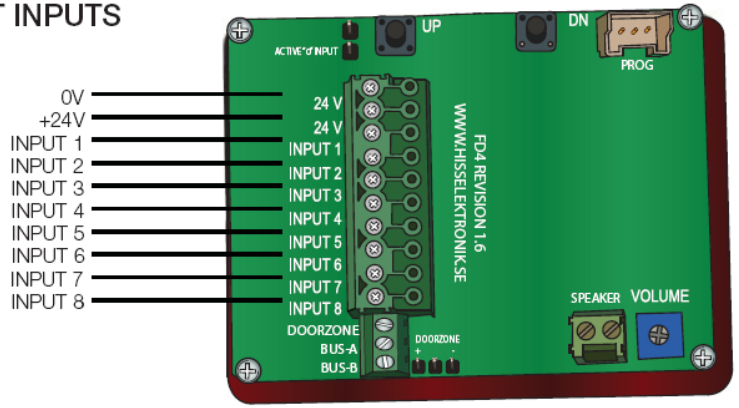
Floor indicator FD4 (Extra equipment)

Overview



1. Active "0" input (If signals to FD4 is sourced from 0V). Not active by default.
2. UP (Up - used when programming).
3. DN (Down - used when programming).
4. Rs232 PC connection (used for programming and firmware updates).
5. Volume control.
6. Connector for speaker.
7. Door zone polarity. Set as +24V by default.
8. Connector for inputs and power.

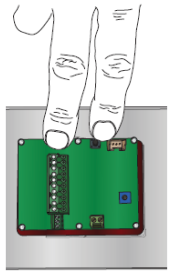
DEFAULT INPUTS



Connecting binary signals:
Input 1 = Binary signal 1
Input 2 = Binary signal 2
Input 3 = Binary signal 4
Input 4 = Binary signal 8
Input 5 = Fixed message 1
Input 6 = Arrow up
Input 7 = Arrow down
Input 8 = Arrival chime/Floor sound trig

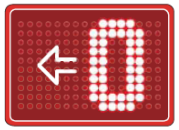
PROGRAMMING STEP 1, PROGRAMMING MODE

On the back side of FD4, there are two buttons, marked "UP" & "DN" (down).

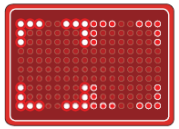


- Press both buttons for 3 seconds to enter the programming mode.

The digit "0" scrolls horizontally from the right. This means that you can select the digits or symbols you want the floor display to show on floor "0".



Shortly thereafter, two boxes are displayed.
The left one is flashing.

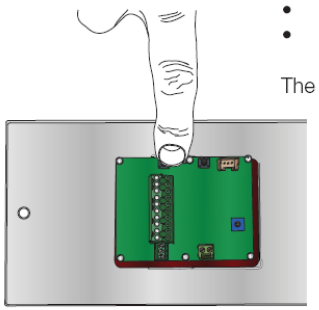


Note!
"Floor 0" corresponds to "no input is activated". This is only used together with control panels with binary code that starts with "0" (check with your control panel manufacturer).

If no symbol is programmed on "floor 0", the display will be "latched". This means that if the input signal disappears, the display will continue to show the last floor until a new signal is triggered. This utility can come in use when installing FD4 in older lifts that are relay controlled.

Note!
If the floor designation does not need to be changed: Press both buttons for 3 seconds to directly go to the next step of programming.

By using the "UP" or "DN"(down) button, the left symbol can now be changed.



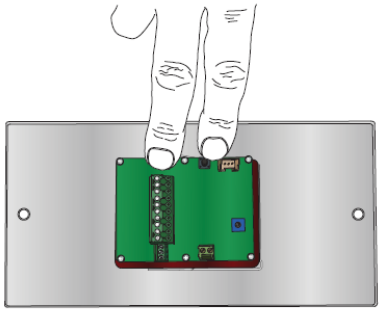
- Press "UP" to scroll up in the symbol list.
- Press "DN" to scroll down in the symbol list.

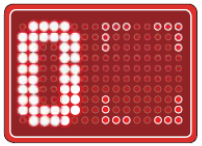
The symbol list can be seen on page 27.

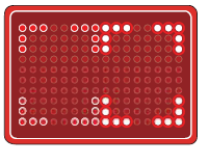
Note!
If single symbols(ex. B,E,1, etc.) are being programmed, place the symbol on the right side. This will display the symbol in the middle of the display.

When you have chosen the symbol that is to be displayed on the left side:

- Press both buttons simultaneously for a second.





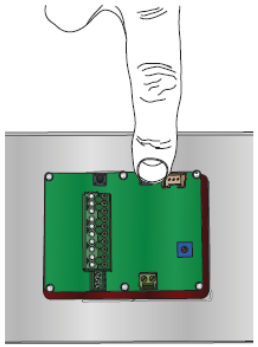


The right box will start to flash.

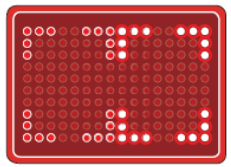
By using the "up" or "down" button the right symbol can now be changed.

- Press "UP" to scroll up in the symbol list.
- Press "DN" to scroll down in the symbol list.

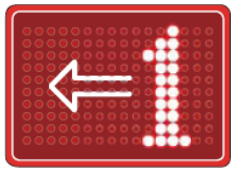
The symbol list can be seen on page 27.



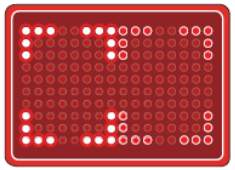
When you have chosen the symbol that is to be displayed on the right side:
Press both buttons simultainiously(max 0.5 seconds) to continue to the next floor.



The display will scroll ”1” horizontally.
This means that the floor 1 is ready to be programmed.



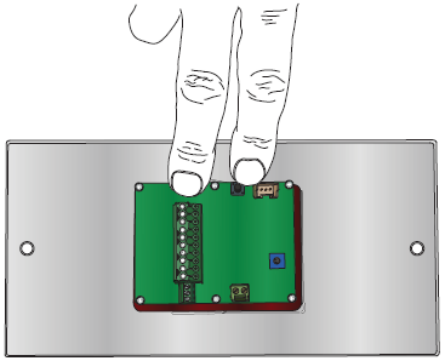
Shortly thereafter, two boxes are shown and the left one is flashing.



By using the ”up” or ”down” button the left symbol can now be changed.
Program this floor the same way as the previous floor.

Repeat this procedure until all floors are programmed.

Keep both buttons pressed until “SELECT INPUT FORMAT“ is displayed.

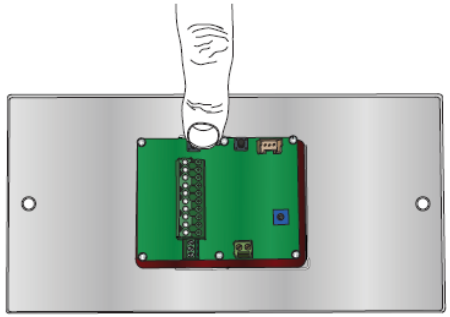


PROGRAMMING - STEP 2, SELECT INPUT FORMAT

The display will scroll “SELECT INPUT FORMAT“ horizontally.

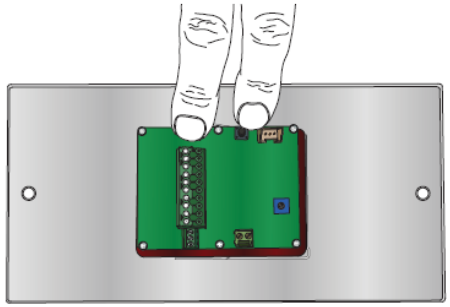
- Press “UP“ or “DN“ to select the correct input format,

Binary = Binary/BCD code.



When the correct input format has been selected:

- Press “UP” and “DN” simultaneously a short while(max 0,5 seconds).



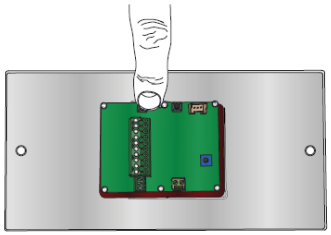
PROGRAMMING - STEP 3, ADDRESSING FLOOR DISPLAYS(SELECTING THE FLOOR THE DISPLAY IS MOUNTED ON)

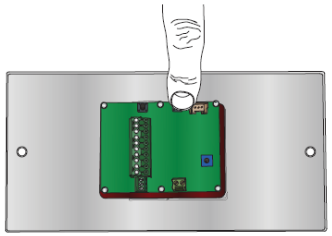
The display will scroll “SELECT FLOOR” horizontally.

This programming is made to display direction arrows and play the arrival chime selectively(only the floor the car is located at).

- Press “UP” or “DN“ to select the correct floor.

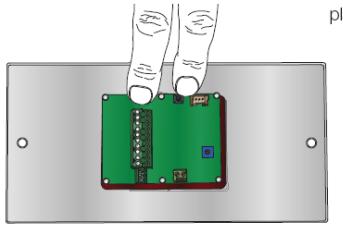
IN CAR = Floor display is mounted in the car.





When the correct floor display is displayed:

- Press “UP” and “DN” simultaneously a short while(max 0,5 seconds) until “SELECT TONES“ is displayed.



PROGRAMMING - STEP 4, ARRIVAL CHIME

The display will scroll “SELECT TONES“ horizontally.

This programming is made to select the type of arrival chime which will be played when either a trig or arrow signal is being activated.

- Press “UP” or “DN“ to select arrival chime.

3-Ton = Three chimes will be played in all chases.
EN81-70 = 1 chime when arrow up, 2 chimes when arrow down, 3 chimes when arrow up & down.

When the correct arrival chime type is selected:

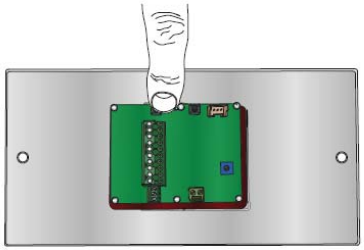
- Press “UP” and “DN” simultaneously a short while(max 0,5 seconds) until “SELECT FIXED MESSAGES“ is displayed.

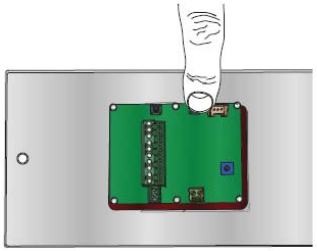
PROGRAMMING - STEP 5, SELECT FIXED MESSAGES

The display will scroll ”SELECT FIXED MESSAGES” horizontally, followed by i5.
This programming is for selecting a fixed message.
When input 5 is activated, the chosen text will scroll horizontally over the display.

- Press “UP” or “DN” to select a fixed message.

“OVERLOAD”, “SERVICE” and “ÖVERLAST” are pre-programmed in the FD4/VV4.

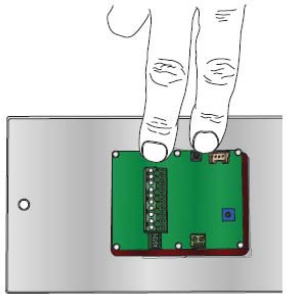




When the correct fixed message is selected:

- Press “UP” and “DN” simultaneously a short while(max 0,5 seconds) to enter normal mode.

The programming is now finished. The display will show the floor/sign that corresponds to the input status.



Tip!
The fixed messages can easily be changed with our free software, SafeLine Pro.

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safeline.eu/support

AVAILABLE SIGNS:

0-9

A-Z, Å, Ä, Ö, Æ, Ø, Ü

Symbols

TECHNICAL DATA:

Current consumption at 24V supply voltage:	Max 50mA.
Current consumption on each activated input:	Max 1mA.
Size HxWxD:	61 x 80 x 29 mm.
Speaker output:	0,6W at 8Ω 0,3W at 16Ω

Made by: Johan S
Approved of: Stefan W

Date: 2014-01-23

Motala MC2000

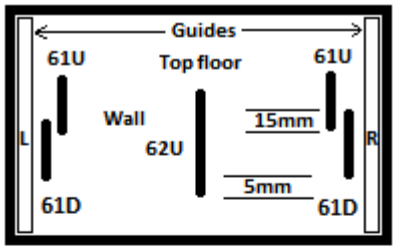
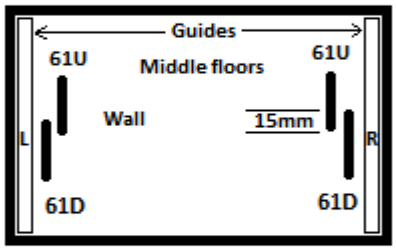
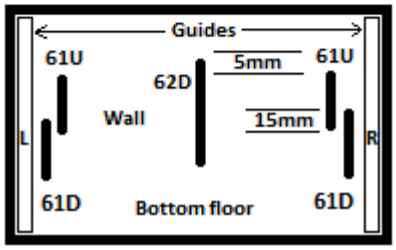
Replace: 2013-12-12

First startup during new installation

Warning!

Main switch 220: disconnects lift functions only! Shaft light and its control will still be alive. To switch off the shaft light also the switch 290 must be switched off!

Step	Action
1	Fit the control panel on the door frame. Route all cables to the control panel. Route remaining length of the cables into the profile in the shaft top. Connect all cables into the sockets. See the cable routing table in the end of the electric drawings for destination. Connect the motor cable directly to the contactors. The motor cable shield shall be exposed and cable fixed in the cable clamp. The brake cable shall be connected directly to the contactors Fasten cables in the control panel. Route and connect the travelling cable to the platform PCB and to the control panel.
2	Important! Check that the supply voltage is OK before turn the main switch ON.
3	Password for some of the functions in the controller is 1010
4	Parameter Groups A = Language B = Fault tracing C = Reset (Reset of low pit, alarms and system. D = Emergency operation E = Tools (Functions inspection drive, testing of limits etc..) F = Options (Settings for door auto, parking, school locking etc..) G = System settings (Settings for time/date, limits, Lighting and software etc...)
5	Note! the impulse mode shall be set to NO in parameter G.3.7 (Normally set to NO at delivery)
6	If you need to use an external command box it's possible to connect that to the call sockets XH102:0B for down and up to 102:1B feed from terminal 4 and signal to terminal 2 (negative logic) connect the command box stop button in serial with safety circuit 1. Set Install drive to ON in parameter E.4.1 Note! The whole safety circuit must be OK
7	If you prefer to just run the platform from the control panel. Use the inspection drive in the parameter E.3 then run up and down with the arrow keys. Note! The whole safety circuit must be OK
8	If the lift has the option electrical emergency drive it's possible to run the lift up and down without all safety circuits OK by over bridged some circuits with the push button 27. The lift will only run in slow speed. The contacts stop 112, pit prop 155, emergency lowering 28 and the safety gear 127 must be connected and OK! They will not be over connected by button 27. Important! If the control panel is suited away from the lift or if the door where the control panel is has no window it's not allowed to over connect the safety circuits with the pushbutton 27. It's not aloud because you shall have full control of what happens during an electrical emergency lowering. If so make sure that terminal XI1 is disconnected and isolated.
9	Connect the battery. If the lift has the option electrical emergency drive also be sure that the 12-230V inverter is set to Rem (Remote mode)

10	Magnets and 62 limits. The 62 limits shall be fitted just before the beginning of the magnet (5mm). The overlap of the magnets shall be about 15mm. See drawing.	  
11	Parameters to set during installation **Option Door auto:** Set timers in parameter F1.1-7 **Stop times:** If necessary set limit stop times up and down in parameter G.3.4-5 (Floor accuracy. Overlap of the magnets shall be about 15mm)	Note! Activated options depends on what has been ordered
12	Parameters to set in the end of the installation **Clock and date** in parameter G.2 **Option school lock:** Set to on in parameter F.2.1 (if necessary set delay time in parameter F.2.2) **Option Fire drive:** Set evacuation floor 1-5 in parameter F.3.1 (If it's set to 000 the function will be OFF. The fire drive is active when there is no +24V on terminal XEI5) **Option Parking:** Set parking floor 1-6 in parameter F.4.1 (If it's set to 000 the function will be OFF. If necessary set delay time in parameter F.4.2) **Option Lock of lift:** Set parameter F.5.1 to ON (When there is +24V on terminal XEI4 the lift will be locked from outside) **Set the lift in Impulse mode:** Set parameter G.3.7 to ON When you are happy with all settings save the settings to be default settings for this lift in parameter G.3.8	
13	After first commission (Lift is finished and all the tests has been made) Reset fault history in parameter B.3.1.4 Reset max/min voltage levels in parameter B3.2 Reset start counter in parameter B.3.3 Reset operation time counter in parameter B.4.3	

Fault tracing electronics

Fault symptom	Action
Faulty input/output e.g. call/destination/receipt signal at any floor. ULN2804A = Located on the platform PCB ULN2803A = Located on the lift computer It's also possible to use a ULN2804A on the lift computer.	A short circuit can caused overload in the ports protection circuits. The circuits ULN280XA are easy to change. There are 3pc on the platform PCB and 1pc on the main computer PCB. It is also possible to move some of the port functions to another not used port in software 037 and later.

Installation of new options and software from a SD-card

Step	Action
	Installation of new options
1	Press enter for menu
2	Insert the SD-card in the card reader with the angled corner to the right
3	Use arrow keys and step to menu G. (System) Press <↵
4	Step to 4. (Software) Press <↵
5	Enter Password 1010 with arrow keys. Press <↵
6	Step to 4.3 (Update SD) Press <↵
7	Press Q button one time to get back to system
8	Take out the SD-card
9	Then check and verify the options by going up to information under system. Step to 1 (Information) Press <↵
10	Step to 1.2 (Options) Press <↵ F1: School locking (Locks the door after a while. Used together with key lock at every floor) F2: Fire Drive F3: Parking F4: Locking (Locks the door and call buttons. Used together with a key lock ON/OFF at a single floor) F5: Emergency lowering

Step	Action
	Installation of new software
1	Press enter for menu
2	Insert the SD-card in the card reader with the angled corner to the right
3	Use arrow keys and step to menu G. (System) Press <↵
4	Step to 4. (Software) Press <↵
5	Enter Password 1010 with arrow keys. Press <↵
6	Step to 4.1 (Update Lift) Press <↵ Wait until the software is loaded.
7	The computer will restart
8	Take out the SD-card
9	If possible load the default settings in menu G.3.9 (Saved settings from the installation) Otherwise set the door timers and parameters etc according the instruction on page 50 step 11-13.

Made by: Johan S
Approved of: Stefan W

Date: 2014-01-23

Motala MC2000

Replace: 2013-12-12

Export parameters and fault logs etc to a SD-card

Step	Action
1	Press enter for menu. Note! The SD-card must be formatted into FAT (not FAT32)
2	Insert the SD-card in the card reader with the angled corner to the right
3	Use arrow keys and step to menu B.1.3. (Fault history/Export) Press <↵
4	Change to yes with arrow keys and then Press <↵
5	The file will be named PARAMETERS.txt

Electrical drawings