

Schneider

Steuerungstechnik GmbH



PRODUCT MANUAL

LiSA20

SAMI modules

INTRODUCTION TO PRODUCT MANUAL 2015

Following the successful launch of our control - LiSA20 and SAMI-panel modules, we have been since looking for ways to improve these components in interaction with the entire lift system.

How can the already outstanding individual components LiSA20, LiSA-Bus components, SAMI-panel modules, LISY displays be most efficiently integrated into the elevator area?

The answer to this question is the focus of this product manual and refers therefore necessarily to constructive aspects and the resulting possibilities

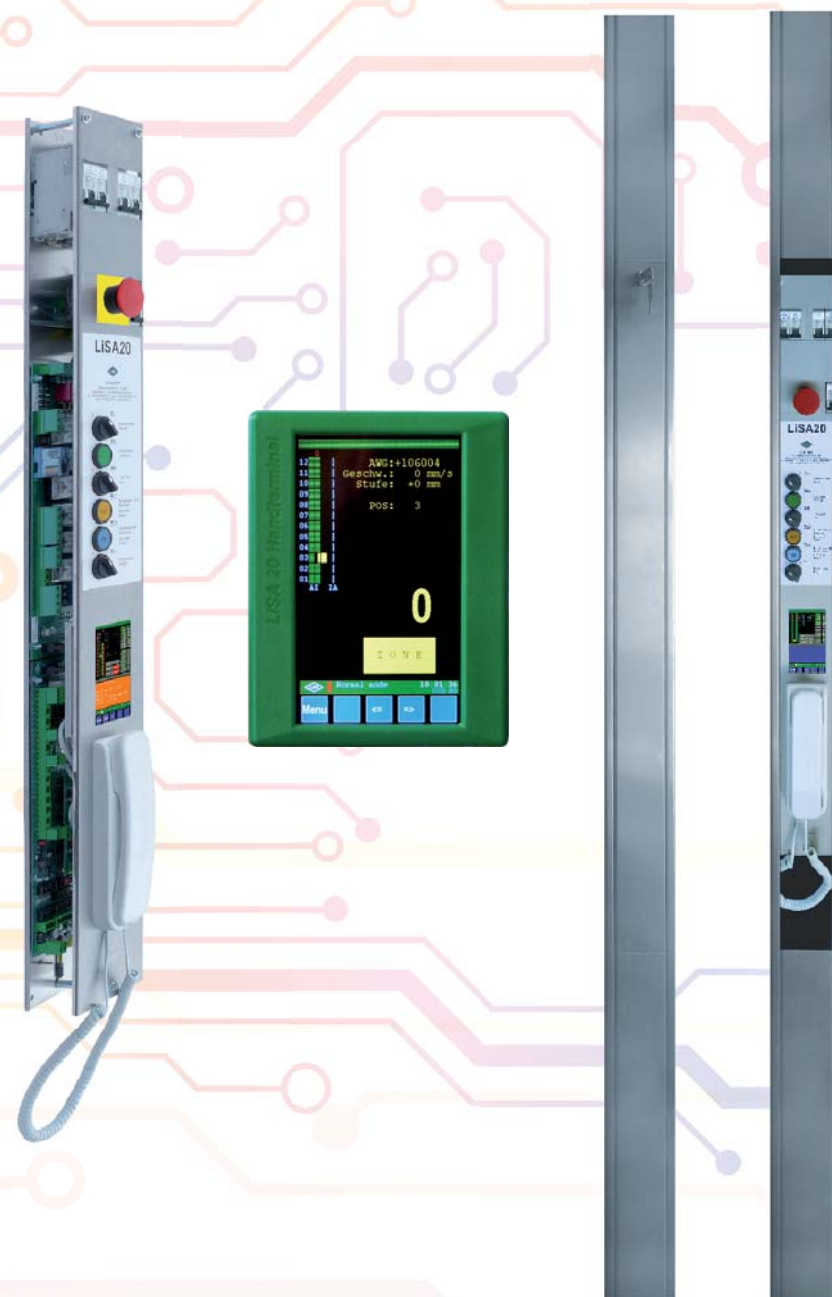
- ▶ to minimize the installation time and materials
- ▶ to make the elevator installation more comfortable
- ▶ to achieve a minimum of components used without concessions on the demand for an appealing design.

The solutions from 2014 described in the Product Manual LiSA20 and SAMI modules fulfill these requirements already to a high degree. However, as with any introduction of new products, also in our case this resulted in a number of findings, which attracted considerable improvements.

Here emerge especially the simplifications of structural design and installation, with the result that floor, car and control modules can now be installed even more easily.

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LiSA20 lift controller

LiSA20 is an innovative, future-oriented control system. Due to the two-part construction (processor board 95 x 290 x 20 mm, and relay board 95 x 290 x 40 mm), this system can be used even if space is very limited. The boards can be installed above each other, next to each other or, in small areas, even separately. This allows to decouple the electronic components from the mains supply side and thus helps to avoid EMC-technical problems. It complies with the requirements of EN 12015 (emission) and EN12016 (immunity).

A new concept has been integrated in LiSA20 in order to select different user levels for simple supported access to the controller. This is to make a distinction between operator, service mechanic and core team. Depending on the selected authorization using the coded USB stick, specific function can be selected in the controller.

Thanks to its interfaces like LiSA bus, CANopen, DCP, modem, COM server, USB and SD card, it is all geared for future tasks.

Using state-of-the-art components and the sophisticated structure allow for the operation at minimum consumption. Functions like light off, display off, inverter in standby operation, inverter and door drive off, provide for economic consumption values of the whole lift system.

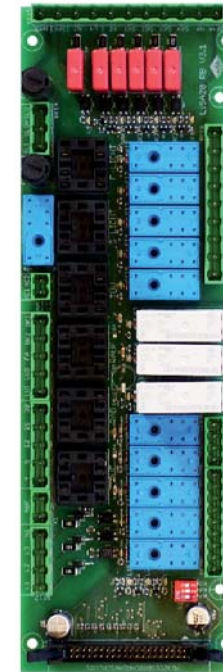
LiSA20 PB (processor board)



Technical data

- dimensions (WxHxD) = 95 x 290 x 20 mm (35 mm depth with plug-in terminals)
- 24 VDC voltage supply, max. 3A
- emergency supply battery 12VDC with charging/discharging electronics
- switching voltage 24 VDC npn (L<15V); pnp (H>15V)
- 32 bit ARM Cortex M4 microcontroller, 168 MHz clock frequency, 2 MB flash, 256k RAM, 4k SRAM
- RTC with storage battery, watchdog
- software and parameters: data exchange via SD card or USB stick
- status LEDs for simple diagnosis without display
- serial interface (group connection, modem, COM server (LAN, WEB server), CANopen, handheld terminal)
- connections for LiSA EBUS (landing bus) and FBUS (car bus)
- inverter interface (DCP3/4 or discrete digital signals or analogue)
- Drive monitoring (PTC, maximum pressure, minimum pressure, controller fault, brake contacts)
- Pulse input for digital shaft selection
- Functions for emergency call system
- backward compatible to LiSA10

LiSA20 RB (relay board)



Technical data:

- Dimensions (WxHxD) = 95 x 290 x 40 mm
- 4+1 safety circuit queries via opto-coupler
- Safety circuit with safety relays
- 3-phase monitoring
- Switch for recall (evacuation) and brake lifting (emergency rescue)
- Key-operated switch for TÜV inspection and emergency rescue
- 5 preselection relays for travel signals
- Button and relay for shaft light switching
- Query of the car light voltage via opto-coupler
- 1 emergency call relay
- 3 freely programmable relays
- Connection to processor board via ribbon cable
- Mounting holes of LiSA20 PB and RB with adapter, compatible to LiSA10

LiSA20 HT (handheld terminal)



Technical data:

- dimensions (WxHxD) = 92 x 150 x 10 mm
- RS485 interface to LiSA20 PB
- SD card as temporary memory e.g. for screens
- 4.3" touch TFT colour display serves for operation, programming, error analysis as well as direction and position indication for emergency rescue
- parameterisation and control of various DCP inverters via touchscreen

Examples:



LiSA20 basic module (LBM)

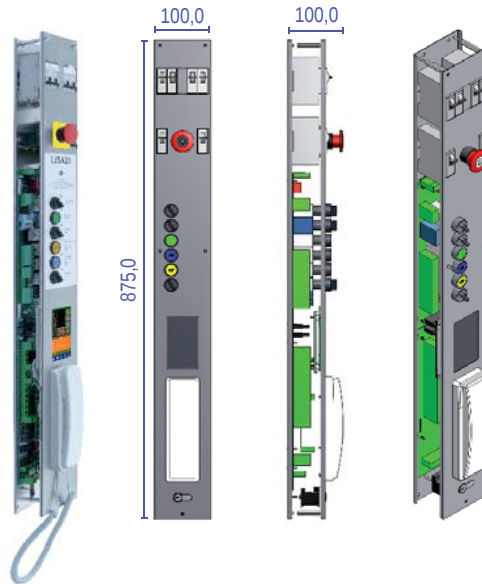
In the future, any controller manufactured by Schneider on the basis of LiSA20 will contain the LiSA20 basic module (LBM).

LiSA20 basic module (LBM)

Structure:

A carrier plate comprises the LiSA20 PCBs, diverse fuses and the respective module connectors as interfaces. The front panel contains operating terminals and telephone handset for voice communication to the machine room.

Dimensions:
100 x 875 x 100 mm (WxHxD)



Rescue module

Rescue module (BModule) for lifts without machine room:

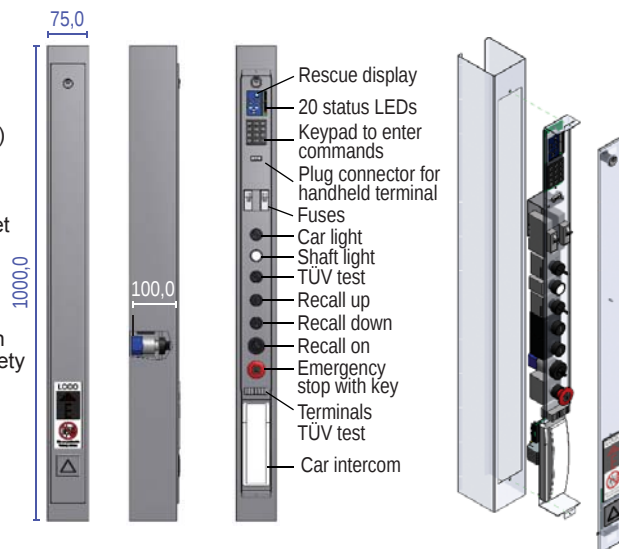
Dimensions: 945 x 75 x 100 mm, door frame cutout: 900 x 66 mm

The BModule is mainly used if the LBM cannot be placed in the door frame for lack of space or if a firmly mounted handheld terminal should expressly be avoided. Then the LBM is mounted in the rear box of the car panel

→ movable controller

The BModule contains:

- the recall controller
- the switch for emergency rescue or brake test
- LCD display (speed display) to indicate direction, speed and position of the lift for emergency rescue
- Key-operated switch to reset the emergency release monitoring
- Plug connector for handheld terminal
- Emergency stop pushbutton
- Measuring terminals for safety taps
- div. fuses
- Option: intercom to car
- Option: landing buttons with LOP



Control module (SModule) for lifts without machine room:

Dimensions 115 x 1250 x 110 mm (WxHxD)

The SModule is nothing but the LBM in a separate housing with the respective prewiring for connection in the CBox. In case of hydraulic lifts, the pump for Emergency rescue is additionally placed here.

We currently envisage the delivery of four different SModule types

- 1 - SModule for traction lifts
- 2 - SModule for GMV-Hydraulik
- 3 - SModule for Bucher
- 4 - SModule for Algi

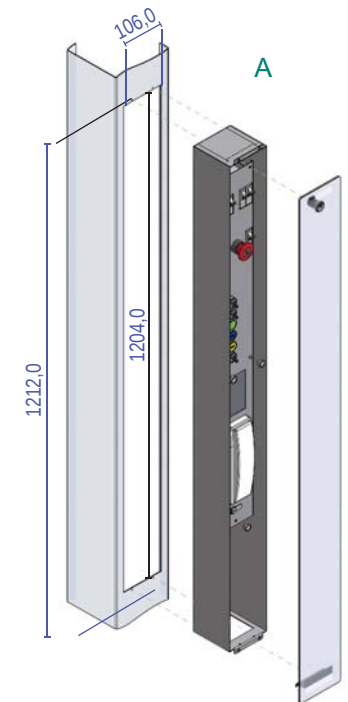
The SModule must not necessarily be installed in the door frame. Installation in the masonry or surface mounting (onto masonry, door frame) is equally possible.



So far we have delivered two variants for installation into the door frame:

A The door frame is equipped with a cutout suitable for the SModule (can also be cut subsequently). The SModule can then be inserted from the front and fixed on the door frame by means of four tapping screws. The front side cover is a hinged door equipped with a snap lock which protrudes from the door frame by 4 mm. The structure depends on the SAMI panels described later on.

B The solution with the more appealing design requires a door frame especially adapted by the door manufacturer (e.g. 130 mm width). Then the installation of the SModule is planned from the door frame rear. In this solution, the hinged door is flush with the door frame. Note: If the door frame is wide enough, installation is also possible from the front.



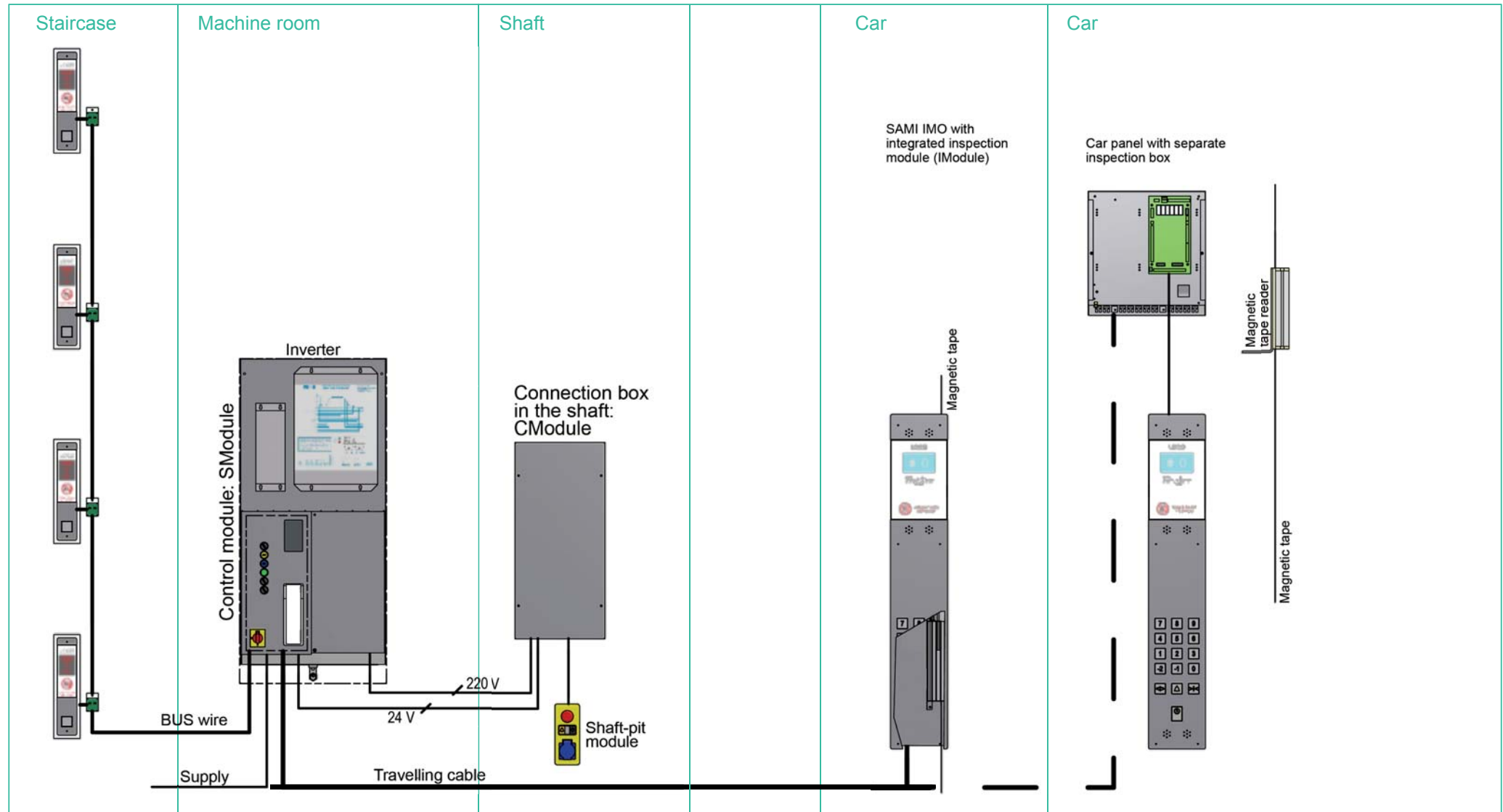
STRUCTURE OF A CONTROLLER USING LiSA20

The controller concept described above based on the LBM results in extremely small control cabinets even in case of "normal" controllers. And yet processor and relay board do not necessarily have to be positioned above each other. Roughly you can distinguish between 5 different versions (S1 – S5).

Version S1: machine room version

Controller structure:

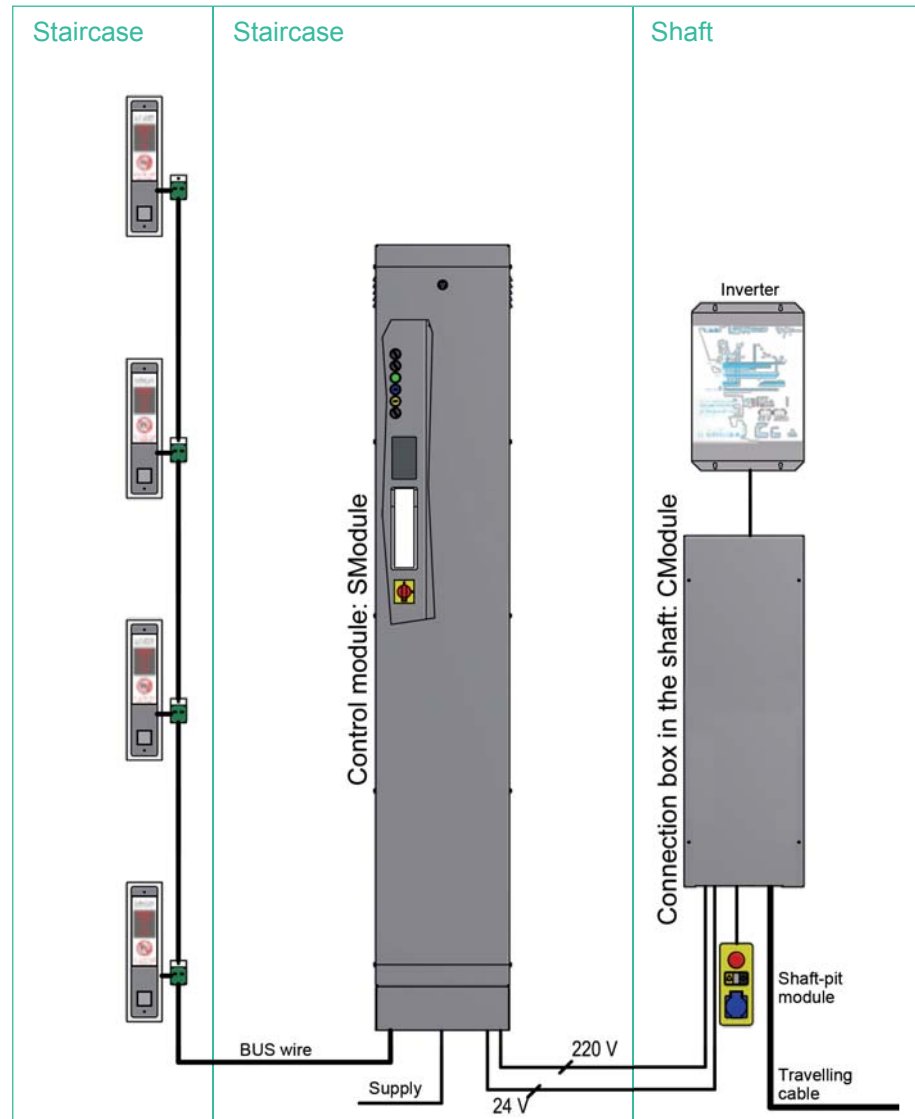
- Control cabinet with integrated inverter / inverter in machine room
- Supply and travelling cable connection in control cabinet
- Switches (recall, light, ...) operable from the outside
- Standard CModule with motor connector, short-circuit contactor, connection of the shaft-pit module, shaft light, safety wires, emergency limit switches, etc.



Version S2 w/o machine room: standing cabinet version

Controller structure:

- Supply in control cabinet
- Travelling cable connection in control cabinet / CBox
- Switch for emergency rescue operable after door opened
- C-Module with inverter and motor connector, short-circuit contactor, connection of the shaft-pit module, shaft light, safety wires, emergency limit switches, etc.



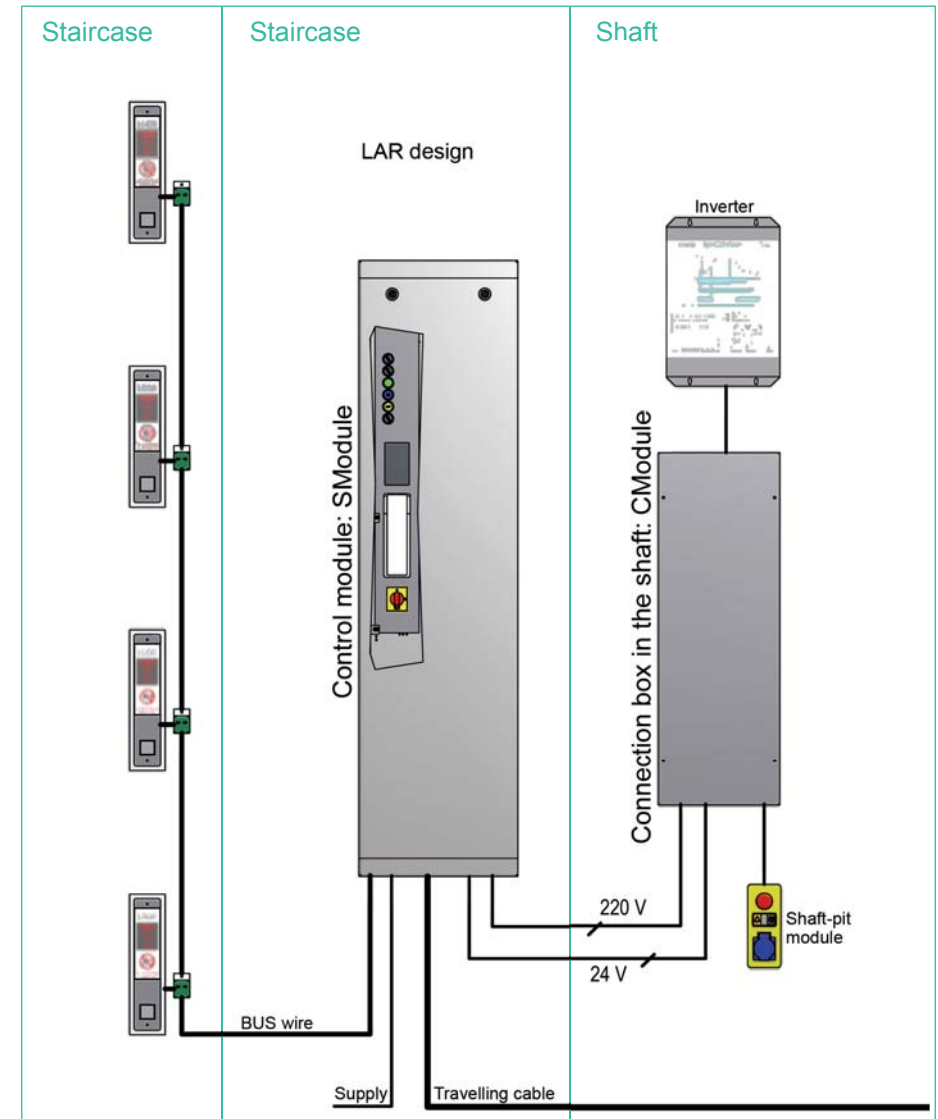
Version S3 w/o machine room: LAR version

LAR control cabinet in the landing (setup in escape routes) as wall cabinet or in alcoves.

Certified by Deutsches Bauinstitut!

Controller structure:

- Supply in control cabinet
- Travelling cable connection in control cabinet / CBox
- Switches operable after door opened
- CModule with inverter and motor connector, short-circuit contactor, connection of the shaft-pit module, shaft light, safety wires, emergency limit switches, etc.



THE MRL-ELEVATOR FROM A NEW PERSPECTIVE

in two versions S4 and S5:

- S4: door frame version
- S5: movable controller version

Current status:

The accommodation of control at MRL-elevators is usually carried out in:

- a shaft door or wall frame or
- a cabinet beside a shaft door or
- a wall niche or
- the shaft

Compared with the installation space in an elevator with a machine room, each of these installations is ultimately only a very unsatisfactory compromise.

Space problem:

The cabinet can often be installed only with great effort and requires each time a new and special adaptation to the respective conditions. The installation in a wall or door frame is similarly complicated. In case of fitting in the door frame, there is additionally often the problem of nearly impossible access to integrated control components. Subsequent changes, extensions and adaptations are extremely time-consuming and inconvenient. Often only the installation in special purpose-made frames is possible. Each installation is unique.

Connection issue:

The cable supply and the connection to the cabinet is always time-consuming and exhausting for the assembler.

Fire protection issue:

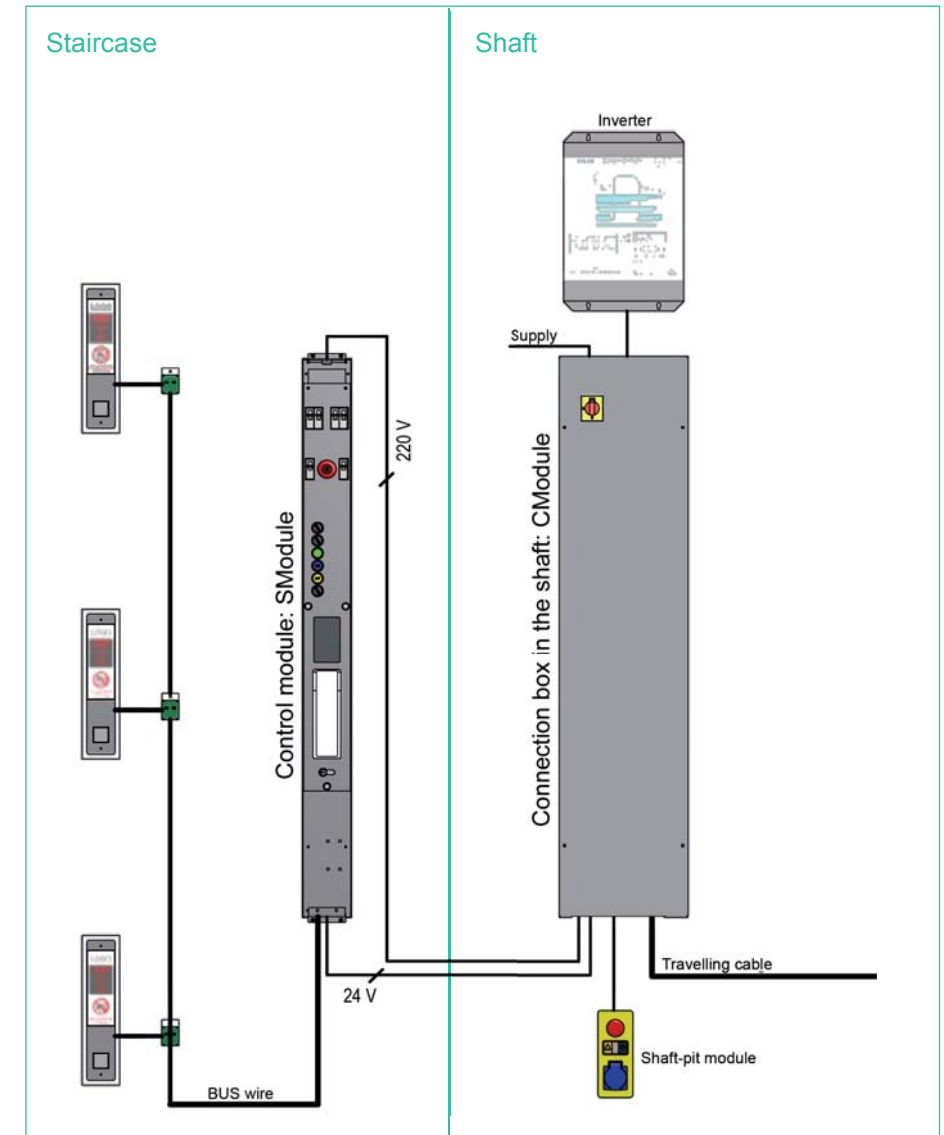
Not infrequently, F30's protection degree must be provided, possibly even after the installation.

VERSION S4 W/O MACHINE ROOM: door frame version

The S4-solution, providing services offered by Schneider MRL and basing on the built-in door frame LiSA- control module, is a significant improvement compared to S1–S3 versions.

Controller in the landing (door frame, surrounding wall, etc.)

- SModule in the door frame, surrounding wall or alcove
 - Emergency rescue after opening the hinged door
- CModule with supply, travelling cable connector, inverter and motor connector, short-circuit contactor, connection of the shaft-pit module, shaft light, safety wires, emergency limit switches, safety circuits for reduced shelters, etc.



MRL-version-S5: movable controller version

One more step, as compared to version S4, is the version described below, S5 by Schneider, based on board control KS (= cabin control).

Without exaggeration, we can say: „Thus the mounting is convenient and whole MR solution is easy to use. Moreover, such solution allowed to break the production cost and to simplify the installation process.“

The construction of the entire control system consists, apart from the operating and display units (LOP's), of only three modules:

1. **Emergency rescue module (NBM) in the door frame**
2. **Connection box in the shaft (CBox)**
3. **Elevator control including inspection module in the cabin panel module (KS=cabin control).**

The modules are interconnected by means of prefabricated cables. The entire module wiring consists of only three cables between NBM and CBox and a traveling cable between CBox and KS.

The method of attachment of all components makes a substantial contribution to the ease of installation. Apart from the CBox that still needs to be attached with screws in the shaft, all the components are mounted by means of clamped connections and releasable.

The NBM, the SAMI-landing modules (with SAMI-Fix-fitting) and KS are inserted from the front into the door frame or cabin wall. In both cases, only a (relatively inaccurate) rectangular cut without additional drilling or nuts is required.

This circumstance and the pluggability of the modules to each other, creates on the spot

„a tool-free zone“.

As a setting and service tool, an operating module (HT-hand terminal or PC-tablet) is available. For the HT is a plug-in connection provided both in the NBM, as well as in the cabin. The connection in the cabin allows a comfortable implementation of all setting and adjustment works on the control and inverter (DCP3 / DCP4) out from the car.

Basically, the HT consists of a 4.3 inch TFT- display with touch interface. If you give up the HT for financial reasons or because you want to protect yourself against unwanted access, you can refrain from a permanent settlement of the HT on the system.

The use of a 7 or 8 inch PC-tablet, which can additionally be mounted to the controller via Bluetooth without any cable connection, is even more convenient than the operating module.

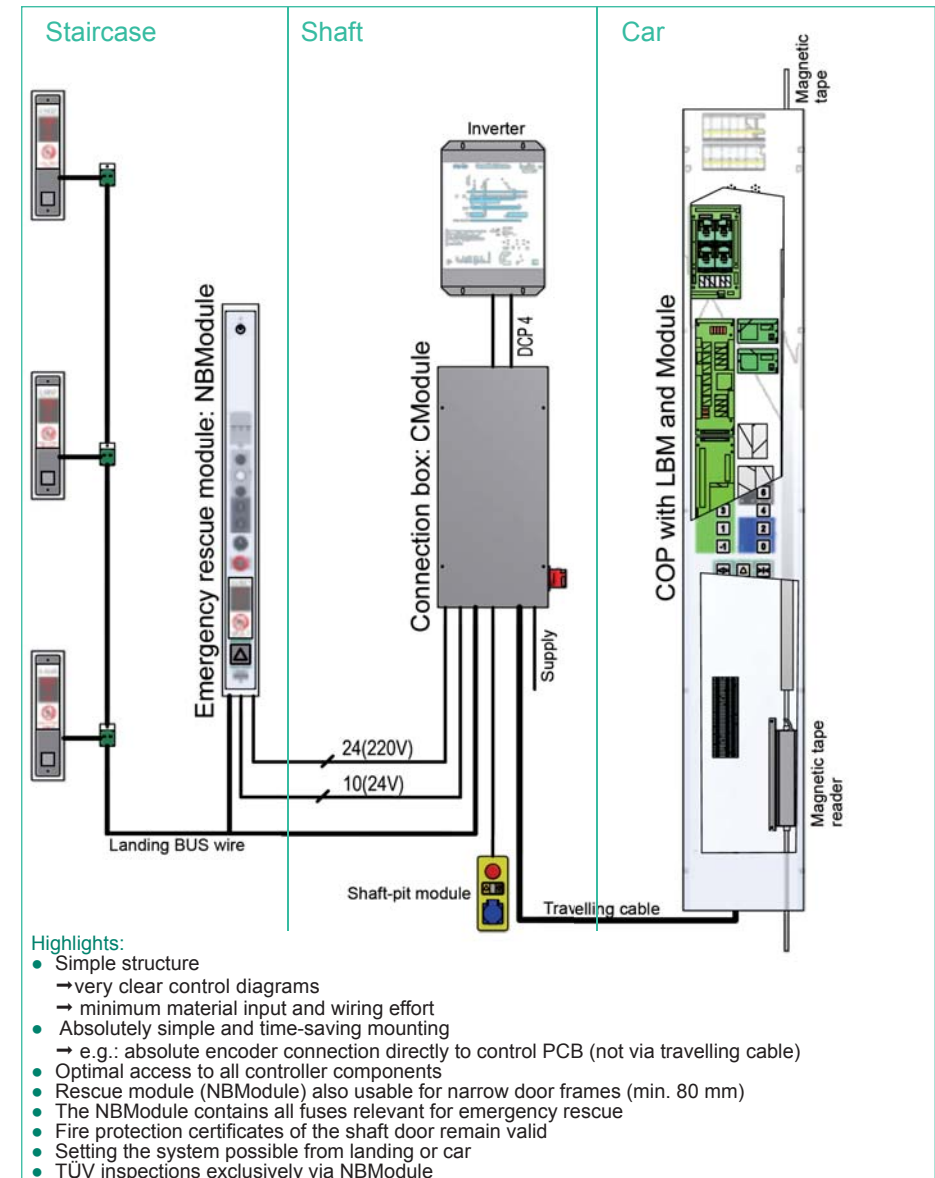
Inspections and tests can be carried out by a notified body (approved inspection agency) by means of a built-in NBM keyboard. The status of the system is displayed by LEDs. For intermediate examinations, the presence of an elevator company is not required.

For the emergency release, there is an LCD display located in the NBM, which provides the necessary information, such as speed, direction and position.

Controller in the car.

Controller structure:

- Rescue module in staircase
 - Emergency rescue after opening the hinged door
- Car panel as control cabinet for controller with LBM, voltage supply, battery, safety circuits for reduced shelters
 - Controller moves with the car (nevertheless only one travelling cable)
- CModule with supply, travelling cable connector, inverter and motor connector, short-circuit contactor, connection of the shaft-pit module, shaft light, safety wires, emergency limit switches, etc.





1. Emergency rescue module (NBM)

The NBM is installed in the door frame of any floor, has the dimensions of 90x100x1000 mm (W x D x H) and consists of two parts – one box designed as a double-Z and a 2 mm V2A front. All mounting parts are attached on the box-base. The front is designed as inlaid with a removable central part.

For the purposes of emergency evacuation, the setting of the installation or testing, the front can be removed with a key and closed again in accordance with regulation without a key.

The door frame-cutout is 94 x 950 mm. Thus, a frame width of 120 mm is sufficient. In addition to plug-in connection for the hand-held terminal, there is a specially developed module for emergency evacuation and checks by an approved inspection agency located in the upper part of the NBM with an LCD display, a keypad and LEDs' status. The 20 LEDs' status indicate the sufficiently well-known LiSA10 control states. Using the keyboard makes the command transfer to the controller possible, such as the drive to the end switch-up or -bottom, the test of the driving control time, any landing calls, triggering of the UCM control and the speed limiter.

Note:

Without a hand terminal, however, the effectiveness of the UCM control can be proved only at the occurring stage.

The 2-digit LCD normally always displays the car position, direction of travel and out-of-order-stand. After turning on the emergency switch the brake can be released by the brake switch, the lift can be set in motion, the display shows the current speed and information whether the elevator is in the zone.

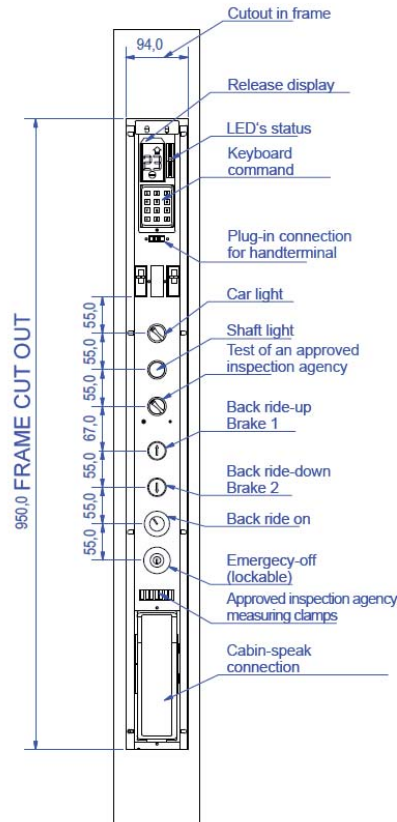
Regardless of the states of the safety circuit shown already by the LEDs, these are also measurable on clamps provided especially for this purpose (measuring clamps of an approved inspection agency).

The function of the main switch is performed for reasons of space by means of a lockable emergency stop button. It operates a mains contactor in the CBox and disconnects all poles of the voltage supply as a main switch.

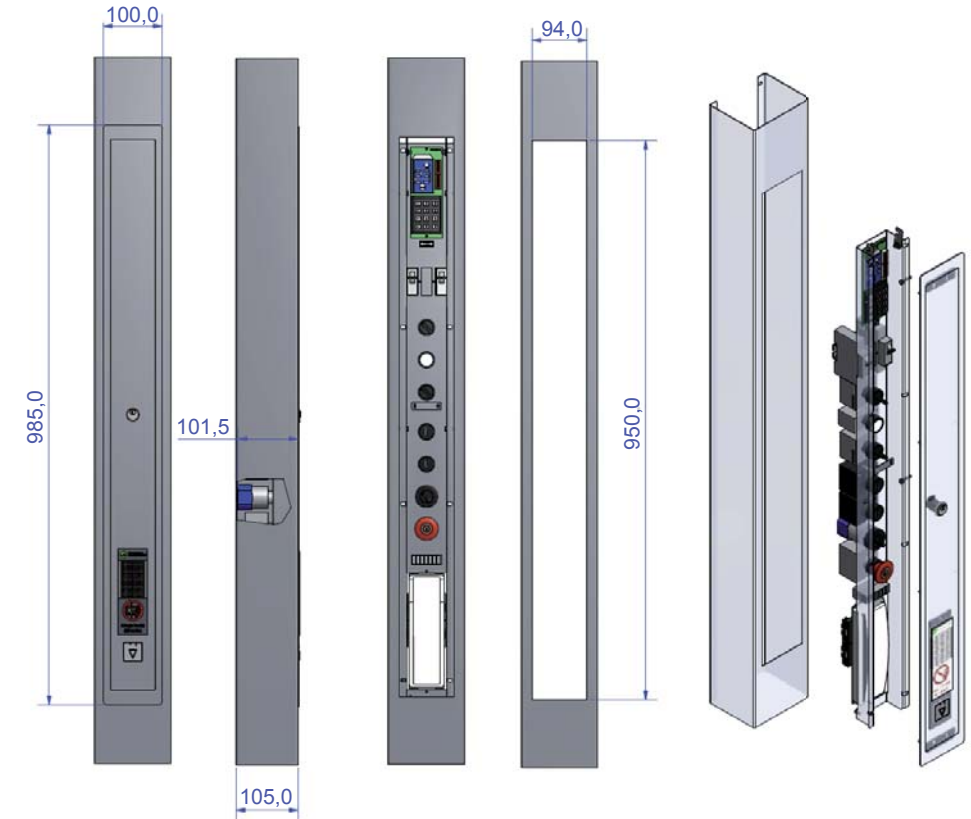
With the help of the brake-release button and another switch the return ride is performed. Optionally, it is possible to install a high-quality voice connection to the car.

The NBM and CBox are connected by only three wires. A cable for 220V (25 x 1 mm²), one for low voltage (14-pole curled ribbon cable) and the 3-pole floor bus cable.

While the 220V cable is hardwired in the NBM and provided on the CBox page with a plug, the low voltage cables are pluggable on both sides.



In case of an existing cutout in the door frame, the time required for installation and connection of the NBM remains in the range of a few minutes.



NBM installation:

The ready-made cables are put through the door frame cutout, the NBM is inserted into the cutout, pressed down and screwed on using concealed screws in the NBM upper section. No threads, nuts or screws are required in the door frame in addition to the cutout.

If the mounting depth is limited, the front can be edged correspondingly without great effort. In an extreme case, the NBM can be mounted completely on the surface, not requiring any cutout at all.

Further installation time and costs can be saved if the landing module components (landing buttons and position indication, if any) are installed in the hinged door of the NBM (i.e. omitting the landing panel).

2. Connection Box in the shaft (CBox)

The CBox is the connection centre in the shaft.

Power supply, safety circuit buttons, hanging cables, inverter control and port, shaft light, all the shaft switches, pit module etc. are connected there. The CBox also contains: main switches and fuses, a mains contactor, depending on the inverter, a short circuit contactor or brake contactor, safety circuits for shaft door release, different relays for triggering of the over-speed governor, for the creep protection, for the UCM-test, for UCM-function on a speed basis.

Furthermore, a UPS (up to 1200 W) can be put into the CBox. Cables and wiring lines are absolutely minimized in their length. The connecting cable to NBM, the pit module and the car can be plugged in.

The standard size of the CBox is 80-120 x 240 x 1200-1400 mm (D x W x H). The CBox cover is height-adjustable.

As mentioned above, the attachment to the shaft wall is carried out by 4 screws and is therefore the only assembly-mounting, for which you would need a screwdriver or spanners.

Since the hanging cable holder is integrated into the CBox, a separate attachment to the shaft wall is unnecessary.

The small installation depth of CBox allows in general to mount it at any point in the shaft.

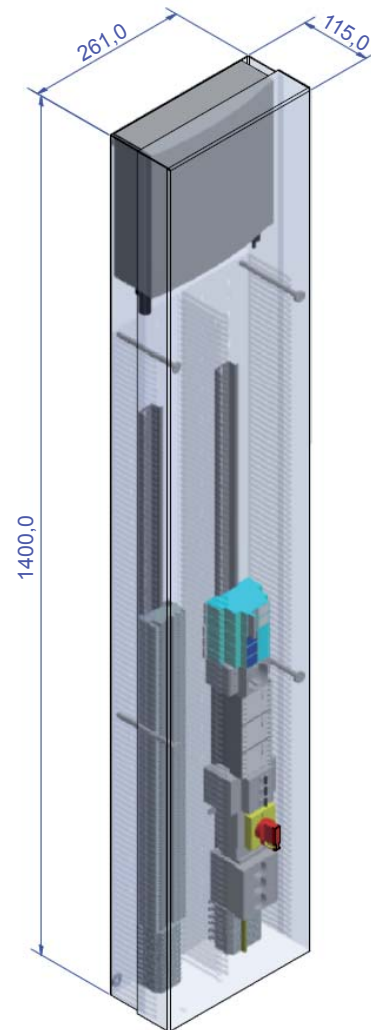
Possible options:

- ▶ the horizontal mounting position on a door lintel or
- ▶ in the middle of the shaft to minimize the traveling cable length and to avoid space issue at reduced shaft-upper end or
- ▶ in the shaft-upper end directly next to the inverter and engine

This mounting method is particularly useful when a short-circuit contactor is necessary, as no separate housing with terminals is required then.

Note:

In general, the connection of the traveling cable into a shaft box leads to a considerable mounting relief in view of relatively inflexible traveling cable, and also contributes, due to the lower length, to a considerable cost reduction. The maximum saving is achieved naturally when installing the CBox in the shaft center, as this almost halves the cable length.



3. Central control unit in the elevator car - KS

The KS occurs outwards as a „normal“ SAMI-car module (FMod), without any hint that behind it are the following components:

- ▶ inspection box components
- ▶ LiSA20 control
- ▶ power, a power socket and the battery
- ▶ optionally, the absolute encoder read head for shaft-copying.

The KS can be accommodated in each car operating panel or panel, provided the depth of the panel box is sufficient.

As in the case of a car-panel module, the assembly is carried out without installations, which means that the assembly time for a KS is identical to that of a normal FMod.

In the above variants, the forepart-depth is 14 mm as a standard. Whether this is sufficient, depends ultimately on how big is the distance between the car and the shaft wall. For example, if this distance is only 30 mm, the forepart-height must be ≥ 40 mm.

The surface-mounted construction of the panel front or a construction at the surface level, both preferred by our customers, are due to the minimum required HK-depth of 70 mm, only possible, if the distance between the car and the shaft wall is > 80 mm.

The fact that elevator companies usually offer only car panels that are applied always between 30 and 40 mm on the cabin wall (and this without the built-in control!!!) for their standard solutions, might enlarge the acceptance of customers for in-cabin panels.

Construction:

The APO is installed in the top part of the HK. This part is also supplied with all cabin ports. The inspection driving bulb is directly plugged into the APO and the terminal strip.

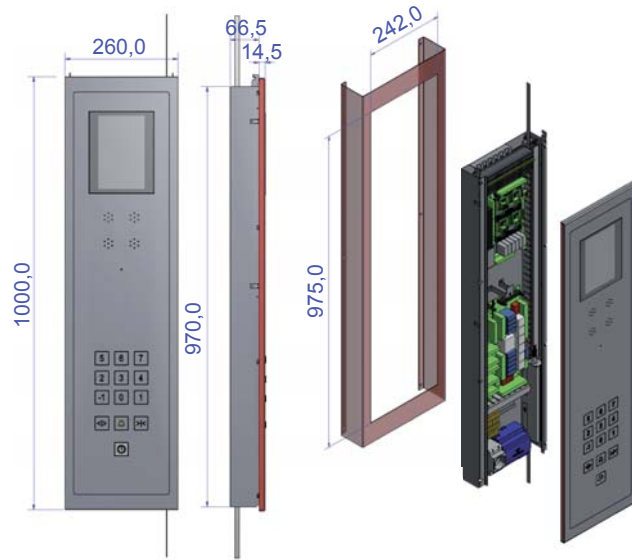
In addition to power supply, they also include LiSA20, a battery and a socket, the suspension cable entry and clamps, and the read head of the AWG. The magnetic tape is guided along the entire length by the HK.

The arrangement of all components at eye level provides absolutely relaxed working conditions.

Installation options for KS:

KS in Tuv

Notwithstanding the standard dimensions 200 x 1000 mm, a panel module with dimensions of 260 x 1000 mm is required to accommodate all KS components.



KS with LiSA20-boards side by side.

The Tuv is also available as a lighted panel.



KS version housed in a slimmer panel version (220 x 1100 mm) with LiSA20 boards one above the other.

Also available as a lighted panel.

KS in the Panel

The KS version of the panel corresponds structurally with a KS built in To / Tuv, wherein the display front is replaced by the panel front. The back box fixed to the panel front is however longer in solitary panels (1500 mm), since it also rests as a mounting support on the lower link carrier.

KS in the desk panel module - TP

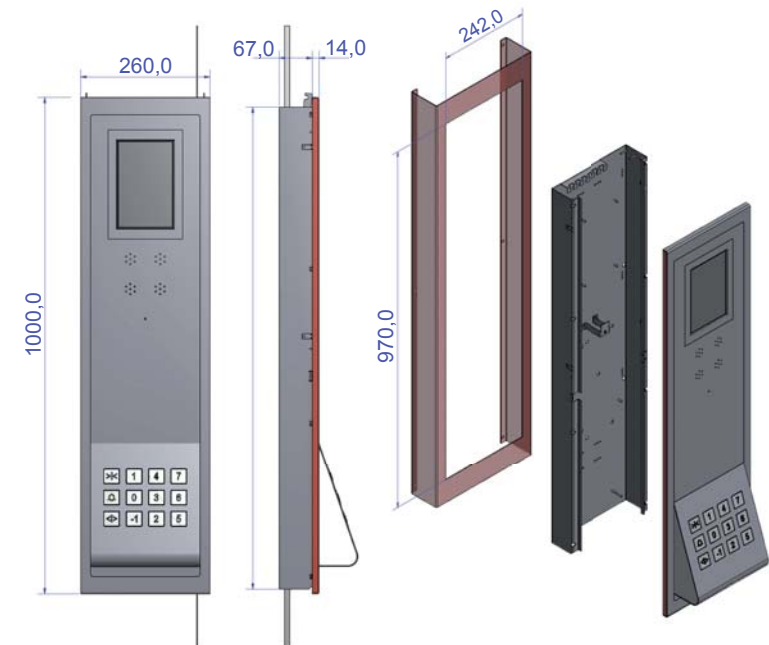
The most compact variant of a board control is the KS in the desk panel. This compactness results from the fact that a desk panel should stick out about 100 mm inside the car. This increases inevitably the space for the panel and control components.

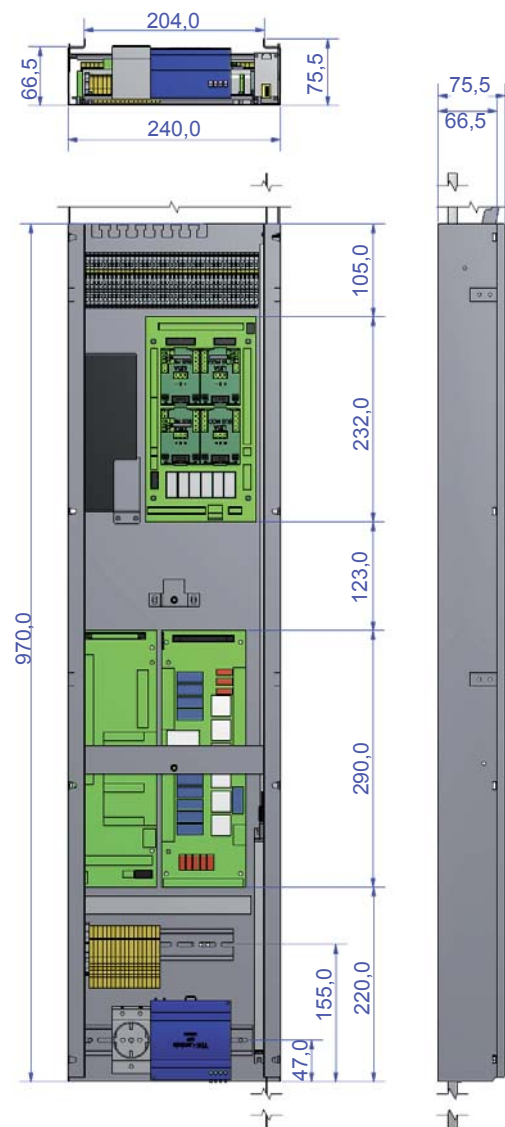
Besides, handicapped-user-friendly elevators must be equipped with desk-panels, so the desk function is therefore an extremely cheap side effect.

A further advantage is the extremely comfortable accessibility to the panel and control components.

KS in the vertical desk panel

In case of desk-Tuv, the inlay bottom part is designed in a desk form.



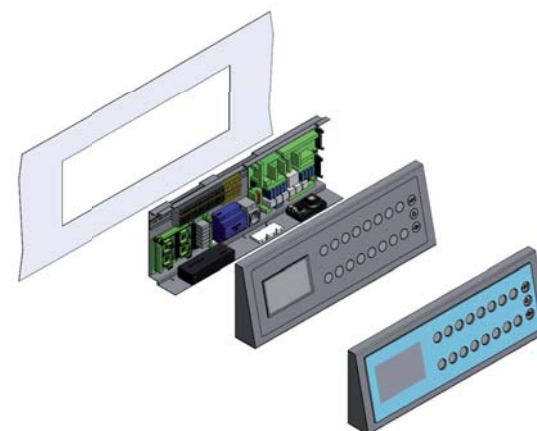
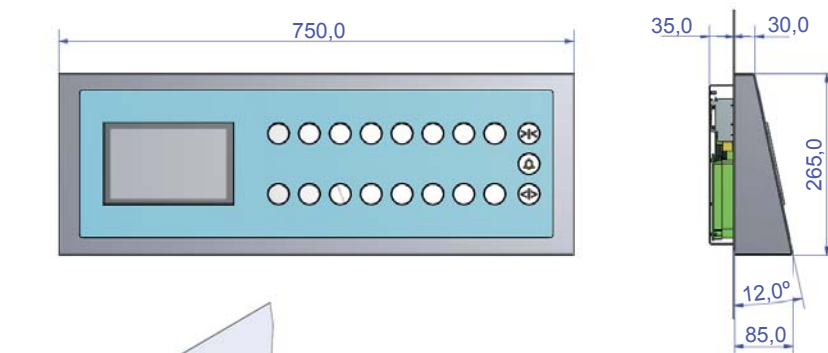


During the installation of all control components in the vertical desk panel an all-in-one solution suitable for every purpose with the following functions is created:

- ▶ car panel with a desk according to EN81-70 and PC-tablet as an information system with voice output, access control via keypad, card reader or fingerprint scanner and voice control for visually impaired and heavily disabled persons
- ▶ elevator control
- ▶ inspection box components and
- ▶ absolute encoder

KS in the horizontal desk panel

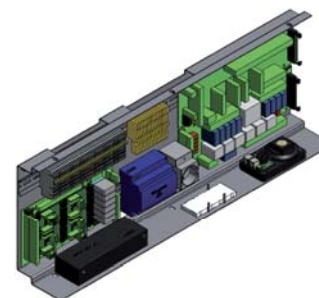
With a corresponding cut in the cab wall and a 35 mm deeper back, it is possible to accommodate an accompanying control including inspection box internals in horizontal standard TP. This version is purely externally indistinguishable from a „normal“ TP horizontal.



TP with 6 mm
A solution to prevent unintended button operation



NOTE:
Installation of an absolute encoder



4. KS-Installation

The installation sequence for a board-LiSA20 described below is of course only one of many possibilities.

The time required for the individual operations (in parentheses) is only an estimate on our part, and possibly a bit too optimistic, as Mac Murphy has not been considered here:

1. Fixing the CBox in the shaft (15-30 minutes)
2. Installation of the NBM in the door or wall frame (10 minutes)
3. Making the connection between NBM and CBox (15 minutes) by means of:
 - plugging the 25-pole cable 230V cable into the C-Box
 - plugging the 14-pole ribbon cable and the floor bus cable in the NB module and in the CBox
4. Provisional placement of KS in the floor where the NB-module is installed, or on the cabin platform (10 minutes)
5. Pulling the hanging cable between CBox and KS (30 minutes)
6. Plugging the inspection driving lamp in the KS for installation drive (5 minutes)
7. Installation of the cabin and doors (xx minutes)
8. If the KS was placed for installation in the floor, marking out the hanging cable and bringing KS into the cabin (15 minutes)
9. Cabin installation routine:
 - onset of KS in the cabin wall opening and fixation with the bending clamping tabs (one on each side)
 - putting the traveling cable in KS and plugging in
 - connecting the inspection lamp
 - clamping the car light, door drive, door limit switches, photoelectric switches, lock power limiter to the upper clamp row or the APO
 - inserting the car panel (inlay) and connecting to the APO 14-pole ribbon cableSince all connecting work can be carried out with maximum comfort at eye level, the estimated time required for cabin installation is between 60 and 90 minutes
10. Installation of the magnetic tape and leading by the read head in the panel box (30 minutes)
11. Connection work in the shaft, supply of the entire connection cables (60 minutes)

Connection work in the shaft, supply of the entire connection cables (60 minutes).

THE PANEL-INSPECTION MODULE – TIM

If we have not convinced you of the benefits of the KS, or the respective application does not seem sensible, for example, for installations with a machine room, there is no way to disregard the panel-inspection module (TIM) described below.

Note: Some of our customers regard a modified form of the TIM with a built-in panel, which, for many years now, is as standard.

Since the space requirements for the components to be housed in HK are lower than in KS, all mounting options described for KS also apply to the TIM.

The following description of the TIM, installed in Tuv, represents all TIM versions:

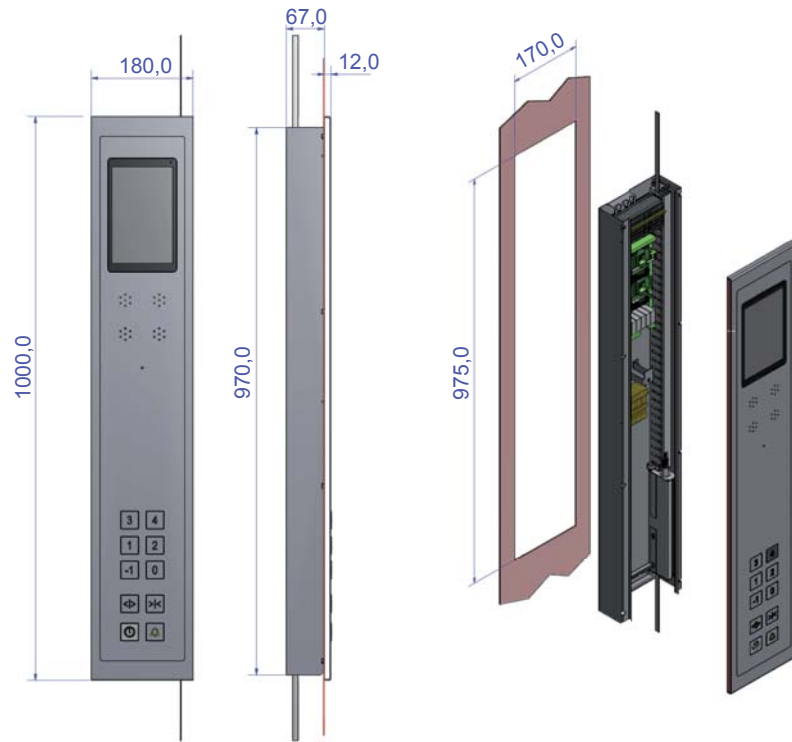
The TIM is nothing more than a SAMI-cabin module with HK and a minimum depth of 65 mm. What has been said about the KS also applies to the creating of the front panel, that is, the display front projects into the cab when it is incorporated into a Tuv, or it is carried out without a forepart when built into a Tu / LP / Po when the distance between the car and the shaft wall is ≥ 80 mm. Notwithstanding the KS, „only“ the inspection box fittings with a plug connector for the inspection lamp, the AWG-read head and the hanging cable connection are placed in HK.

Installation will proceed in the same manner and the required assembly time is identical to that of KS:

- ▶ inserting the TIM in the cabin wall opening and fixation with the bending tool tabs on each side (about 5 minutes)
- ▶ insert the hanging cable and plug (about 5 minutes)
- ▶ connecting the inspection lamp (about 5 minutes)
- ▶ clamping the car light, door contacts, the door operator, the door limit switch, light barriers, the lock power limiter to the upper clamp row or the APO
- ▶ install the panel in the HK and connect the APO over the 20-pole ribbon cable (about 5 minutes)

The installation process in the car is now completed and the time required for installing the TIM was about 20 minutes. Finally, the magnetic tape of the AWG is to be installed and led by the read head. Since all connecting work can be carried out with maximum comfort at eye level, the required total time for cabin installation is between 30 and 60 minutes in total.

TIM installed in Tuv:



Our future standards:

1. **The board control - KS is standard in MRL-range.**
It proved superior to the other solutions and is therefore our favorite for MRL- elevators.
2. **The inlay technique is standard in all panel modules**
(full front technique only at glass surface).
3. **The SAMI-inspection module TIM built in COP with the absolute encoder and hanging cable is standard for systems without board control.**
4. **The CBox as central distribution and junction box in the shaft is standard in all control concepts.**

Note: The entire shaft installation, the connections to the inverter and engine, control or emergency release module as well as pit module, the power supply, traveling cables etc. lead to or from the CBox.

SAMI-modules

SAMI-components

SAMI-buttons and key switches

SAMI-landing modules

SAMI-car modules

SAMI-display modules

SAMI-MODULES

The panel-module-family, already presented in 2014, is an absolute novelty in the elevator sector.

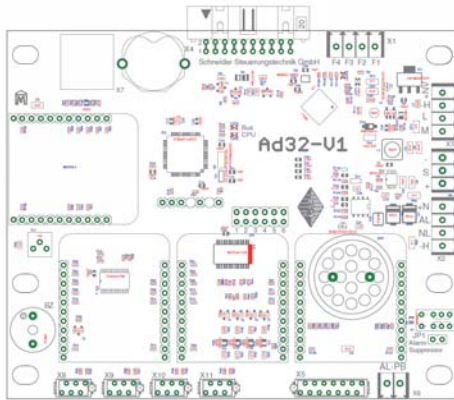
The objective of the development was and is as follows:

The big lift companies (Thyssen, Schindler ...) generally stand out by a distinctive, usually sophisticated style. Apart from the cabin design, the crucial role is played by the appearance of panels, handles and displays. And so for example, a Thyssen elevator is immediately identifiable as such.

Components for the SAMI-cabin-module

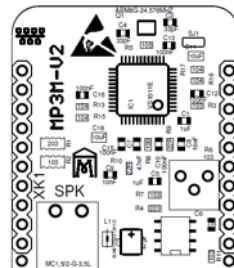
Cabin electronics AD32

The cabin electronics module (AD32) is the centerpiece of the cabin module – simultaneously for the LISY4 display, base board for four lift bus modules and a number of other functions such as key inputs for rides, special buttons and activation of emergency pictograms. The electronics includes also an integrated gong.



The lift bus modules are new developments and currently they are in the implementation phase. Modules of various functions can be plugged in on the four lift bus-module-slots, such as

- ▶ IO module with 8 IO's for connecting push buttons, key switches, light panels, etc. In this application, they replace the more expensive and larger bus modules.
- ▶ MP3 player-module with a connection for a separate speaker as a substitute for the LMP3-voice version.
- ▶ USB2 bus-module for connecting a PC-tablet to the LiSA bus, inclusive 5V supply for the tablet.
- ▶ etc.



Components for SAMI landing module

LOP electronics modules

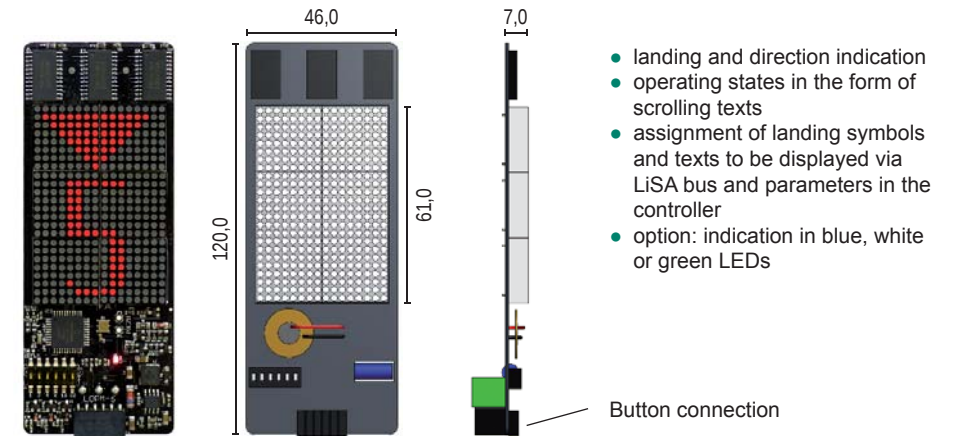
The LOP module has the dimensions 46x120x7 mm and combines the electronics for a bus module with a display

Highlights:

- direct connection to the 3-pole LiSA bus via plug
- Connection of the button strip (2-button) directly to the LOP module via 6-pole pin plug
- Acknowledgment buzzer according to EN81-70
- Option: Connection of a key-operated switch via 10-pole ribbon cable plug or screw terminals on the button strip

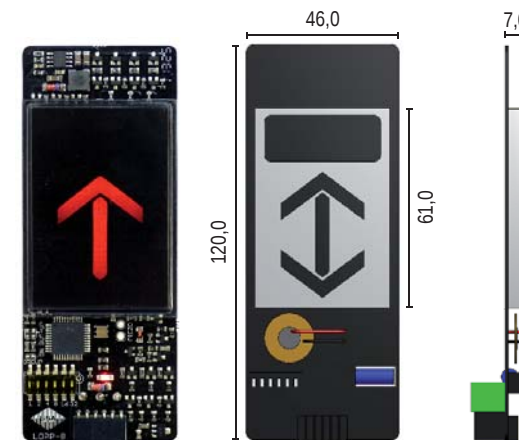
LOPM – LOP module with matrix display

The LOP contains an LED matrix (16 x 24 dots) with the analogue functions of the small LBDS bus matrix display in vertical position, i.e. it provides:



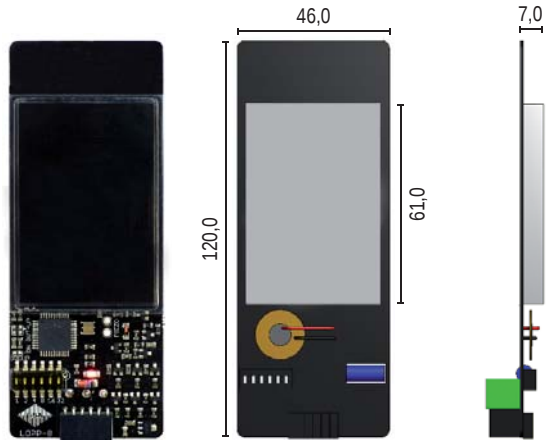
LOPP – LOP module with arrows

The LOP contains 30 mm LED direction arrows and an out-of-order indicator field.

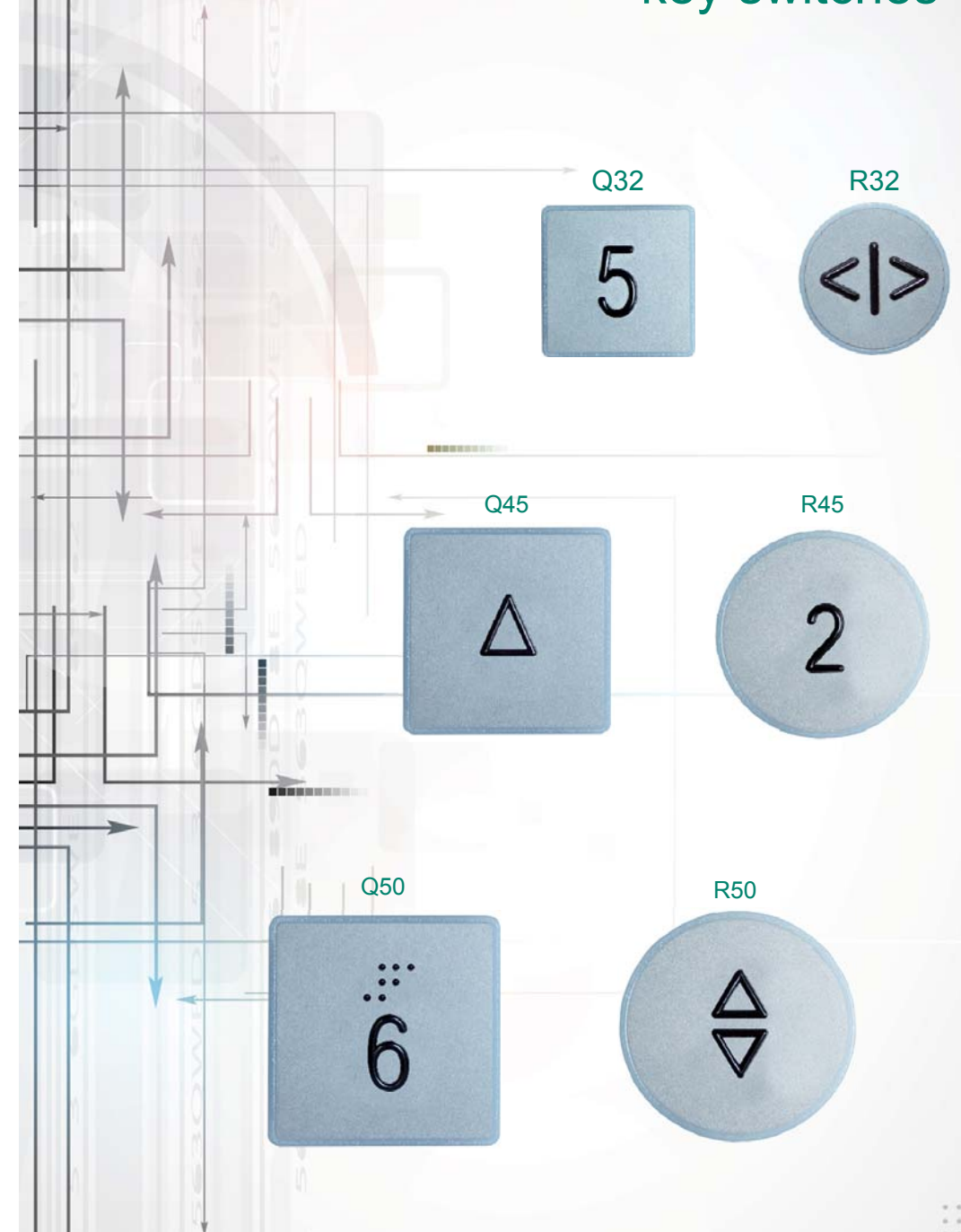


LOPO – LOP module without displays

This is the eco-variant. The LOP only contains the bus electronics. The (functionless) housing for the arrow display is installed as a dummy.



SAMI-buttons + key switches



SAMI-BUTTONS AND KEY SWITCHES

An entirely new panel-component-family was developed for the SAMI-modules.

The result:

- ▶ improved design
- ▶ reduced connection and wiring effort
- ▶ improved functionality
- ▶ suitable for third-party controls without limitation

Highlights:

- ▶ All SAMI-handles are single buttons, but suitable for interconnection → no wiring required.
- ▶ Number of fastening bolts reduced to pin number = number + 1 button
- ▶ The button symbol is lit as a standard and always flashes together with the border line.
- ▶ The activating of the handle is audible. Normally, it is sufficient, since most of our customers feel irritated by the „beeping“ in the required volume by EN81-70 anyway.
- ▶ Pluggable board for acoustic acknowledgment according to EN81-70, sufficient for all handles.
- ▶ Each button can also be subsequently replaced without any adjustment by a SAMI-key switch KQ32 / KR32 / KQ45 / KR45 / KQ50 / KR50. The same applies to light fields LQ32 / LR32 / LQ45 / LR45 / LQ50 / LR50.
- ▶ Each button is available as an IP54 version. For this purpose, a special membrane was developed.
- ▶ Design improvement, since all buttons and keys will have in future only a 1 mm-border line.

SAMI-buttons

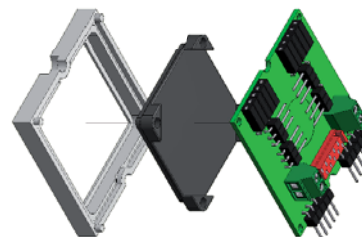
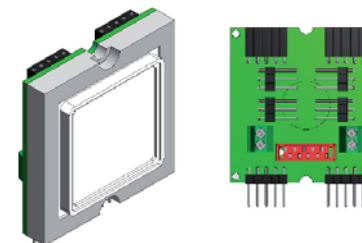
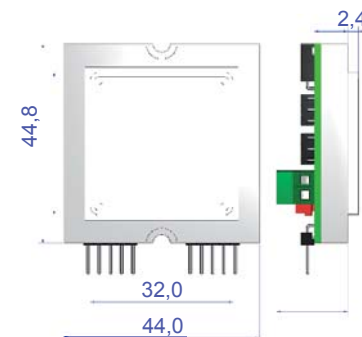
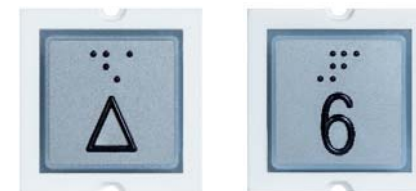
Square buttons: Q32 (32 x 32 mm) / Q45 (45 x 45 mm) / Q50 (50 x 50 mm)
Round buttons: R32 (32 mm) / R45 (45 mm) / R50 (50 mm)

Common features:

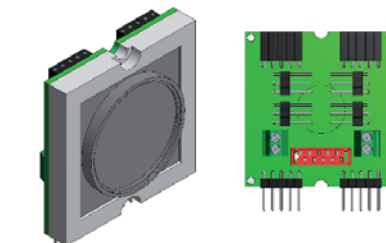
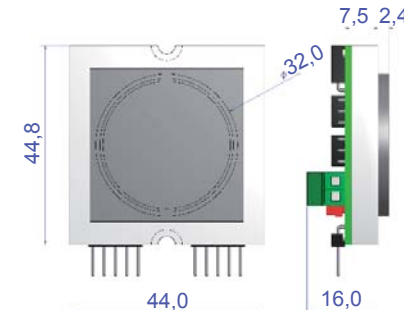
- ▶ black icon (high contrast) but still shining 1 mm above, 15 mm high
- ▶ acknowledgement red / white / blue / green
- ▶ buttons, each pluggable
→ Minimal connection costs with minimal error probability
- ▶ maximum height 15 mm
- ▶ connection via ribbon cable or conventionally by means of screw clamps
- ▶ optional: board for + button-switching signal
- ▶ optional: acknowledgment and signal separated
- ▶ optional: basic light in white / blue / green
- ▶ optional: Braille
- ▶ optional: plug-in acoustic acknowledgement

SAMI-buttons Q32 / R32:

Button Q32



Button R32



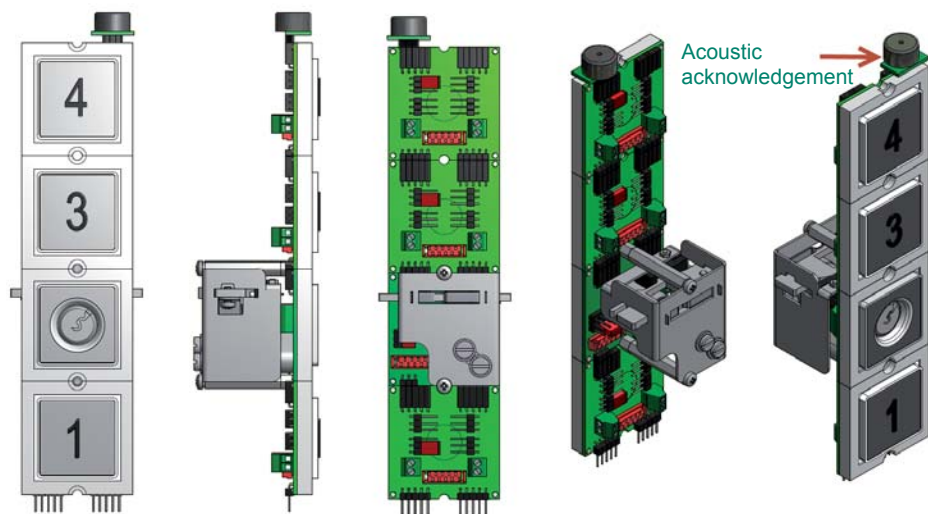
Same button-board and frame for Q32 und R32.

On each button, there is a 10-pole micromatch-connector (MS) for the connection of 8 buttons and the supply voltage. (+, -) over a 10-pole ribbon cable.

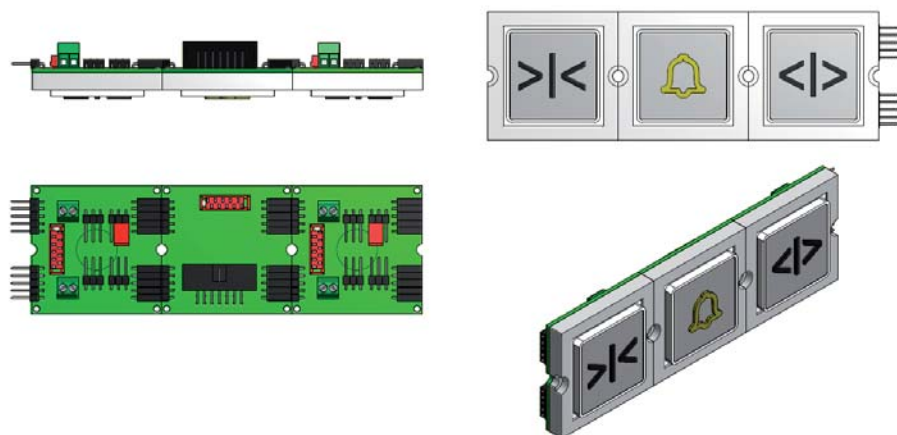
Each button can be matched to one of 8 floors through 8 code jumpers. If necessary, a buzzer can be inserted for the acoustic acknowledgement (only one buzzer is needed for a row of buttons).

If the buttons are built into the appropriate grid (at Q32 / R32: grid = 45 mm and Q45 / R45 / Q50 / R50: grid = 63 mm), they can be plugged directly side by side (no wiring required). In case of a different grid or when, instead of a push-button switch, a key is installed, the connection can be performed from the MS. In case of button rows with less than 8 buttons, the rows can also be merged.

Button row with Q32 and QK32



Horizontal button row for special buttons



The alarm pusher is equipped with two micro switches, one of which provides a potential-free signal for the emergency call system.

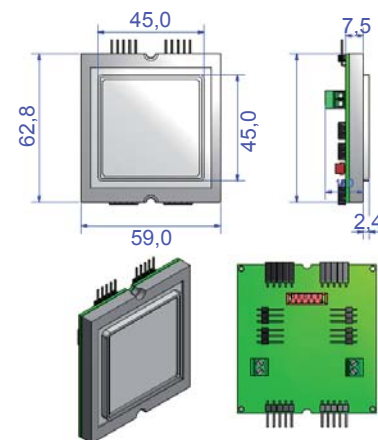
This signal can

- be tapped directly by means of screw clamps on the alarm board or
- be evaluated by means of 14-pole ribbon cable connector on the AD24 (dock adapter for the cabin panel) by the abuse suppression function and then fed to the emergency system.

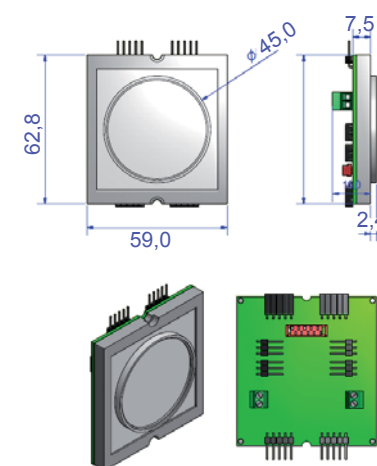
Furthermore, on the 14-pole FBK plug of AP are launched the alarm signal of the 2nd micro switch, emergency lighting and a total of 7 button or key switch functions (door-open, door-closed, loading, fan, priority travel, fireman service, fire, etc.).

SAMI-DIN-buttons Q45 / R45 / Q50 / R50

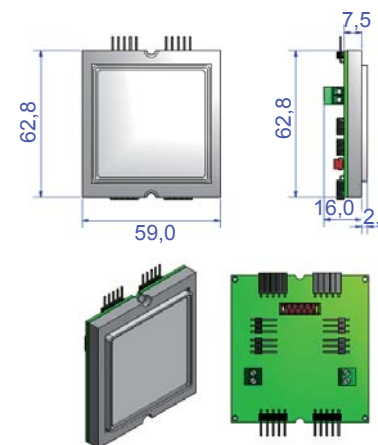
Button Q45



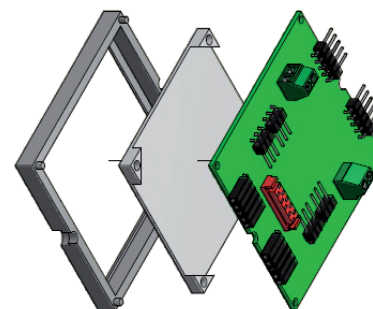
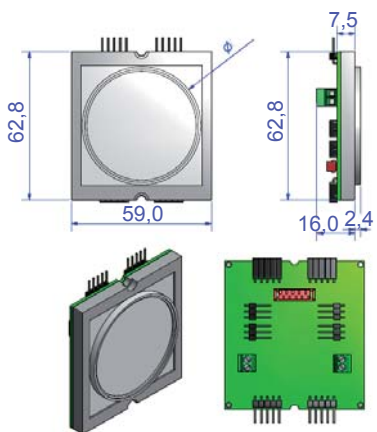
Button R45



Button Q50

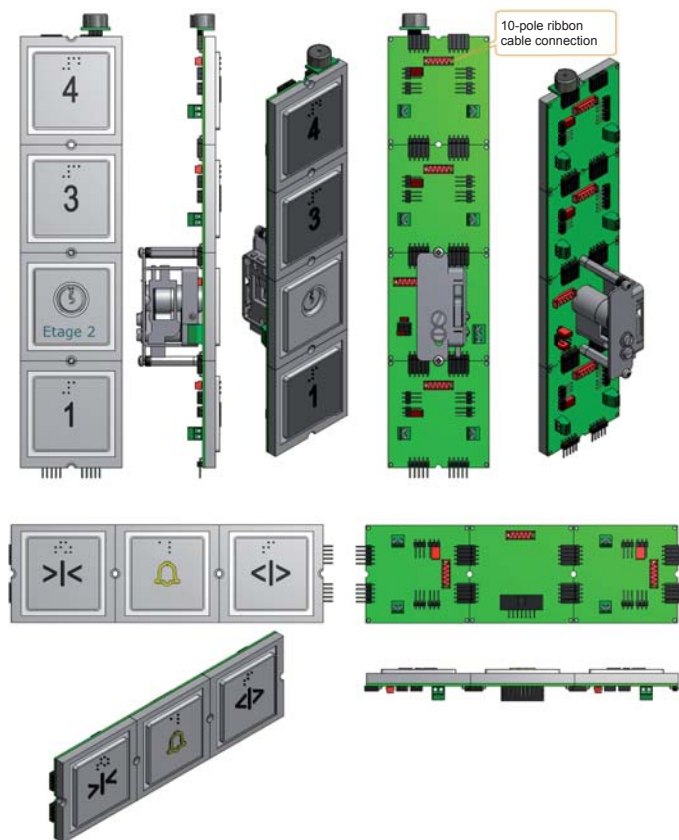


Button R50



All DIN-buttons are equipped with the same frame and button board.

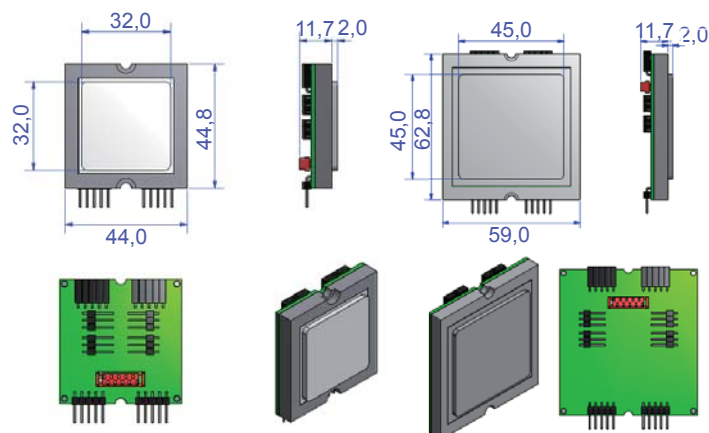
Button row with Q45-button and QK45-key switch



SAMI- LIGHT FIELDS QL32 / QL45 / QL50

Light field QL32

Light field QL45



Installation and connection are carried out analogously to the SAMI-buttons. For the display of up and down direction arrows, the illuminated area can be divided into two areas by inserting the code jumpers.

SAMI- Key switches

Square keys:

QK32 (32 x 32 mm) / QK45 (45 x 45 mm) / QK50 (50 x 50 mm)

Round keys:

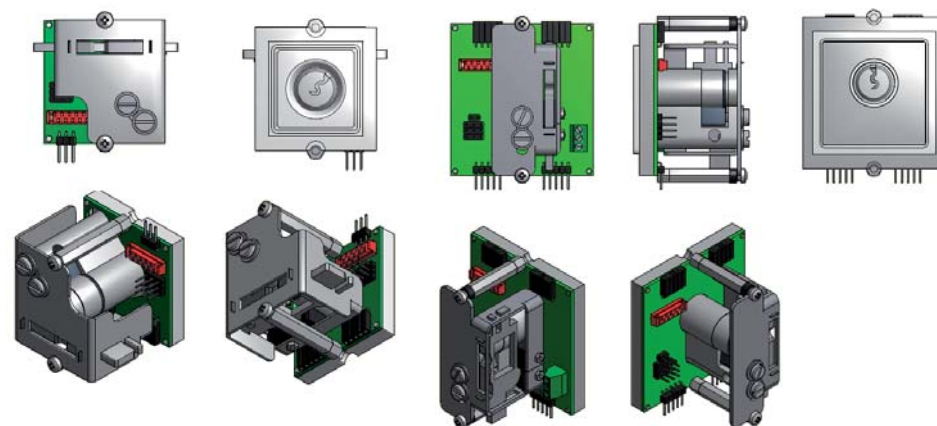
RK32 (32 mm) / RK45 (45 mm) / RK50 (50 mm)

Common features:

- acknowledgement red / white / blue / green
- design effect by circular ring (in addition to the existing standard, all-round ring)
- can be plugged together with other keys or buttons
→ minimum connection effort with minimal error probability
- connection conventionally by means of screw clamps or 10-pole ribbon cable
- each time without any special adaptation work with interchangeable buttons
Note: In order to achieve this function, the key cylinder had to be rotated by 45 degrees.
- possible use of customized key cylinders of different height through a simple exchange of fastening bolts

Key switches QK32

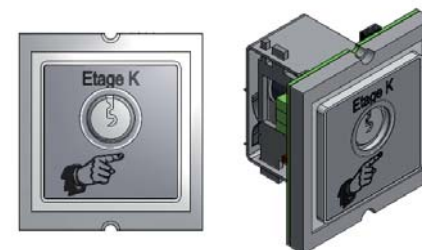
Key switches QK45 + QK50



Key button

A special highlight at the DIN-buttons (45s and 50s) is the combination of button and key switch:

By means of key function, it is possible to add the button signal or switch it off permanently. In the first case, you can use the push function on the movable pusher plate, as in a „normal“ control station. Outwardly, the key button presents itself as a key switch.



SAMI-landing modules



SAMI-LANDING MODULES

(The dimensions in the drawings are the standard dimensions and represent a minimum. Larger dimensions are possible at any time).

The SAMI - floor modules differ in their design, the type of installation and the connection to the bus. Specifically, we distinguish in case of the design: Eo , Ev and EL, the mounting methods: KFix, KFixPro, SFIX and MagFix.

Design:

- **Eo** - the surface-mounted landing module
- **Ev** - the forepart landing module (plaster)
- **EL** - the shining landing module
- **EP** – the desk landing module

Mounting methods:

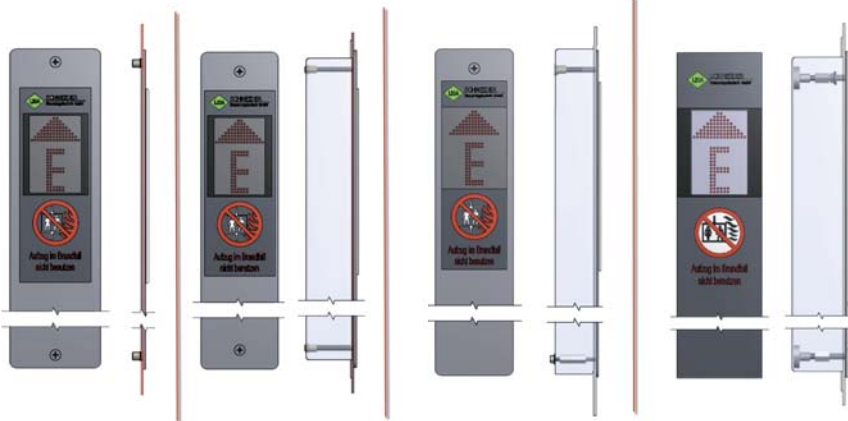
- The **KFix-assembly** is the conventional mounting used until today in which the display panel front is fixed with visible screws on the surface. At landing modules of type **Ev** the **KFix** with concealed screws continues to be the standard method of mounting.
- The **KFixPro-mounting** is a revision of KFix and is performed with visible or concealed screws. The difference between **KFix** and **KFixpro** consists primarily in the fact that at KFixPro, except a breakthrough, no fasteners must be provided in the door frame, since these (nuts) are located in a back building block (HK) since these (nuts) are located in a back building block (HK), which is fastened at the top and bottom with a double-sided tape behind the door frame.

Note:

For the Eo-design we strongly recommend KFixPro - mounting, even if this seems a bit expensive due to the necessary HK at first glance

- The **SFix-mounting** with a single visible or concealed screw in the panel header and a background as a modular clamping element.
- The **MagFix-mounting** allows the attachment of the front panel by means of magnets, without visible fixing and is used in particular in all-glass panels, as well as at „normal“ floor-panels. The substructure (back building block) is exactly the same as at KFix. The front panel can only be solved with a sucker of special size from the box.

KFix-mounting KFixPro-mounting SFix-mounting MagFix-mounting



EMod-connection:

The connection of landing modules for LiSA bus is generally performed by means of a pre-assembled 3-pole stub, pluggable on both sides.

Note:

In general, the LiSA bus is superior to all other known connection techniques especially regarding installation effort. This also applies to the CAN bus. Regardless of the foregoing, we intend to implement the CAN bus at LiSA20. However, this is rather due to the fact that we cannot close our minds to the demands included in the bid documents.

Eo: Surface-mounted landing module

At **Eo** the front plate rests directly on the ground. The extremely elegant design of **Eo** allows to cover the whole range of surface mounted landing panels.

The combination of different installation and connection types results in a series of extremely attractive solutions.

A few module variants under the use of the following terminology:

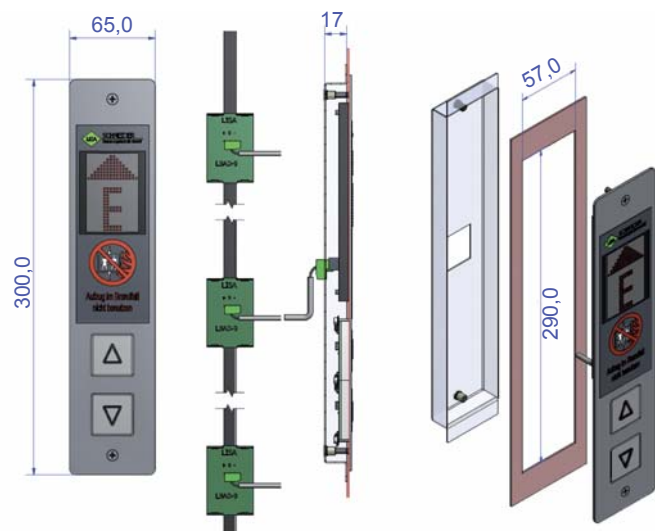
Design: mounting technology

Standard panel in SAMI-Design:



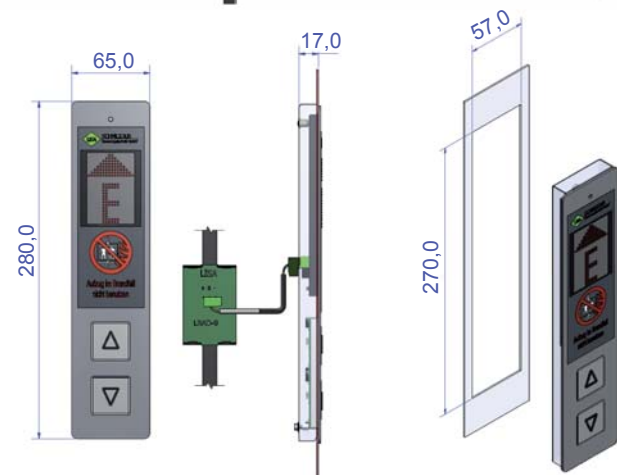
Eo: KFix
without a box, with
LOPM and Q32-button

Length = 300 mm



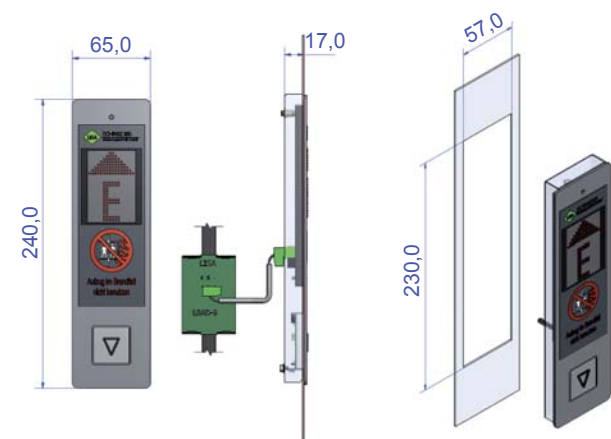
Eo: KFixpro
with LOPM, Q32-button

Length = 300 mm



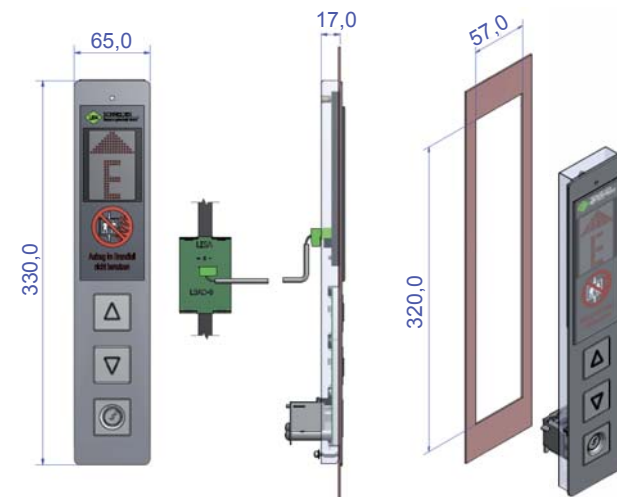
Eo: SFix
with LOPM and two
Q32-buttons

Length = 280 mm



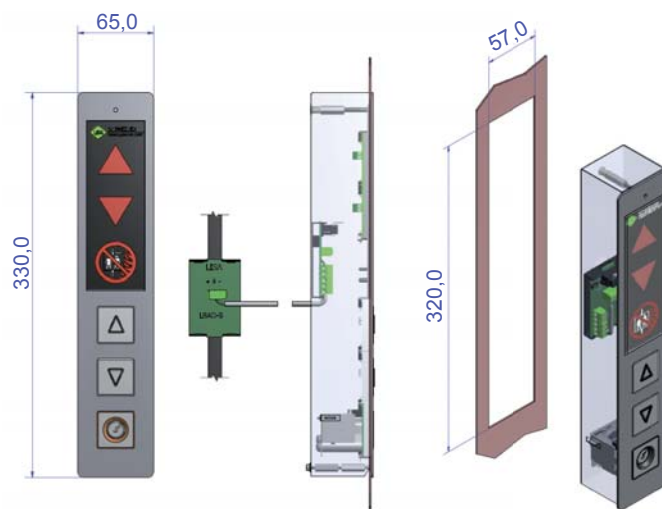
Eo:SFix
with LOPM and one
Q32-button

Length = 240 mm



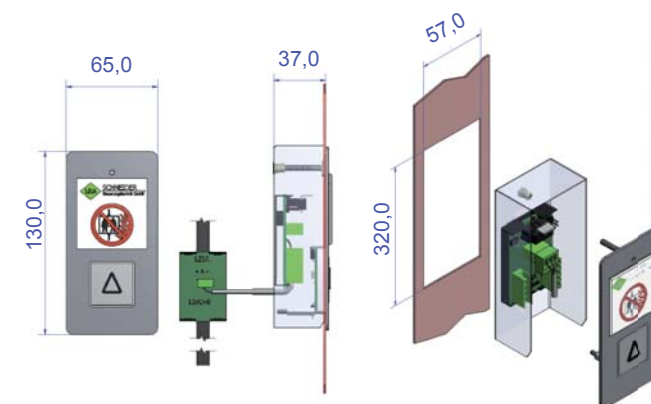
Eo:SFix
with LOPM, Q32-button,
QK-key switch

Length = 330 mm



Eo: SFix
with a bus module,
Q32-button, L32-light
fields and QK32-key
switch

Length = 330 mm



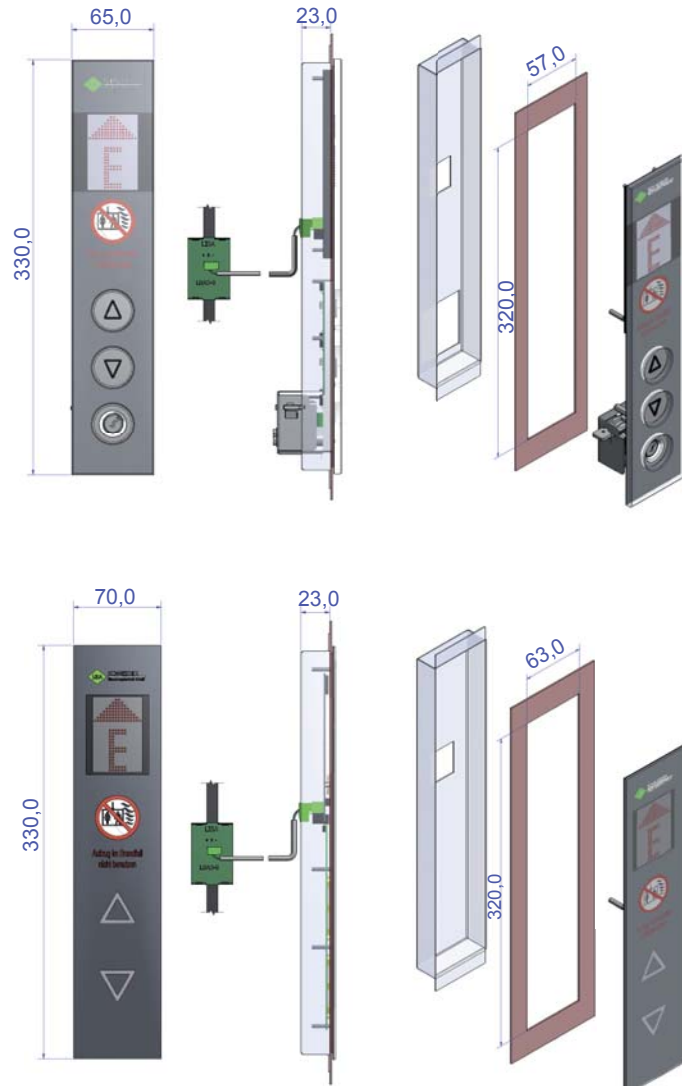
Eo:SFix
with a bus module
and Q32-button

Length = 130 mm

Eo with full-glass panel

Another highlight at **Eo** is the variant with full glass panel of Makrolon, acrylic or safety glass. Info box data and background colors are applied by digital printing directly on the back of the front panel.

The front panel is glued to 1 mm carrier plate and removable only by means of suction. When using the MagFix-mounting, the attachment is not visible. The substructure is exactly that of KFixPro's mounting.



Eo: MagFix
with LOPM, R32-button,
RK32-key switch

Length - 330 mm

Eo: MagFix
with LOPM and
sensor switch

Length 330 mm

Note:
Instead of glass/plastic, it is also possible to deliver 1mm- V2A fronts.

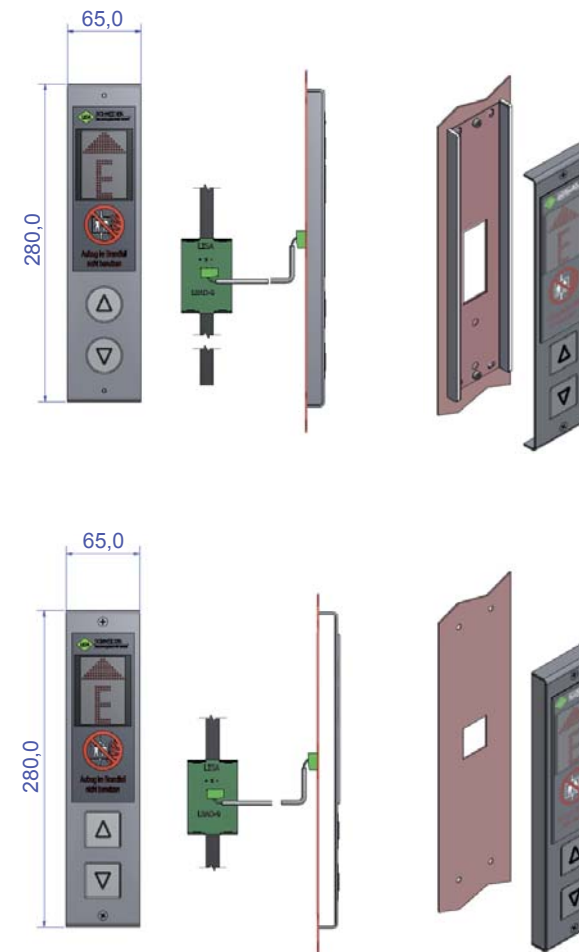
Ev: The SAMI-landing modul as forepart variant (Plaster)

The preferred application for the **Ev** is to **modernize**, because existing cutouts in the cabin wall, door frame or masonry can be easily covered by appropriately in size adapted modules and there is no need for rework (neck adjustment). In case of mounting on walls, a wall box can be generally omitted.

The module front is bent at the front sides (above and below). The mounting consists of fixing a base plate which in turn is fastened on the door frame or masonry by means of sheet metal or wood screws. The module with concealed or visible screws is attached by means of insert nuts which are on the base plate.

Depending on how the longitudinal sides are formed, there are two variants:

- ▶ The simple version with visible alongside base plate
- ▶ The slightly more sophisticated version (more expensive) with plastic side strips



Standard variant of Ev:

Ev: KFix
with longitudinal, visible
V2A-base plate, LOPM and
Q32-button

Depth = 14 mm

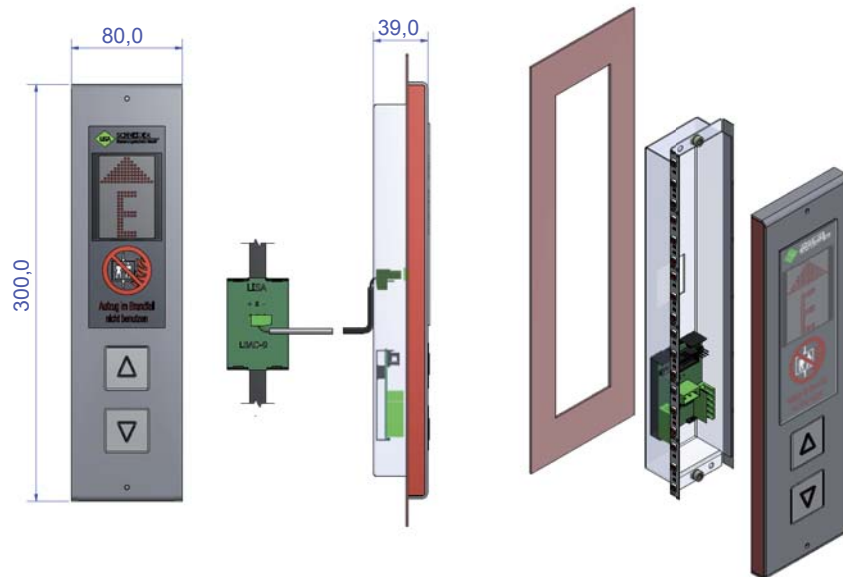
Ev: KFix
with plastic side strips, LOPM
and Q32-button

Depth = 14 mm

EI: The shining landing module

The **EI** is the shining combination of Ev and Eo.

The standard width is 80 mm. The mounting in the door or wall frame is carried out by means of two sheet metal or wood screws and otherwise corresponds to the fastening of Ev. The side panels are made of light-scattering plastic. The color of the LED light strip can change dependent on floor position (RGB controller in the cover box) or be run permanently lit with the desired color.

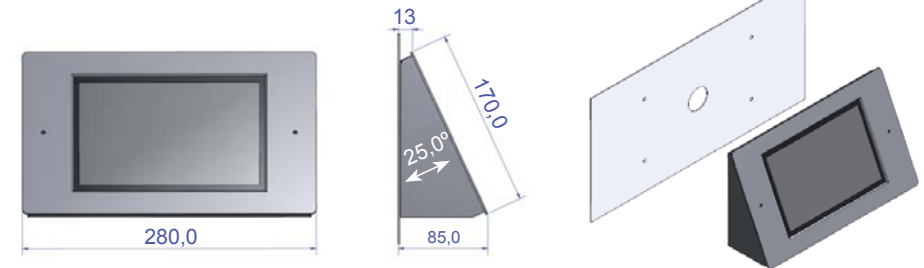


Compared to Ev, EI has for a moderate surcharge certainly a potential for becoming a standard for companies that want to distinguish themselves from competitors thanks to their stand-alone design (corporate identity).

EP: Desk landing module (Desk-EMod)

The Desk-EMod for installation into the main station (access/lobby) is an absolutely novel embodiment of a landing panel.

Available with 7" or 8" – PC-tablet



EP with a touch screen for call input (no mechanical button)

Additional display options:

- ▶ car stand and direction
- ▶ company logo
- ▶ date and time
- ▶ fire pictogram and text
- ▶ info box for each floor

Destination call-light:

Optionally, the floor-info field can be used as a button for the input of destination calls (configurable in LISY program). In this case you can do without the up and down-button, because after entering the destination call, the call in the main floor is generated automatically.

Upon arrival of the elevator in the main landing followed by the elevator ride in "up" direction, the stored destination calls are transferred from the tablet to the controller and from there registered as cabin commands, with the result that the passenger in the cabin does not need to enter any calls, as in the case of destination calls.

The car operating panel would then, apart from a display, the cabin intercom and an emergency call system, be provided in its simplest form, only with an alarm, a door-up and a button for the main station.

This configuration (no call buttons in the cabin) allows easily access control to different floors:

If the selection of a target floor is saved in the desk landing module (floor-info field darkened), a keypad appears after touching the suspended floor. After entering a valid number sequence, the floor will be released and a car call for this floor will be registered. Optionally, if desired, the landing calls can be entered by means of the touch screen of the PC-tablet in the cabin.



The installation is very simple:

- ▶ The console box is attached with four screws to the base.
- ▶ The electrical connection is carried out, as with all LiSA displays, by means of a 3-pole stub to the Lisa floor bus.
- ▶ The attachment of the front panel is carried out by two concealed fittings.

The attachment of the front panel is carried out by two concealed fittings.

Example of a desk floor module with mechanical buttons and voice control:

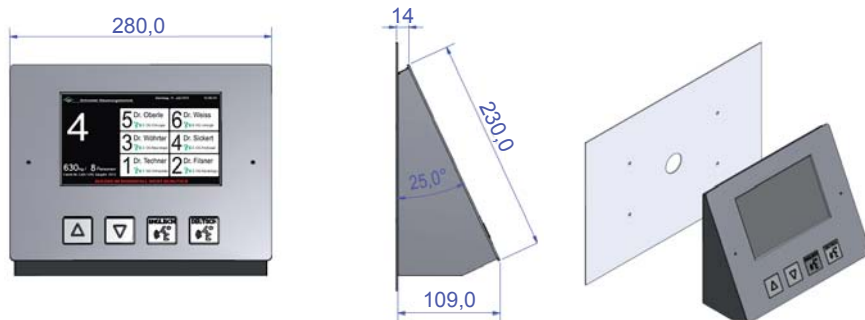
The desk floor module presented below, with a diversity of functions, goes one step further as compared with the above description. Visual and severely disabled (and of course all other users) can enter up- and down-calls by means of buttons corresponding with EN81. „Normal“ users can alternatively take advantage of the function of the destination call-light (see above).

It is also possible to choose the destination station by pressing a language button (English or German) for 5 seconds and entering a text with which the station can be selected. The corresponding text(s) is/are specified in LISY menu for each floor.

For the selection of the 5th floor, it could for example be the following texts:
Select German: 5. Etage / 5. Stock / 5. Obergeschoß / Dr. Oberle / 5. OG Chirurgie etc. Select English: Fifth Floor / Dr. Oberle etc.

Note:

The user can always choose two of five languages (German, English, French, Spanish and Chinese).



Vision: Assuming acceptance by associations for handicapped persons (e.g. Blind Union), it is quite conceivable that the Voice Control will be considered in the EN81.70



THE SAMI-CAR MODULE (FMOD)

The SAMI-car module is available in four embodiments:

- ▶ surface mounted with base = **To**
- ▶ forepart variant (plaster) = **Tv**
- ▶ variant with base and forepart = **Tuv**
- ▶ panel in desk form = **TP**

The module front is available in inlay or full-front construction and has in all embodiments a nearly identical front view.

All versions, apart from the extremely sophisticated design, have further significant advantages:

- ▶ With the exception of plaster variant Tv, no fixings can be seen in any version. There are not even holes, otherwise visible by concealed screws or disturbing the overall picture.
- ▶ The access to the module components succeed in seconds without cumbersome loosening or tightening of bolts.
- ▶ The info box is embedded as a window into the FMod-Front and mounted on a support plate. Normally, the fastening is carried out by means of a double-sided tape. Since in this case very little tape is necessary, the exchange of the info field is relatively simple. Optional attachment of the info field can also be done by means of magnetic closure. This adds even further simplification in the exchange of the info field or in accessing the touch surface of the underlying displays / tablets, without having to remove the display.

To: The surface-mounted FMod

The **To** covers with its extremely elegant design the full range of surface mount car-panels.

Standard dimensions: 50 x 200 x 1000 mm (depth x width x length)

The **To** consists of a sub-kit and a front panel of V2A.

The box provides apart from the protective function for the panel components twofold:

▶ An absolutely simple installation

With inlaid design:

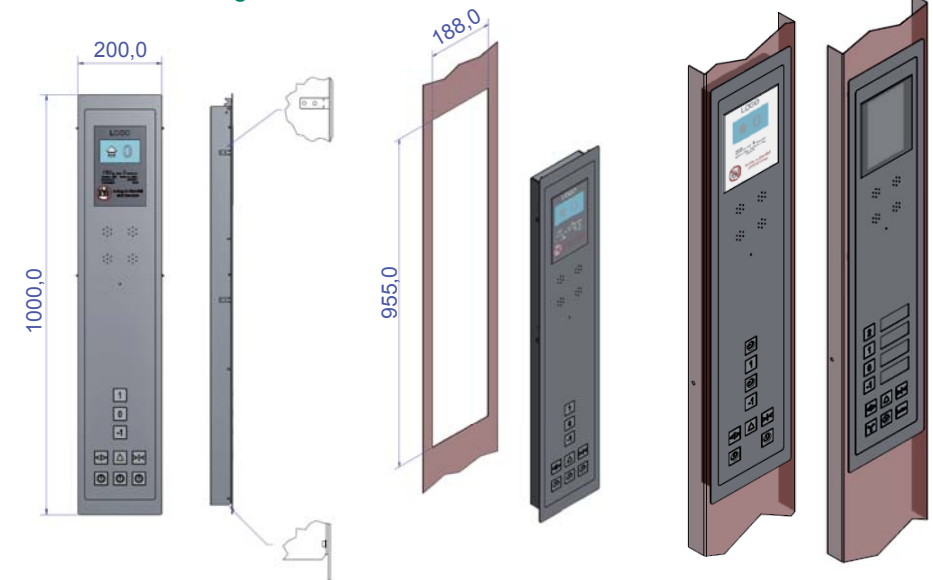
The sub-kit and the front panel are screwed together and thus form a unit which can be easily placed into the cut and stuck on each side with two set screws in the cabin wall.

With full front-construction:

The rear kit is as a separate part passed through the cabin wall cutout and fixed at top and bottom over the double adhesive tape on the rear wall, the panel front is drawn by means of magnets (MagFix-mounting) to the cabin wall and can be separated again only with a powerful sucker.

- ▶ The possibility of accommodating the AWG-read head, inspection box components and board control in the box behind the panel.

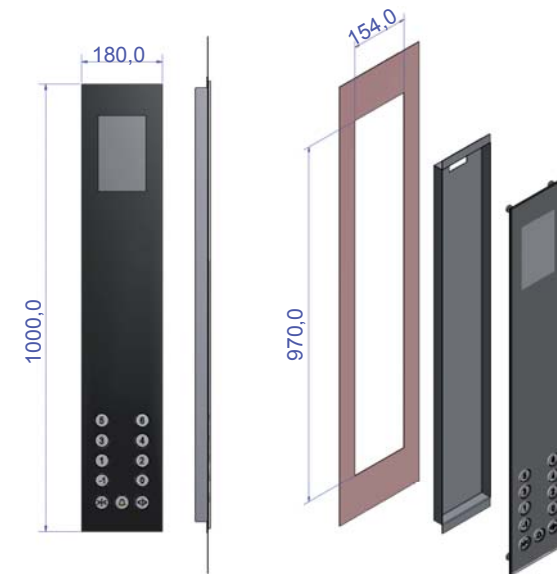
To with inlaid design:



To with full front-construction:

In case of **To with full-front** construction the panel front is made, deviating from the usual SAMI-car modules inlaid design, in one piece. This construction is used primarily by panels with full glass front (acrylic / Makrolon / safety glass). Optional, the front panel can be closed in the header with a rotation lock.

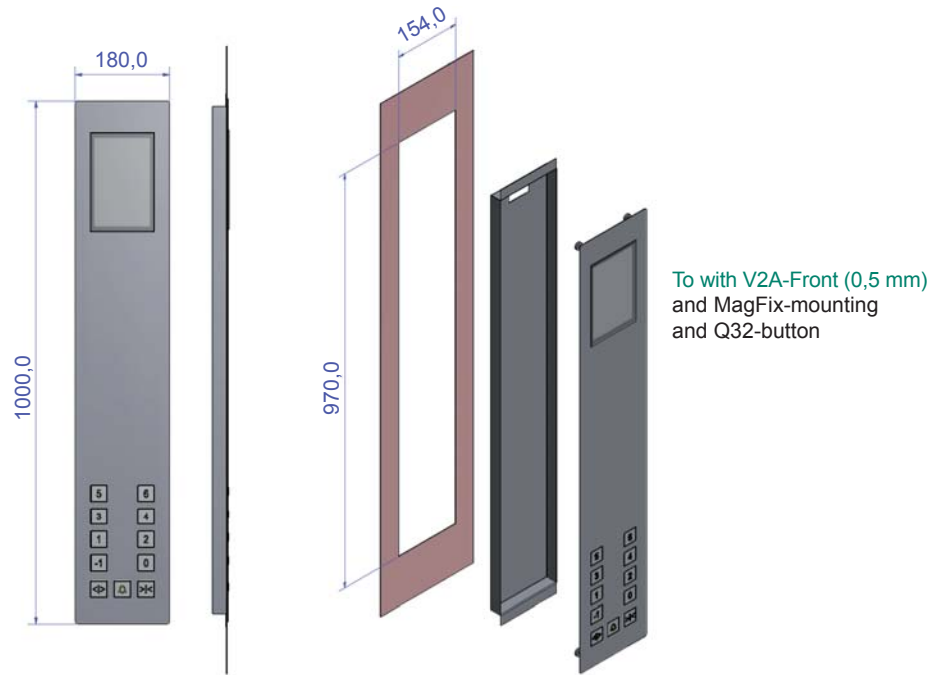
If no tablet PC is used, the info box data and the background color are printed in digital printing technique directly on the back of the front panel. The display panel front is glued to 1 mm carrier plate and removable only by means of suction. In place of the sensor switch it is also possible to apply commonly used mechanical handle (preferably R32).



To with full-glass front
and MagFix-mounting
and R32-button

To in full-front housing and V2A front panel

Another interesting variation results from the application of MagFix at To-modules with execution of the front in 1 mm V2A sheet. A likewise 1 mm thick carrier plate is fixed to the front back panel.



Tv: The forepart variant (plaster) of FMod:

The **Tv** (surface SAMI-cage module) is min. 17 mm deep and only available in inlay technique.

Due to its simple design and the hassle free mounting on the cabin wall, this version is our standard for surface car modules.

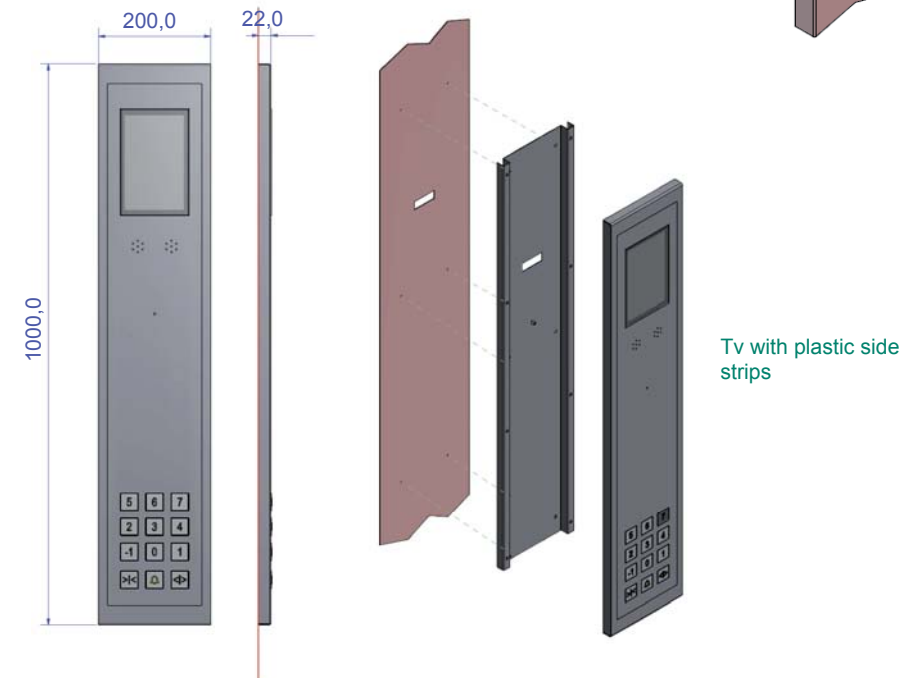
The module front is carried out bent at the front sides (top and bottom).

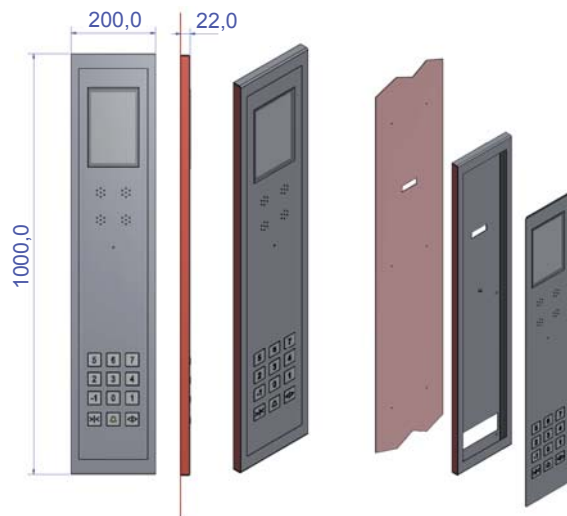
The inlay is fixed in the middle of the panel to the base plate by means of a magnetic lock or alternatively screwed invisibly. The access to all panel components is possible in seconds, as with all SAMI-car modules.

The back part of the cabin wall is fastened by means of self-tapping screws.

Depending on how the longitudinal sides are formed, there are two variants:

- ▶ The version with plastic side strips
- ▶ The shining variant (width = 220 mm)





Tv with illuminated side strips
Available with constant
lighting in white / blue or with
changing colors depending on
the floor

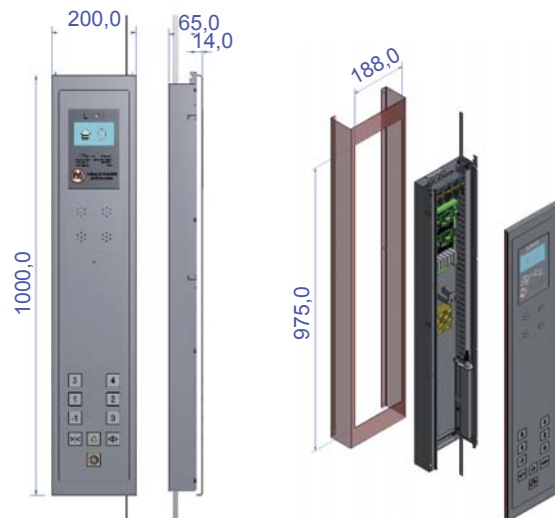
Tuv: The FMod with sub-kit and forepart

The total depth of the Tuv consists of the height of the front extension and the depth along the sub-structure. The module front and the substructure are fixed alongside with screws and form thus a unit. For mounting in the cab wall it is provided simply in the cabin wall opening and fixed by its own weight and an invisible screw connection.

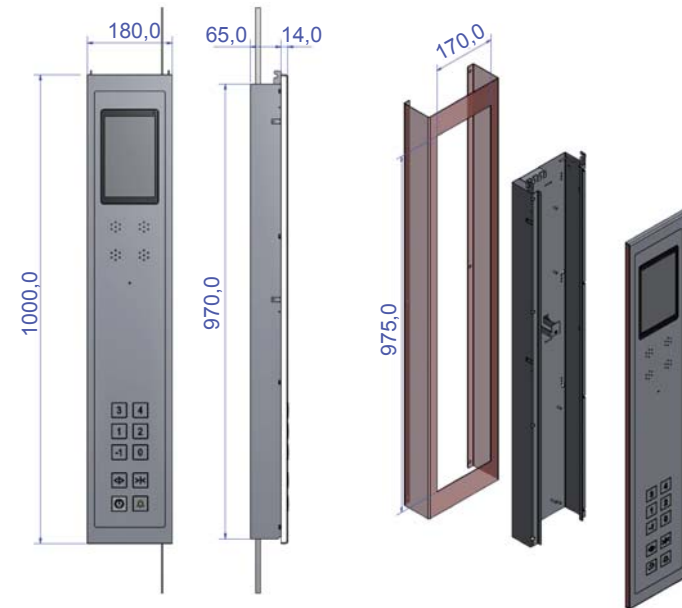
As with Tv there can be distinguished two variants depending on the design of the side strips:

- The variant with a module front curved at the front sides (top and bottom) and plastic side strips.
- The shining variant, also with side strips of plastic scatter material.

The Tuv is primarily used when the AWG-read head, inspection box components (I.COP) or even the LiSA20 control are to be incorporated in the substructure and in order to exceed in each case permissible total depth.



Tuv as TIM-variant
(TIM = Tableau-inspek-
tions-module)



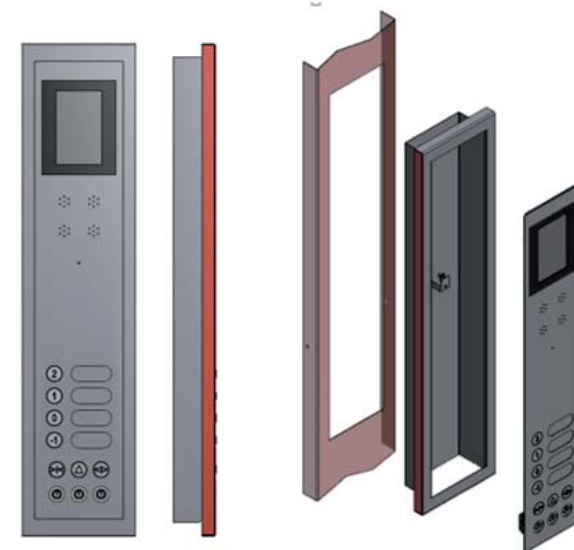
Tuv-execution
with width of
180 mm

The shining-Tuv:

The Tuv can also be performed as shining variant without any change. For this purpose, only one LED strip (no additional fixing necessary) must be used in the designated assembly chamber.

The color of the light strip can change depending on the floor or be executed as permanently lit with the desired color.

Due to the surprisingly low surcharge compared to the multi-module without light strip, the Tuv-lighted panel is quite conceivable as a corporate standard.



TP: Desk car panel (Desk-FMod)

It is often required that lifts with wheelchair access are, according to EN 81-70, provided with a panel in desk form.

In the future there will be 2 variants available:

- ▶ **TP-horizontal:**
The commonly used desk panel in horizontal construction and
- ▶ **TP-vertical:**
a completely new variant by modifying the inlay of a Tv or Tuv.

TP – horizontal:

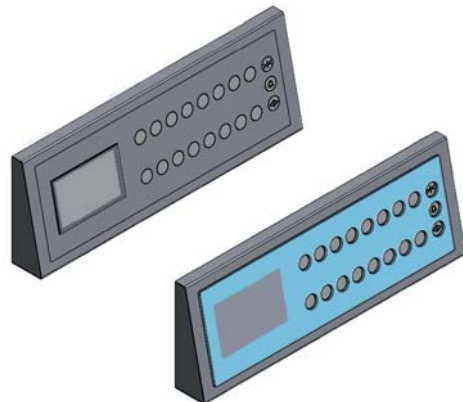
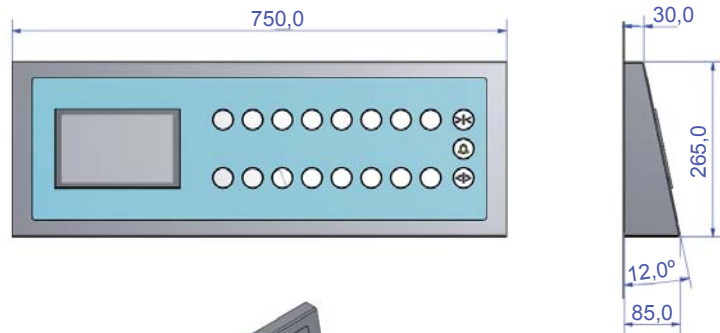
Apart from an improved design, the new design of the horizontal TP has also considerable advantages over the previous design.

- As in (almost) all SAMI-car modules, the desk car module is also constructed in inlaid design.
- The module structure now consists of four parts and is far less complicated than before (so far made of only one piece). The four easy to manufacture parts are: the back part for the wall mount, the front panel and two side panels
- Simple protection against accidental contact with the pushbutton – For this purpose the inlay is placed 1 mm backwards and covered with a 4-6 mm thick glass or acrylic plate.

Note:

When using safety glass, it is necessary to use exclusively R32-pushers.

- *Ideally suited for the installation of a ride-control (more space).*



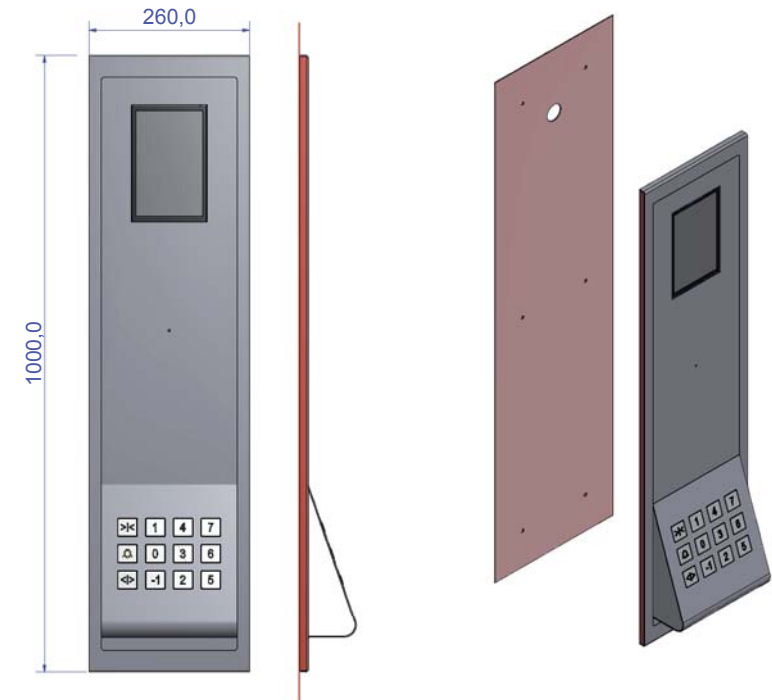
TP with 6 mm projecting to protect against accidental contact with the pushbutton

TP – vertical:

The desk panel required for lifts with wheelchair accessibility is also a waste product from the execution of Tv or Tuv with desk-forepart.

Compared to standard solutions, where desk panels and car panels are separately constructed, this solution has a number of advantages:

- it is considerably cheaper
- its installation is extremely time-saving
- it is ideal for the installation of an accompanying control (more space)
- it is available as luminous-Tuv as simple as a Tuv
- etc.

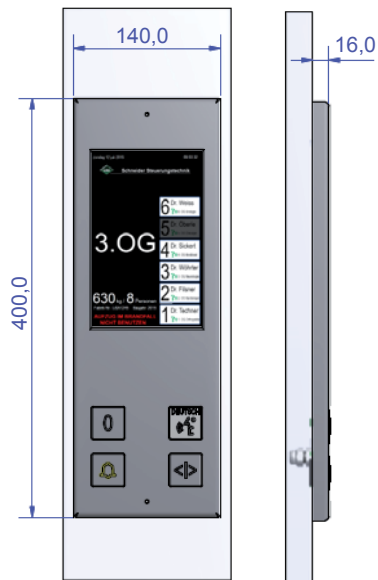


Minimal solution for a car module

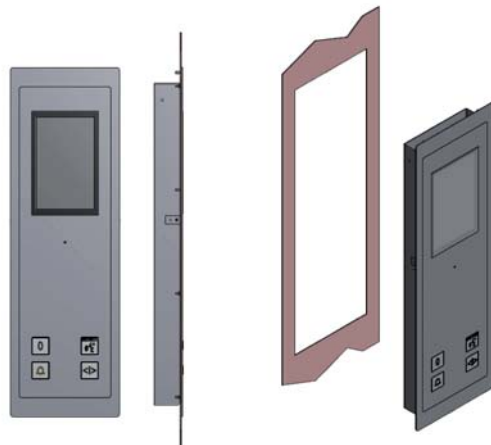
The use of the touch function of a PC-tablet for call entries allows the creation of extremely small and compact car modules for which no mechanical pushers are required, apart from a button for the main floor (starting), an alarm and a door-open-switch

The use of a PC-tablet has of course a number of other advantages too:

- ▶ Access Control
Floor 5 in the picture below is blocked. After tapping a keypad appears, on which a valid number sequence must be chosen within 5 seconds, so that a car call for floor 5 can be sent to the controller
- ▶ No separate information field is required
- ▶ Voice variant for position, operating status, etc.
- ▶ Choosing the destination by saying a text after pushing the voice button



Minidesk in Tv-design



Minidesk in To-design

THE PANEL-FMOD

Two different panel versions in inlaid design will be available in the future:

Version 1: The slat panel (LP), similar to the previous design with side screw connections with neighboring cabin slats.

Version 2: The solitaire panel (SP) is a standalone module that is placed in the cabin wall without a side screw.

The new construction of the panel module has, apart from an improved design, also significant advantages over the previous standard. The panel is basically executed in intarsia technique, but is otherwise manufactured according to customer requirements.

The standard measure of the inlay is 1400 x 180 mm. Closing and securing the inlay is carried out by means of a concealed fixing in the inlaid center.

Both panel versions have only two parts in total:

The rear kit (HK) and the panel front. Both are screwed together. There is always enough space for the installation of a ride-control, the components of an inspection box and the absolute encoder read head.

In case of slat panels (LP), HK and front have usually the same length as the adjacent slats.

At the solitaire panel (SP), HK is always carried out in a length of approximately 1500 mm. The panel length depends on the cabin structure and is normally (no false ceiling) $L = \text{cabin headroom} - 2 \text{ mm}$.

A special highlight is the integration of the panel into the cabin wall. It is also possible to install the panel later, in the fully assembled cabin wall. The two slats, between which the panel is to be installed, are joined together by means of two supporting profiles. In this gap, the panel is hung or placed in the cabin wall. On the lower profile is placed the rear support kit which therefore carries the entire panel weight. The fixation in the cabin wall against falling forward is made by means of magnets.

A considerable cost advantage arises from a lower V2A material amount, an easier closure and no adjustments.

→ The mounting does not require using any tools.

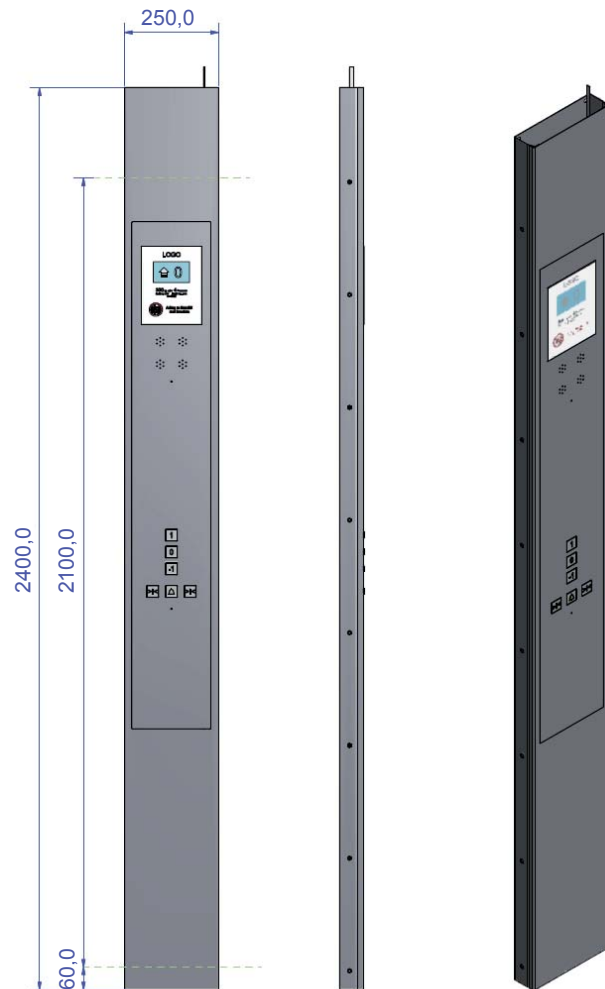
due to

- ▶ simple construction
- ▶ low material costs
- ▶ minimized installation time
- ▶ fast access to panel components and
- ▶ the most appealing designs

in the future the solitaire panel will be our standard solution by panel FMods.

LP-Slat panel

The slat-panel construction (side screw with the slats of the cabin wall) in inlaid design is an improvement over our previous standard version.



Note:

Usually the panels are 200 - 250 mm wide and not used in the width of the cabin slats (300 - 400 mm), which would be really obvious, because it lets you do without an additional slat to comply with the grid. The aversion against the execution of panels in slat width is still quite understandable for design reasons.

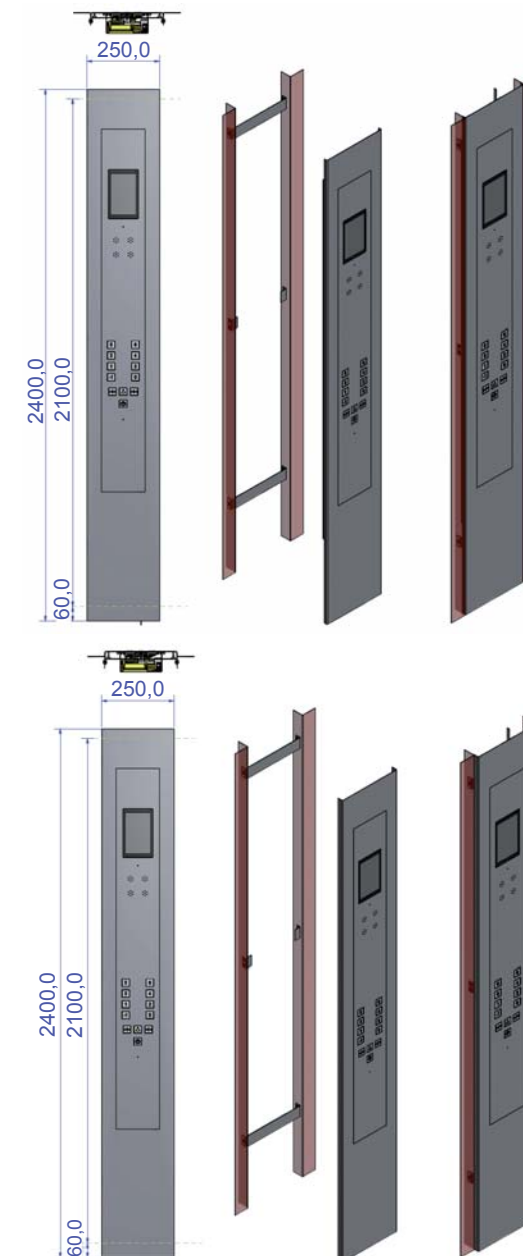
SAMI-panel modules, despite being carried out in inlaid design, may refute such concerns quite easily.

SP-Solitaire panel

SP is available in two versions:

- the **SPb** at surface level and
- the **SPv** projecting into the cabin

Beide Ausführungen sind absolut identisch, wenn man davon absieht, daß die seitlichen Schenkel des Frontbleches beim SPv entsprechend länger sind.



SPb:
SP at surface level

SPv:
SP projecting into the cabin

The SPv is very similar to SPb. But it is especially used when the distance between the car and shaft wall does not allow box depths > 65 mm - possibly also for stylistic reasons.

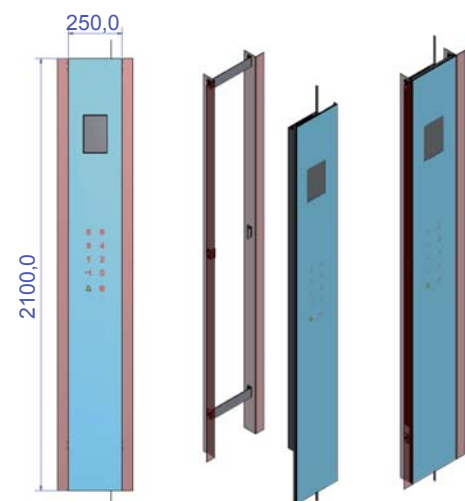
SP-Solitaire panel with full glass front

As a basis for the glass-SPb, the SPb is a fascinatingly simple solution that is also extremely inexpensive and interesting in terms of design. In principle, it is only required to glue a 6 mm thick ESG or VSG plate on the front of an existing SPb (without inlay). And so the glass panel is finished.

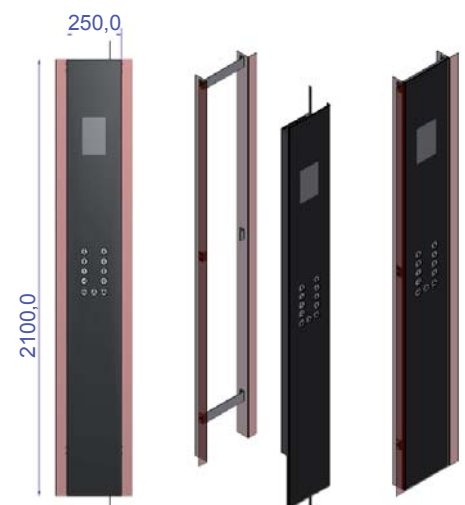
For the printing of the glass back, we offer two methods:

- ▶ screen printing method, almost exclusively used so far, and
- ▶ digital printing that recently is used more often

Despite the slightly lower print quality of digital printing, we recommend this method since the costs are much lower. The printing costs are now acceptable to such an extent that the use of glass panels or displays is no longer a luxury solution. A further reduction in the cost of printing is possible by using a PC-tablet because then it is no longer necessary to use any prints on the glass.



Glass-SPb with sensor buttons



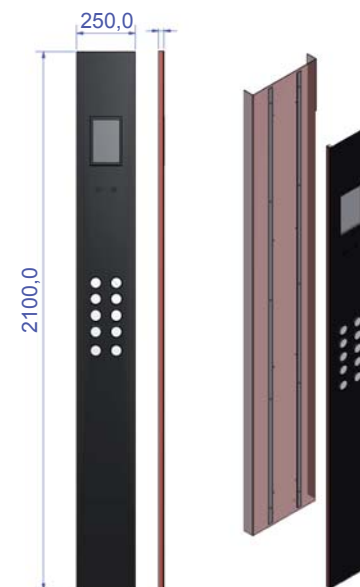
Glass-SP with mechanical buttons

The cost of taking into account the EN81-70 by using mechanical switches (R32) and key switches (KR32) is only slightly higher than when using sensor buttons.

Note:

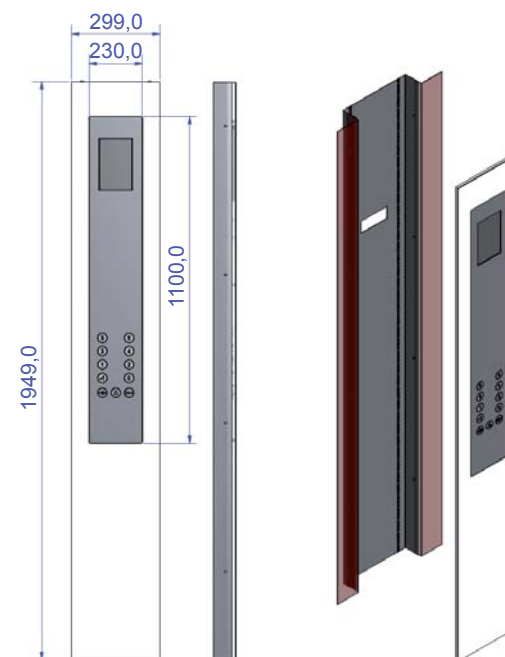
When using Makrolon / acrylic glass in place of glass, all types of buttons can be used.

SPa-solitaire panel as plaster version



The SPa is a separate module which is mounted directly on the cabin wall. The version as a light-emitting panel is possible and very simple.

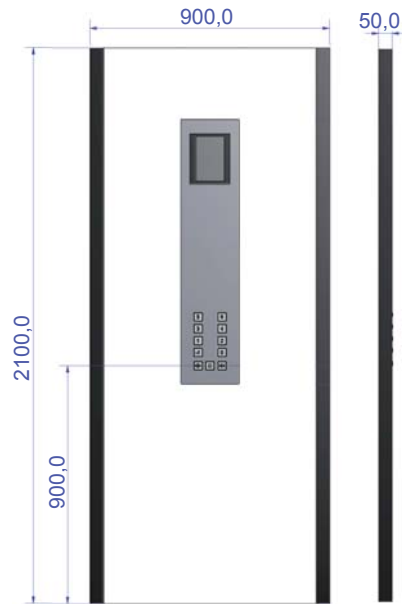
SPb-solitaire panel as light-emitting panel



At SPb-light panel, the entire front panel is backlit. The illumination is carried out with LED strips. The color of the light strip can change depending on the floor stand or be permanently lit with the desired color.

When using a white LED strip of corresponding performance, there is no further need for cabin light.

SP-Solitaire panel as a cabin luminous-panel



Prepared in the corresponding width, the luminous panel also ensure full illumination of the cabin, substituting normally used ceiling lights.

Bright LED strips (with 230V power supply, similar to the shaft lighting) can be used instead of bulbs

The SPa cabin light version, carried out on the surface of the cabin (depth ca. 50mm), proves to be especially practical and economical as this version operates without cabin slats in the panel area. In the area where panel back and slats overlap, the panel has to be screwed in the simplest way on the remaining wall. In addition, with such solution there is no need for mounting a suspended ceiling.

In case of side mounting of the back wall of the panel to the neighbouring slats, it is also possible to execute flush mounting (cabin light SPb).

In terms of design, a particularly attractive solution is an assembly extending through the entire cabin width.

Because the panel can also be screwed directly on an existing wall, it appears to be extremely convenient during any modernisation efforts, which is an additional advantage.

SPb-solitaire panel as corner panel



This panel variant is a solution for the modernization.

It is mounted by means of three metal strips, which are attached in the cabin area with metal screws and serve as a carrier for pot magnets that hold the panel in the corner. The entire installation process is very easy and can be carried out very quickly.

SAMI-display modules



SAMI-display module (AM)

(The dimensions in the drawings are the standard dimensions and thus the minimum ones. Larger dimensions are possible at any time.)

Among SAMI-display modules, we distinguish them with regard to the structure between Ao and Av.

types:

- ▶ **Ao** - the surface-mounted display module
As for mounting, all described variants concerning the landing modules, such as KFix, KFixpro, SFix and Magfix are possible
- ▶ **Av** - the put in front- display module (plaster)
Mounting: KFixpro

The combination of different types of construction and assembly results in a series of extremely interesting solutions.

With regard to the feeding, we distinguish between display modules with

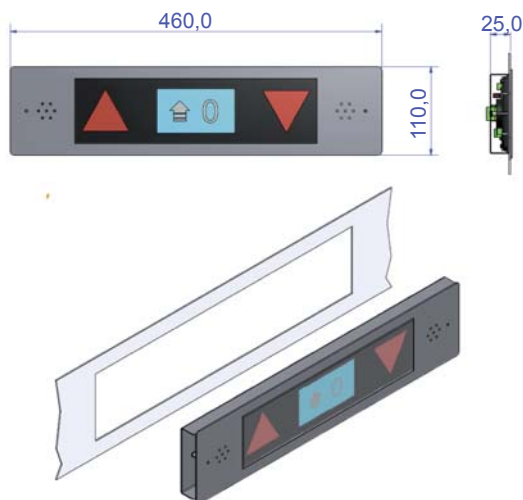
- ▶ directional arrows
- ▶ a display (LISY4 / Matrix)
- ▶ a display and separate directional arrows
- ▶ arrival gong, optionally

Ao: Surface-mounted display module

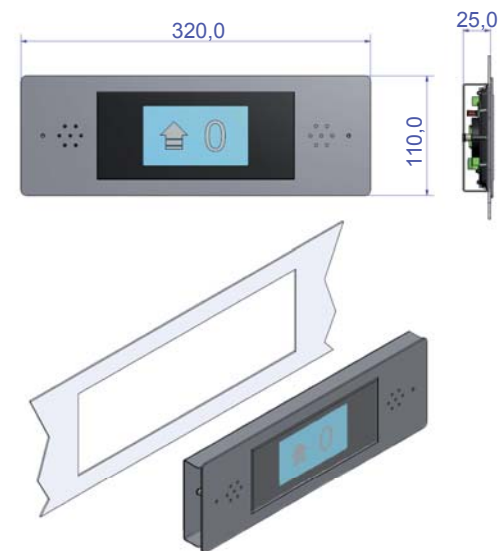
In the case of Ao, the front plate is placed directly on the bottom. The extremely elegant design of Ao stands for the entire spectrum of surface mount displays modules.

Depending on the installation position and place, we make a distinction between Ao with:

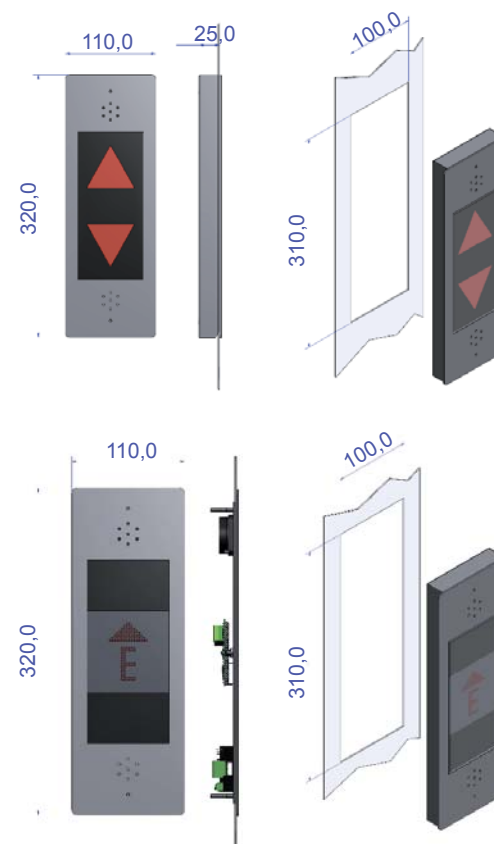
- ▶ horizontal mounting position for over door mounting
- ▶ vertical position next to the door and with
- ▶ installation in the door frame (only for further direction)



Ao: SFix
for mounting over the door with
LISY4-display, arrival gong and
directional arrows



Ao: SFix
for mounting over the door with
LISY4-display and arrival gong



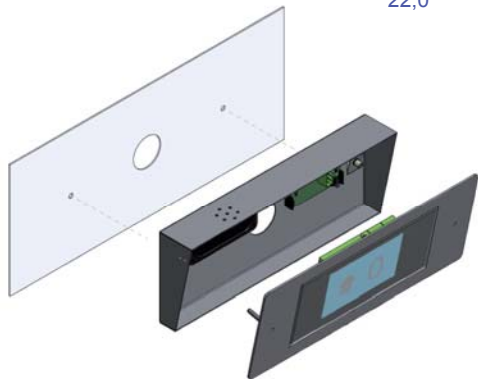
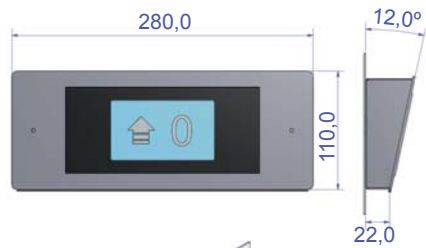
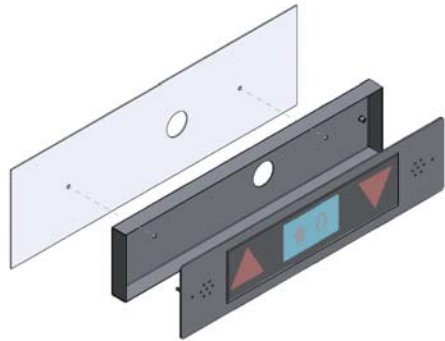
Ao: SFix
for door frame mounting
with further direction
arrows and arrival gong

Ao: SFix
for door frame mounting with
level indicator (LBDS) and
arrival gong

Av: Put in front-display module (plaster)

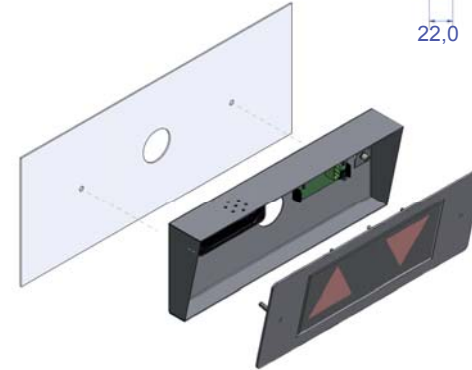
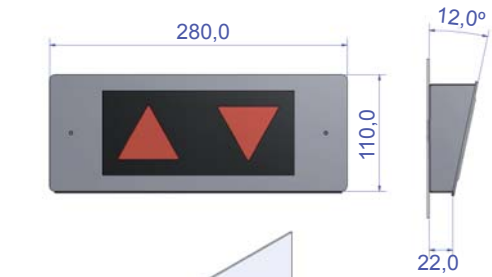
- In the case of Av, there are variants with
- ▶ a vertical front panel and
 - ▶ a desk version with a bent front plate

Mounting can be carried out by means of KFixpro with visible or concealed screws.

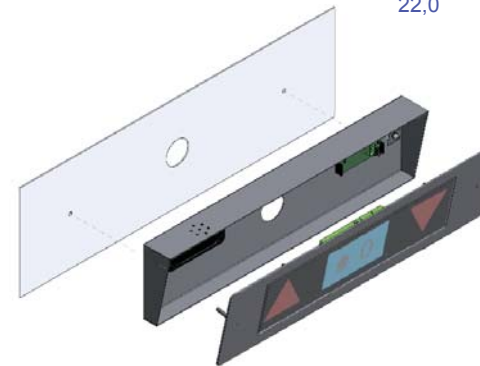


Av: KFixPro
(vertical front) installation
above the door with a level
indicator, direction arrows
and an arrival gong

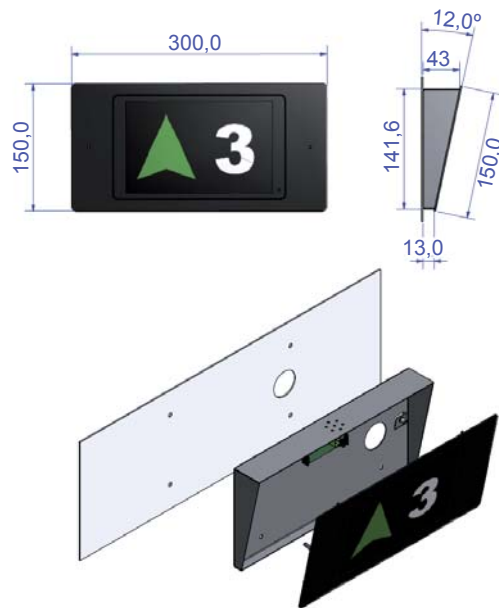
Av: KFixPro
(bent front) for installation
above the door with LISY4-
display and arrival gong



Av: KFixPro
(bent front) for installation
above the door with direction-
al arrows and arrival gong



Av: KFixPro
(bent front) for installation
above the door with LISY4-
display, directional arrows and
arrival gong



Av: KFixPro
(geneigte Front) für Übertür
(bent front) for installation
above the door with PC-tablet

SAMI-car modules connected to external control

Connection through Schäfer-interface

Many control manufacturers use Schäfer panels and have therefore often provided their control systems with panel interchanges through standardized Schäfer interfaces. Such an interface consists of a 37-pole D-sub connector with a predetermined signal assignment. In the case of more than 7 car calls, the connection is provided by means of a further 25-pole D-sub connector.

When using the two adapters D37-Ad and D25-Ad, it is possible to connect a SAMI-car module to an external control in the same way as at Schäfer-car panels.

Connection by means of a Schäfer-adapter



Tablet-PC's + LiSA20



PC-TABLET APPLICATIONS IN LISA20 CONTROLS, OR WINDOWS10 MEETS LISA20

The use of PCs as info modules in the cabin has been limited so far to a few applications. Not least for cost reasons, they were far removed from any standard application. Due to 7, 8 and 10 inch PC-tablets with Windows 8.1, which have been available on the market for some time, or with Windows 10 operating system, we estimate that the time has come to introduce PC-tablets on a larger scale as a high standard in the lift industry.

Since we can already rely on the software developed in recent years, the Windows-based LISY application for info modules and the LiMon-based LiTerm application for the application as a hand-held terminal, we are able to offer directly executable solutions for a reasonable price.

The LISY- and the LiMon Guide is available to download on lisa-lift.de.

The criteria for the introduction of the tablets as a standard component were as follows:

- ▶ the price cut on PC-tablets
- ▶ the number of the providers
- ▶ the establishment of Windows PC-tablets (prerequisite for LISY or rather for LiMod application),
- ▶ further possible features beyond display capabilities such as speech, gong, card reader .
- ▶ very flat (<= 10mm) as compared with LISY5

The repeatedly expressed concerns regarding the use of PC- tablets have been largely refuted in the meantime.

Point of criticism number one: Temporary availability of tablet types:

In general, a period of three years is not exceeded. Therefore, the Schneider company creates a stock of every used tablet type. If for any reason some tablet type is no longer available, tablets in the range of 7–10" from other manufacturers can be used with a high probability of success, because the dimensions are almost identical. From the technical point of view, a transfer to a different dimension is performed easily.

The tablet can be configured from a PC or from the tablet level itself. The configuration can be stored on an SD-Card and thus, by inserting into SC-Card socket, easily restored in the new tablet. Even when installed, the display can be modified with a small Bluetooth keyboard and a mousepad.

Point of criticism number two: Price:

Our retail price is on LISY5-level, that is, approximately at LISY4 including speech and arrival gong. Customers who adapt tablets to their standard, might count on complying with their price wishes to a bigger extent.

Point of criticism number three: Working life:

The tests carried out on PC-tablets equipped with flash hard drives and Intel Atom Quad-core processors performed in a period of several months showed no failures.

Connection of PC-tablet to LiSA20

▶ Serial (RS422) connection

by means of a serial Bluetooth adapter (S2BT) with Bluetooth interface of the PC-tablet developed by Schneider. This adapter can be equipped with Bluetooth modules of different ranges (10m and 100m). Predominant application is the connection of LiSA20 to the PC-tablet used as service module (= hand terminal).

Since the S2BT adapter is plugged directly into the LiSA20, communication, depending on the environmental conditions, is possible only at a distance of <10 m or <100 m. The use of the serial interface also allows the transfer of door masks from the controller to the tablet with the nice side effect that it can be displayed on the PC-tablet if the answer in the controller for the respective floor is free or blocked.

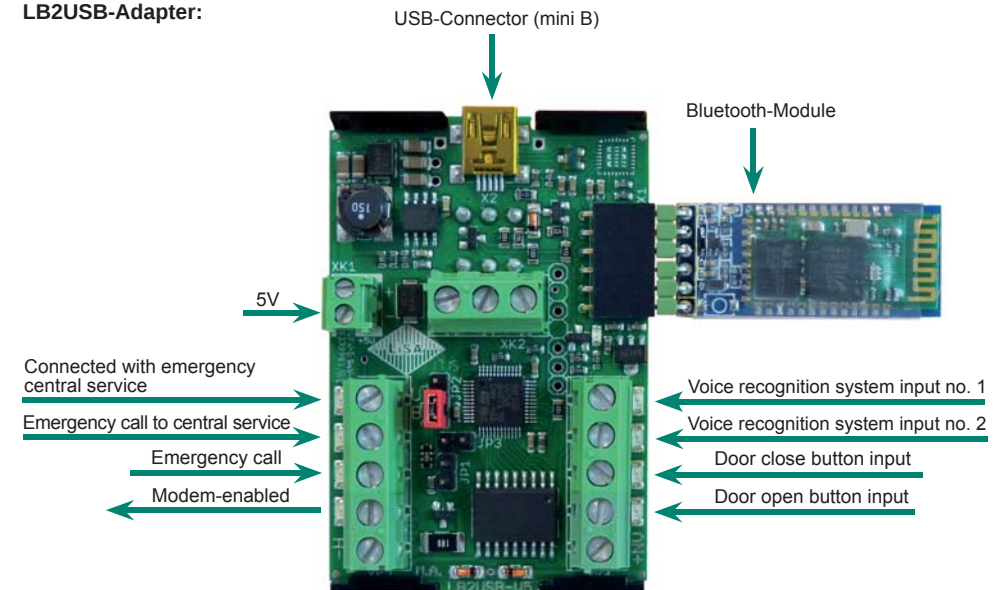


▶ Connection by means of LiSA bus

with another adapter developed by Schneider (LB2USB). With this adapter, it is among other things possible to realize the following functions:

- generating the 5V supply (battery charge) of the PC-tablet (no power supply required)
- connecting LiSA bus to the USB or Bluetooth interface of the PC-tablet
- connecting eight inputs and outputs on spring clips
 - two inputs used for controlling the emergency call pictograms of the emergency call system
 - two inputs used for activating the voice control system (in two languages)
 - three inputs: emergency button, door open and door close buttons
 - an output to activate the hands-free connection by a GSM modem

LB2USB-Adapter:



If the control actions are performed with the Bluetooth connection, you have to plug a Bluetooth-module in the LB2USB adapter. The Micro-USB port on the tablet is then free to connect the supply voltage, or as in our standard PC-tablet (Maxdata), with a separate charge socket, to connect the card reader or fingerprint scanner.

When communicating over the LiSA bus, all display functions are covered (carriage position, direction of travel, mode, cab commands over touch, etc.).

Note:

Apart from our standard 8-inch PC-tablet and most PC-tablets with ≥ 10 -inch displays, in all 7 and 8 inch PC-tablets there is only a single micro-USB port, which is usually used for the battery charging .

Using a freely available on the market special USB charging adapter, it is possible to connect over a USB hub further devices, in addition to the power supply, such as LiSA control, a card reader or a fingerprint scanner.

Due to available software modules (LiTerm and LiSY) for Windows, it is possible to use the PC-tablet in two fully independent areas:

- ▶ as a control module (LiTerm), i.e. a hand-held terminal without stationary installation
- ▶ as a multi-functional module with a collection of features that can otherwise only be achieved through a number of modules, such as an information module, along with a module for the command transfer, as well as a module for access control

Note:

A built-in carriage tablet with an activated LISY- application may also, provided the screen surface is freely accessible, be used as a control module. For this sake, the LISY Main Menu contains a menu item, with which the LiTerm application can be called.

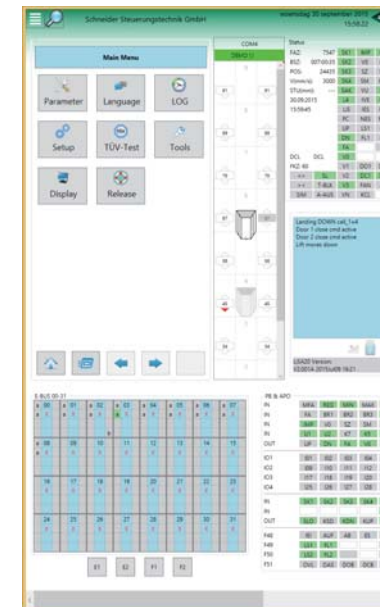
PC-tablet with LiTerm application as a control module (hand-held terminal):

An additional advantage and an absolute novelty, is the use of the PC-tablet as a control module for LiSA20-controls. So far, the preferred operating module has consisted of a LISY4 display with an RS422 connection for LiSA20.

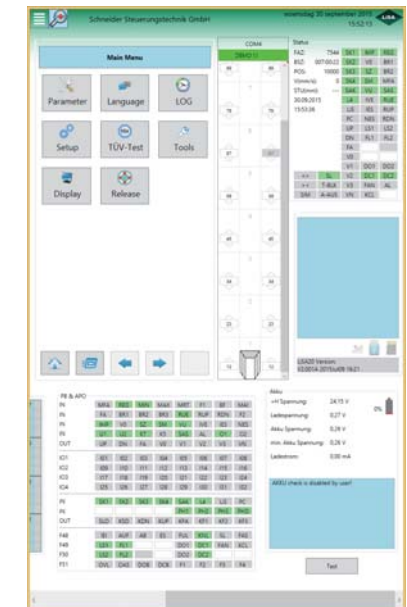
The PC-tablet makes it possible to set the LiSA20 controls and thus DCP-enabled inverters without a physically existing connection in the distance of up to 50 meters (depending on capabilities of a Bluetooth module), to read out recorded error and status memory messages, to observe current processes on the system, to give commands, and to put any IO.

Screenshots:

Main menu—on the left



Main menu—on the right



Different zoom functions:

Commands interface zoomed in



Bus module interface zoomed in



Processor interface IO-status zoomed in



Each bus module can be enlarged.

All common functions can be assigned directly to the IO module. It is also possible, for testing purposes, to set and clear the IOs.

PC-tablet with LISY application as multi-functional module:

The PC-tablet can be considered in its use with the LISY application as the multi-functional PC-tablet.

In addition to the usual function to inform the lift user (info module), it may well fulfil the function of a complete cabin or floor panel and of an access control system (control module).

Info module

The use of the info module includes the functionality that is offered by the commercially available TFT-displays and a bit more.

► Displays:

- carriage position, destination, ride direction and continuation
- operating status
- company logo
- lift data
- time and date
- floor number and any special text such as behavioural instructions in an emergency case
- emergency pictograms with additional text
- a fire emergency text and pictograms
- the name of the notified body (= CE xx)
- separately for up and down-rides through internal speaker
- carriage position
- Continuation
- operating status
- Behavioural instructions over internal speaker

► Arrival gong:

► Sprachausgaben:

for the voice output can be generated locally (in the lift) by typing the text (for example on the Bluetooth keyboard or the touch screen). Generating the MP3-data on a separate PC with subsequent transfer to the PC-tablet is then no longer necessary. .

► Information on blocked or free floors by different colouring of button fields

► Information on carriage call acknowledgment by highlighting the button fields in different colours

► Emergency light for 3-4 hours

A significant expansion of the functionality is the use as the [command module](#) and the [access control module](#).

Command module with

- inputting the call by touching the screen of the PC-tablet
- inputting the call by voice control.

[Control module](#) to release a blocked cabin through the following:

- the use of the touch function to insert a code on a keyboard or
- a card reader or
- a fingerprint scanner.

Application examples:

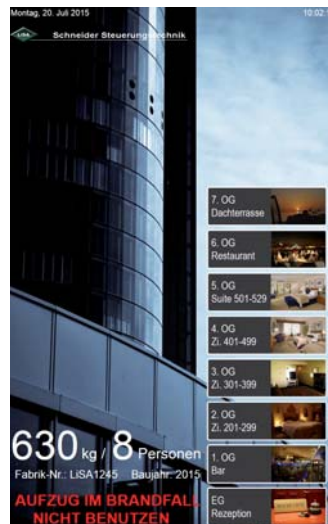
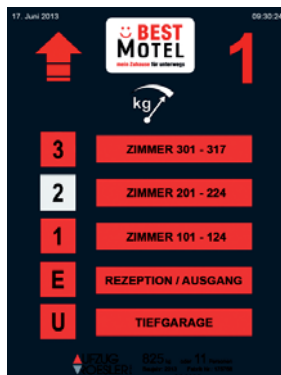
► As info module

(Stand and direction indicator, floor-info fields, lift data, operating state, voice output, gong, emergency pictograms etc.)



► As a command module for inputting the call signal on the cabin or floor display (call button field on the tablet screen).

Note: The version without external call buttons (only with alarm and door open buttons) results in an economical but still, in terms of design, sophisticated solution, that however does not comply with EN81-70.



Call input through voice control:

An extension (additional menu) in LISY application gives an unquestionably simple way to control the lifts.

Aside from this software extension and an additional button, which activates the voice answering for a short period, no additional tools are required. The commands can be spoken in four different languages: English, German, French or Spanish.

The text recognition at floor designations (e.g. zero, one, 1st floor, parking floor 1, etc.) is approximately 95%. For texts consisting of several words (e.g. practice Dr Maier, Urology Prof. Huber, Department of Income Tax, etc.) the degree of detection is close to 100%. The corresponding floor button has to be pressed only in exceptional cases.

For blind and severely disabled users who are not able to activate the button, the voice control means a real progress.

Conceivable: One day the voice control will become even the part of EN81.70.

► As access control module

A PC-tablet, equipped with the LISY software offers a number of options to control the access permission to the floors by means of enabling and disabling cabin commands. Superimposed keypads make hardware code keyboards unnecessary. Card reader and fingerprint scanner systems are reduced to a single component, the reader or scanner. Evaluation and management of all data can be taken over by the PC-tablet. All settings and configurations are stored on an SD- Card. This means that also in case of failure of the PC, the settings can be transferred to a new device without any problems.

Access control without mechanical call buttons:

If no external call buttons are available, to input a call the touch feature of the tablet has to be activated. The tablet screen thus cannot be covered. Buttons that have not been blocked behave like „normal“ buttons. Blocking or release of call buttons is carried out in LISY menu item: COP.

For this, there are three choices:

► **Button with an attribute “use password”:**

For each button a 4-digit number sequence password can be set.

Such buttons are shown automatically darkened. After tapping a darkened button, a keypad is displayed for the period of about 8 seconds. Entering a valid password causes an automatic call to the control, which in turn—if the internal call mask is open—acknowledges the call (grade of acknowledgement is highlighted).

► **Button with attribute “blocked” and release through the superimposed keypad:**

Creation of a button with keyboard function. Using such a keyboard, one or more buttons can be released simultaneously. This is done by specifying an alphanumeric code of any length. After tapping a button, appears a keypad. To release the floor, you must enter a valid code over a period of 8 seconds. The button presentation of the selected floor changes then from dimmed to “normal” and a carriage call can be released.

- ▶ **Button with attribute “blocked” and release through card reader or fingerprint scanner:**
The release can only be performed with an SD-Card or a finger scan if no release is provided through the keyboard function. For this purpose, the corresponding parameters must be set in the Card Reader menu item or Fingerprint menu item. (see examples below).

Access control function with mechanical call buttons:

If there are mechanical call buttons, it is not necessary to use the touch feature of your tablet to input the call. The tablet screen can be covered by an acrylic or glass disc, unless you want to enter additional parallel calls or use the keypad.

The range of functions at panel modules with mechanical call buttons is basically identical to that without call button.

Locked car calls (internal call masks set to zero) can be displayed darkened by adjusting the tablet menu—but this is not necessary. When setting parameters in the menu item COP, the buttons that are to be released, must be provided with the attribute “blocked”.

The already above described functions can be used then to release the blocked buttons:

- ▶ Release of buttons with attribute “blocked” on the superimposed keypad (keyboard function)
- ▶ Release of buttons with attribute “blocked” through a card reader or fingerprint scanner

The release lasts for a period of about three seconds. During this time, the appropriate floor can be selected either in the carriage operating panel and on the tablet keypad.

Attention:

The actual answer is ultimately determined by the internal call masks in the control.

Note: The blocking of the carriage calls is carried out in the parameter menu of the control by means of door-open masks. The release results from the release of IO in the control, but for this you need to set permanently the parameter “1st input internal call release” on IO121. The 16 subsequent IOs will be filled automatically but there is no need for them to be present physically.

Functions in detail:

Access control in the lift carriage

Scenario:

- ▶ A fingerprint scanner (FPS) or a card reader is connected to the tablet.
- ▶ The tablet touch screen is not in use (covered by a plexi disc).
- ▶ One or more carriage calls are blocked and are to be released on the FPS.
- ▶ **The cabin panel contains a call button for each floor.** The buttons are also shown on the tablet screen (screen button). To release the carriage calls, that are locked, by FDS, it's necessary:
 - that the internal call mask in the control is provided with „0”
 - and is blocked in the tablet with “attribute”.
- ▶ The blocked calls are darkened on the tablet (toned in their visibility).

Attention:

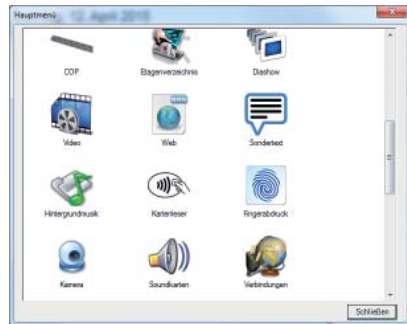
The release of blocked calls is carried out with the fingerprint scanner, which was configured in advance for the respective fingerprints of individuals.

- E.g.: John can go to the 6th floor that is locked during normal operations using his thumb fingerprint, and with the index fingerprint to the 2nd and 3rd floor. This has to be set in the main menu of LISY application.
- Pressing his thumb on the scanner, John activates the call button for the 6th floor on the screen for about 5 seconds. The control releases the call for 5th floor. If the call button for 5th floor is pressed during this time, the call is acknowledged. The screen button will then change back to the inactive state, however with an activated button edge.



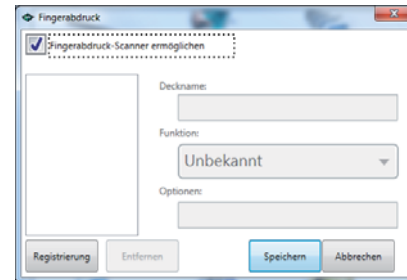
Procedure for detecting authorized persons and their fingerprints:

1



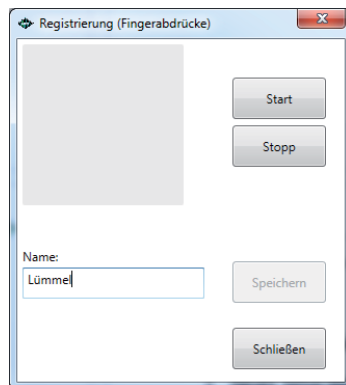
- Call Main Menu
- Activate Fingerprint menu item

2



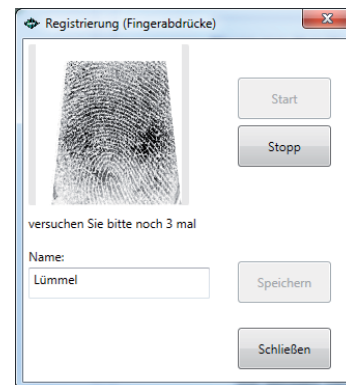
- Check Permit fingerprint scanner option in the Fingerprint window
- Tap Registration button

3



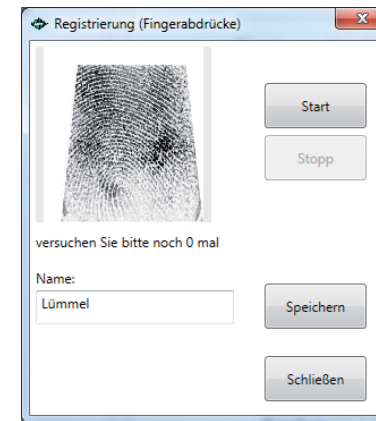
- Enter the registration name e.g. Lümmel
- Tap Start button
- A message Try 4 more times appears

4



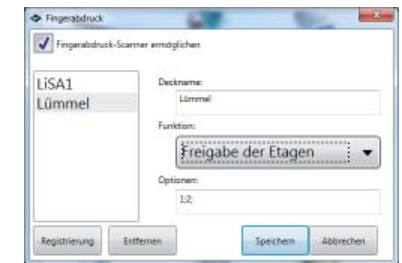
- Press your fingertip to the screen
- A message Try 3 more times appears

5



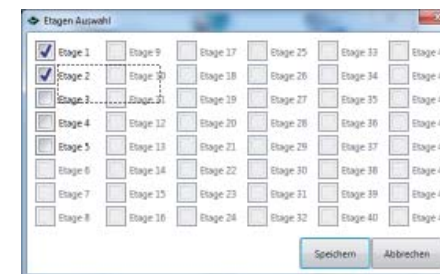
- Keep pressing the fingertip to the screen until the message Try 0 more times appears
- Tap Save button

6



- Check Release of floors option
- After selecting Release of floors option, a window with floor selection list appears

7



- Choose the floors that are to be released
- Tap Save button

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