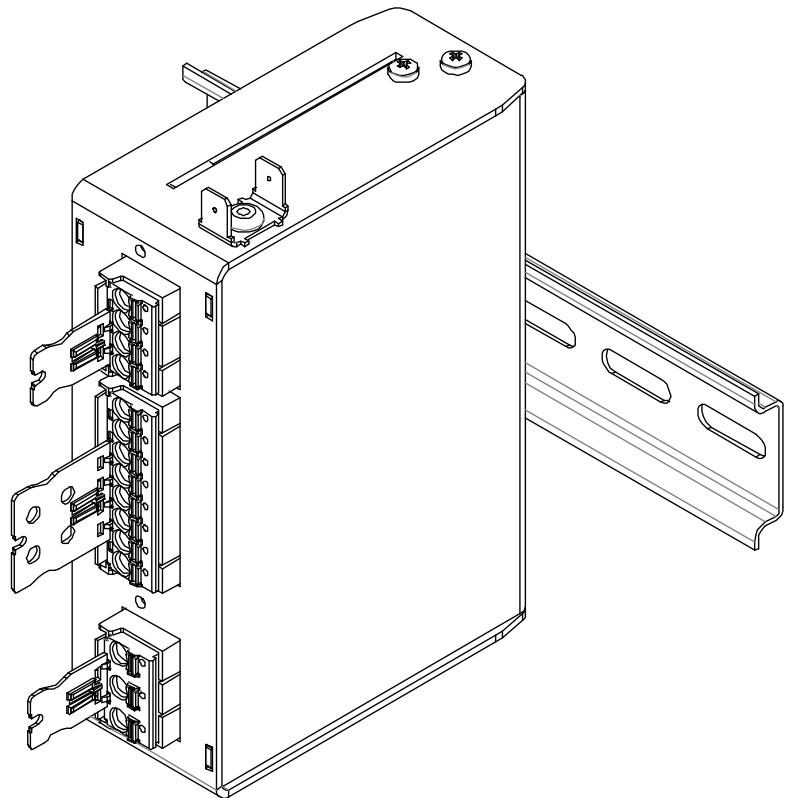


Safety circuit

MULTiBUS-SHB

Operating instructions

Status: 11.1.2023



Important note

The data and information in this documentation were compiled with greatest care. Although every reasonable effort has been made to make the information contained in this documentation correct and up to date at the time of publication, no guarantee can be given for absolute freedom from errors.

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Document changes

Date	Page	Changes
11.8.2015		1st official issue
19.7.2016	26 27 28	Change of the maintenance and replacement instructions Customize the EU declaration of conformity Add the EU type examination certificate
01.09.2016	6 9 7,13,15,17,19,21	Correction of table, terminals 101, 102, 103, 104 Add row numbers in the table Add all VIO numbers in the circuit examples
07.07.2020	7,11,13,15,17,19,21, 23,29	Adaptation of the VIO numbers to MULTIBUS Master; Adaptation of the circuit examples; Reference image SHB installation position changed, update EU conformity
20.04.2021	4,10,15,19	Reference to standard EN-81-1/2; Adaptation of the VIO numbers GB0, GB2 and ZB2 to MULTIBUS control
03.02.2022	div. 7,11,13,15,17,19,21 27,28	Editorial processing Specification of all VIO numbers for the SLC4-20 and MULTIBUS controls Updated EU conformity and type examination certificate
11.01.2023	22	Link to online UCM calculator removed, because the server has been decommissioned.

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1 General notes and instructions

The documentation contains instructions which must be complied with under all circumstances in order to protect the life or health of persons. Knowledge and technical implementation of the safety instructions included in this documentation as well as the accident prevention regulations applying to the place of installation of the plant are required for a safe installation and commissioning. The documentation does not include all details on all plant designs and is unable to take into account any conceivable setup, operation, repair, maintenance and commissioning scenario.

1.0 Typographic conventions

<i>Font / symbol</i>	<i>Meaning</i>
	Hazard warning. Neglecting the regulations may pose a risk of an accident, including personal injury or property damage.
	Special information or useful tips
Menu, designations	This presentation identifies menu items, menu options, menu commands, registration areas, windows and form designations.

1.1 Intended use

The safety circuit MULTIBUS SHB is a two-channel safety circuit for control systems for lifts under 2014/33/EU lift directive. It is used to monitor the door unlocking zone, but works in coordination with STRACK LIFT AUTOMATION also for other purposes, e.g. for the monitoring of door locks or as a part of a deceleration control circuit in the final levels. **The following documentation describes how to use as a monitoring circuit for the door unlocking zone.**

All chapters of this operating manual include important information for the intended use of the product. These chapters exclusively apply to technically qualified personnel trained especially for the installation, commissioning, maintenance and repair of lifts, which have been constructed according to the relevant standards. The product described may only be installed, operated, serviced and repaired by this group of people. It must be ensured that all activities are carried out according to the respective statutory provisions of industrial safety.

In order to ensure a trouble-free and safe operation of the plant, the notes and instructions in the documentation included in the delivery of the plant must always be observed. The product may not be changed before and after putting it on the market without consulting the manufacturer **STRACK LIFT AUTOMATION GmbH**.

1.2 Installation and wiring instructions



Be careful!

Please observe the following:

1. The user must ensure pollution degree 2 (acc. to EN 60664-1: "*There is only non-conductive pollution. But occasionally you may experience temporary conductivity by condensation.*") through appropriate measures (e.g. installation in an IP54 housing) or the place of installation.
2. Check the condition of the circuit when taking from the warehouse. It may have no strong pollution or damage.
3. No inputs and outputs must be bridged, if this is not explicitly allowed.
4. Switch elements must not change their position for channels 1 and 2. I.e. magnets must permanently glued, screwed or clamped. It is not enough to pin it with their own magnetic force on the car rail.
5. Before first use, all switches and magnets must be positioned in their designated location. For example, omitting some magnets can cause a dangerous condition by impermissibly bridged doors.
6. Magnetic switch can affect each other, or one magnet can switch two independent magnetic switches. Observe the specifications of the manufacturer of the switch.
7. Do not attempt to modify a magnet mechanically (hammer, saw, file, drill...). The material is very brittle. Splinters can cause serious injury.
8. Attach the magnets exclusively with non-magnetic screws, e.g. of brass.
9. The 24VDC control circuits are to separate with a transformer from the mains of the lift, to ground secondary unilaterally, and to protect with a suitable fuse.
10. The module housing must be grounded to the earth connection flag.
11. In order to minimize induced voltages by parallel wires, the cables, belonging to different voltage ranges, should be separated.
12. If there are subsequent modifications of the lift, the above measures also for new components must be observed.

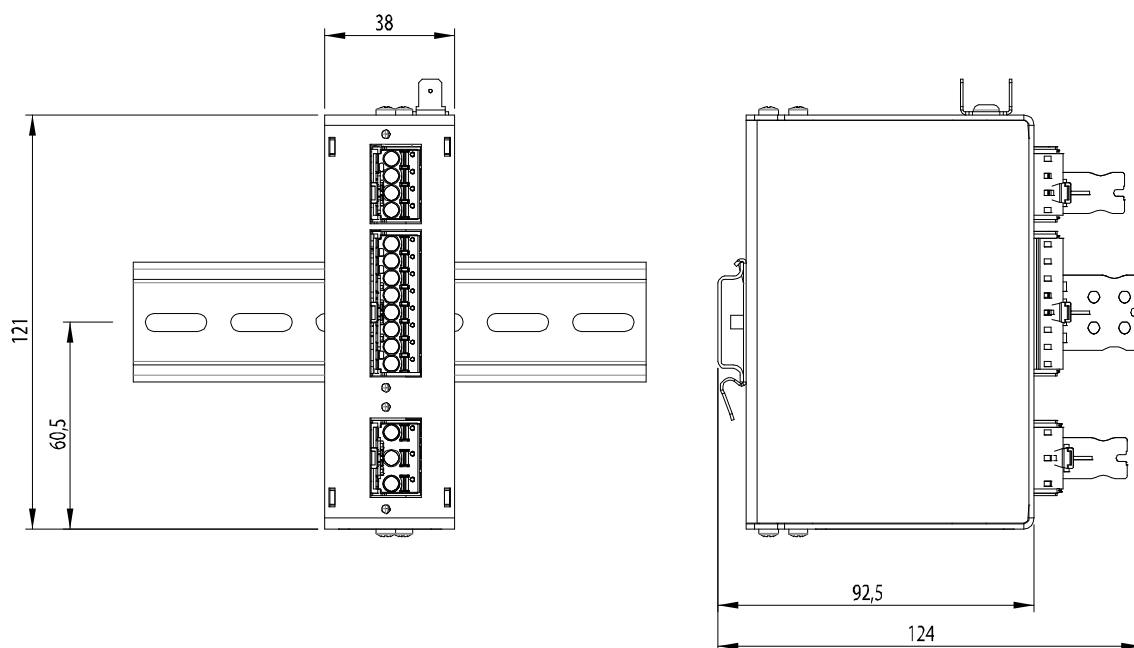
1.3 Operational safety information

1. To ensure a trouble-free operation of the system, are switching and Terminal diagrams, manuals from external assemblies, etc. must be observed this manual.
2. The correct function of the safety device in conjunction with the lift control must be ensured by inspection of the finished installed lift system. Instructions see section "Inspection instruction zone monitoring" page 25.
3. After triggering a fuse of the 24V power supply or previous circuits, you must ensure the correct function of the safety device in conjunction with the lift control at suspicion on a lightning strike. See section "Inspection instruction zone monitoring" page 25

1.4 Notes on maintenance and periodic inspections

The correct function of the safety device in conjunction with the lift control must be checked at least in the context of the recurring inspection of the lift. Instructions see section "Inspection instruction zone monitoring" page 25. We recommend you also perform this check when replacing the control software or maintenance.

2 Dimensional drawing



The module is locked on a mounting rail TS35 acc. to DIN EN 60715.

3 Functional description

3.0 SHB as zone monitoring

The safety circuit SHB is used to monitor the door unlocking zone acc. to EN 81-1/-2/-20:2020 (EN 81-20:2020, 5.3.8.1) and evaluates two independent signals (channels 1 and 2) on simultaneous switching. The signals can be generated e.g. by magnetic switches, initiators or digital shaft copy systems with absolute encoders, as long as they cannot influence each other.

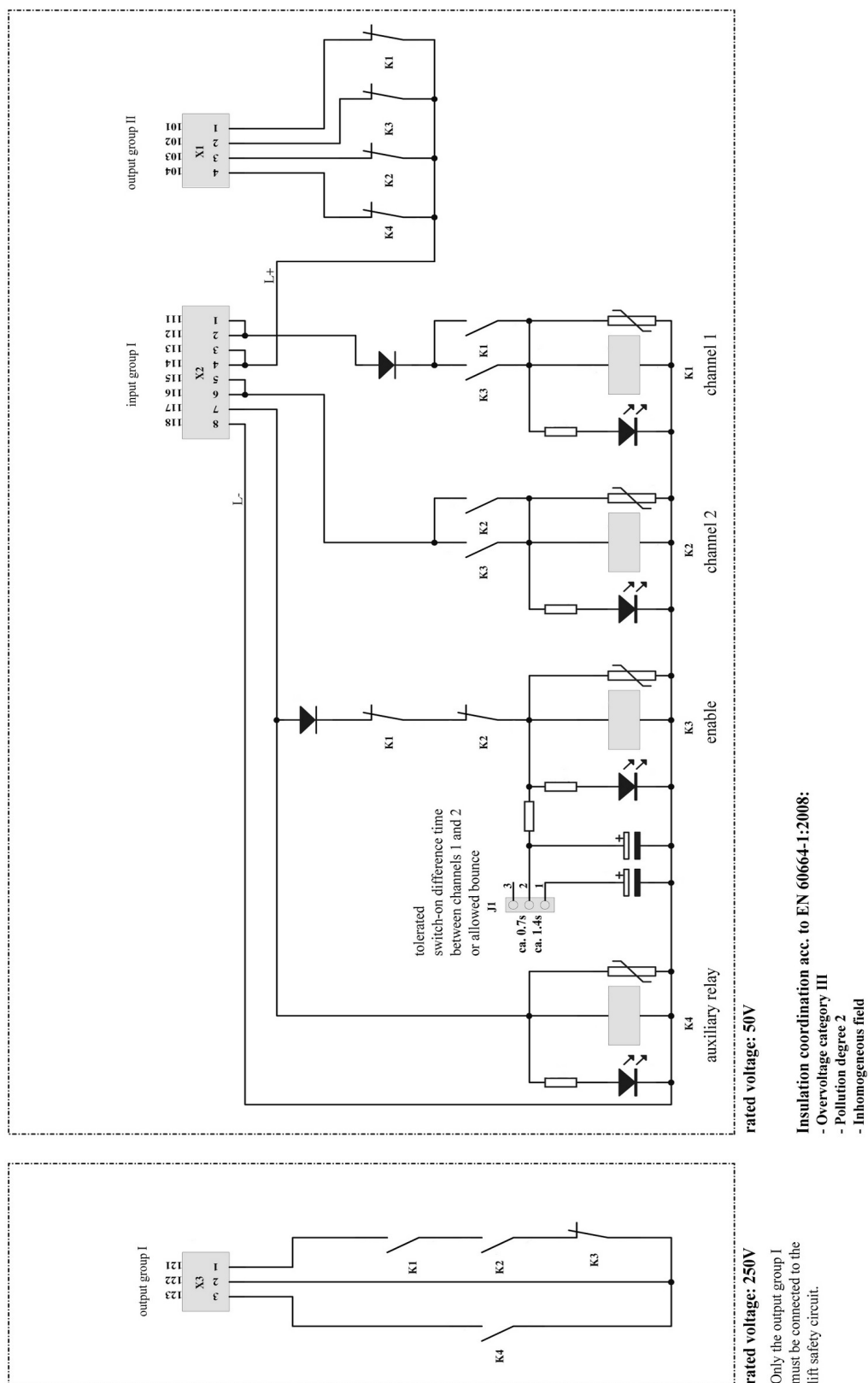
When activated both channels within the door unlocking zone and the SHB has no internal errors, the safety output is switched on, and the door contacts in the lift safety circuit may be bridged. Other outputs of the SHB serve for detecting wrongdoing and diagnosis by the lift control.

3.1 SHB as UCM detector

Acc. to EN 81-20:2020, 5.6.7 lifts must be equipped with a guard system to prevent an unintended car movement (UCM), which may occur as a result of any error on the engine or the drive control system, on which the safe car movement depends on.

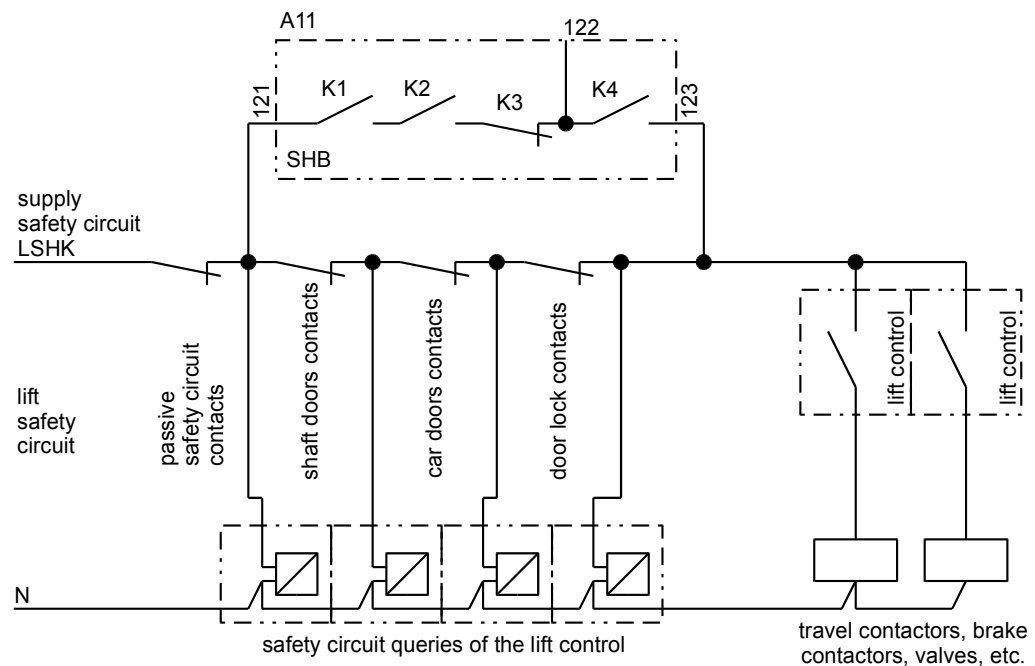
This guard system can be subdivided into the functions "detecting", "tripping" and "braking". SHB take on the task of detecting and tripping, so that the lift manufacturer has only to install a braking device certified for emergency braking ("emergency brake"). To this end, the SHB is designed in such a universal manner that it is able to work together with many commercially available emergency brakes such as a blocking magnet at the overspeed governor (without additional electronics), a separate emergency brake or safety brake, a certified service brake (e.g. for gearless drives), for hydraulic lifts with a redundant valve system or a separate safety valve.

3.2 Internal circuit

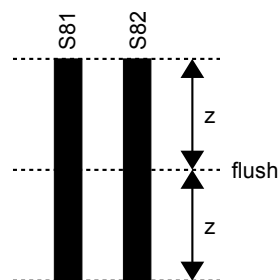


Input group I	
111	input for channel 1 (e.g. zone switch 1)
112	test input for channel 1 (terminal remains free)
113	+24V (always connected)
114	+24V for test bridges acc. to the test instructions (terminal remains free)
115	input for channel 2 (e.g. zone switch 2 or output of the absolute encoder control for zone switch 2)
116	test input for channel 2 (terminal remains free)
117	Enable input. When levelling into the destination floor, re-levelling and quick start (preparatory measures before normal travel) the input must have +24V.
118	0V
Output group I	
121	Safety output between the terminals 121 and 122. It is used e.g. to bridge the door contacts in the safety circuit within the unlocking zone for the purpose of levelling, re-levelling or quick start.
122	common connection of the output terminals 121 and 123
123	Output of the auxiliary relay K4 between the terminals 122 and 123. Hereby, the lift control may cancel a bridging of the door contacts to query the status of the door contacts.
Output group II	
101	Status output for the lift control. The output has +24V, when K1 is de-energised.
102	Status output for the lift control. The output has +24V, when K3 is de-energised.
103	Status output for the lift control. The output has +24V, when K2 is de-energised.
104	Status output for the lift control. The output has +24V, when K4 is de-energised.

3.3 Wiring as zone monitoring

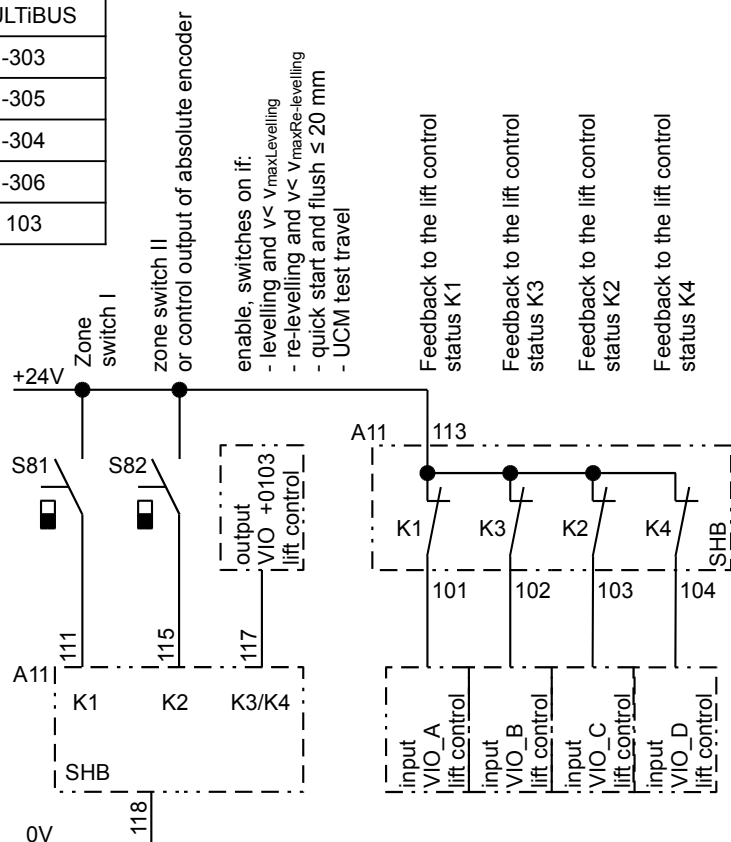


VIO Numbers		
	SLC4-20	MULTIBUS
VIO_A	-2610	-303
VIO_B	-2612	-305
VIO_C	-2611	-304
VIO_D	-2613	-306
VIO_E	103	103



Zone length z:
EN 81-20:2020, 5.3.8.1

- **max. 20 cm**
when hand or powered-operated landing doors with own drive
- **max. 35 cm**
when power-operated landing doors driven together with the car doors



3.4 How it works

3.4.1 Trouble-free operation

If the enable input 117 has voltage and the channels 1 and 2 are switched off, relay K3 attracts. Thus, the relay K1 can attract when channel 1 is switched on, and the relay K2 can attract when channel 2 is switched on, and each go into self-holding. K1 and K2 K3 to fall off again, therefore, the safety output 121-122 of output group closes I after the drop-out delay time of K3.

As soon as the first of the two channels switches on, the other must switch on within the delay time of K3. During this time, both channels may also switch on/off several times (bounce), without having an error in the safety circuit and blocking the lift unintentionally.

If the output of K4 is used in series to the safety output 122-123, the lift control system has the ability to determine the effect of the safety output by switching the terminal 117 (enable) on/off.

A reset of the circuit is done by switching off channel 1 and channel 2.

3.4.2 Fail to switch a channel

If channel 1 switches on, but channel 2 not, K2 can not attract. The safety output 121-122 does not switch on. The lift control will detect the error by the status output 103.

If channel 2 switches on, but channel 1 not, K1 can not attract. The safety output 121-122 does not switch on. The lift control will detect the error by the status output 101.

If channel 1 switches off, but channel 2 not, K2 remains energised, while K1 is de-energised. The safety output 121-122 interrupts. The next time channel 1 is switched on, K1 cannot switch on again, because K3 cannot attract through the incorrectly energised K2. The lift control will detect the error by the status output 101.

If channel 2 switches off, but channel 1 not, K1 remains energised, while K2 is de-energised. The safety output 121-122 interrupts. The next time channel 2 is switched on, K2 cannot switch on again, because K3 cannot attract through the incorrectly energised K1. The lift control will detect the error by the status output 103.

A fail to switch of K4 is monitored by the lift control using status output 104.

3.5 Switching states of the relays

Row	Relays				Operation state of the lift	Safety output 122-123 (without K4)	Safety output 121-123 (incl. K4)
	K1	K2	K3	K4			
1	0	0	0	0	outside of the unlocking zone	0	0
2	0	0	1	1	outside of the unlocking zone and decelerate	0	0
3	0	1	0	X	Error. Channel 1 not switched on or channel 2 (prior) not switched off.	0	0
4	0	1	1	X	permitted within the release time of K3, then error	0	0
5	1	0	0	X	Error. Channel 2 not switched on or channel 1 (prior) not switched off.	0	0
6	1	0	1	X	permitted within the release time of K3, then error	0	0
7	1	1	0	0	standing within the unlocking zone	1	0
8	1	1	0	1	travelling within the unlocking zone	1	1
9	1	1	1	X	permitted within the release time of K3, then error	0	0

X = switching state 0 or 1

3.6 GB0: UCM detector for locking magnet at speed governor (without SHB)

3.6.1 Use

The UCM guard of the "rigid" rope lift or e.g. chain lift is realised by a UCM certified, double-acting safety gear and a UCM certified speed governor.

Conditions of use:

The lift is a "rigid" rope lift or chain lift and has no early-opening doors (customer request) and requires no re-levelling, because the levelling accuracy of ± 10 mm and re-levelling accuracy of ± 20 mm is guaranteed by the lift manufacturer. And it made a statement about (estimate if necessary) that in the UCM case the lift stops within the permissible UCM braking distance (see also "Calculation of braking distance at UCM" page 22)) → the circuit can be used.

Note:

"Rigid", because in this variant the control releases the locking magnet after every travel. If the car would move a little bit when loading or unloading for example by rope stretching (few mm is already enough), there may be a snagging of the pendulum depending on the random position of the locking cam and the lift would drive necessarily into the catch during the next travel.

3.6.2 Circuit description

The drop protection lock magnet Y6 attracts before each travel. A travel is started only if it has attracted.

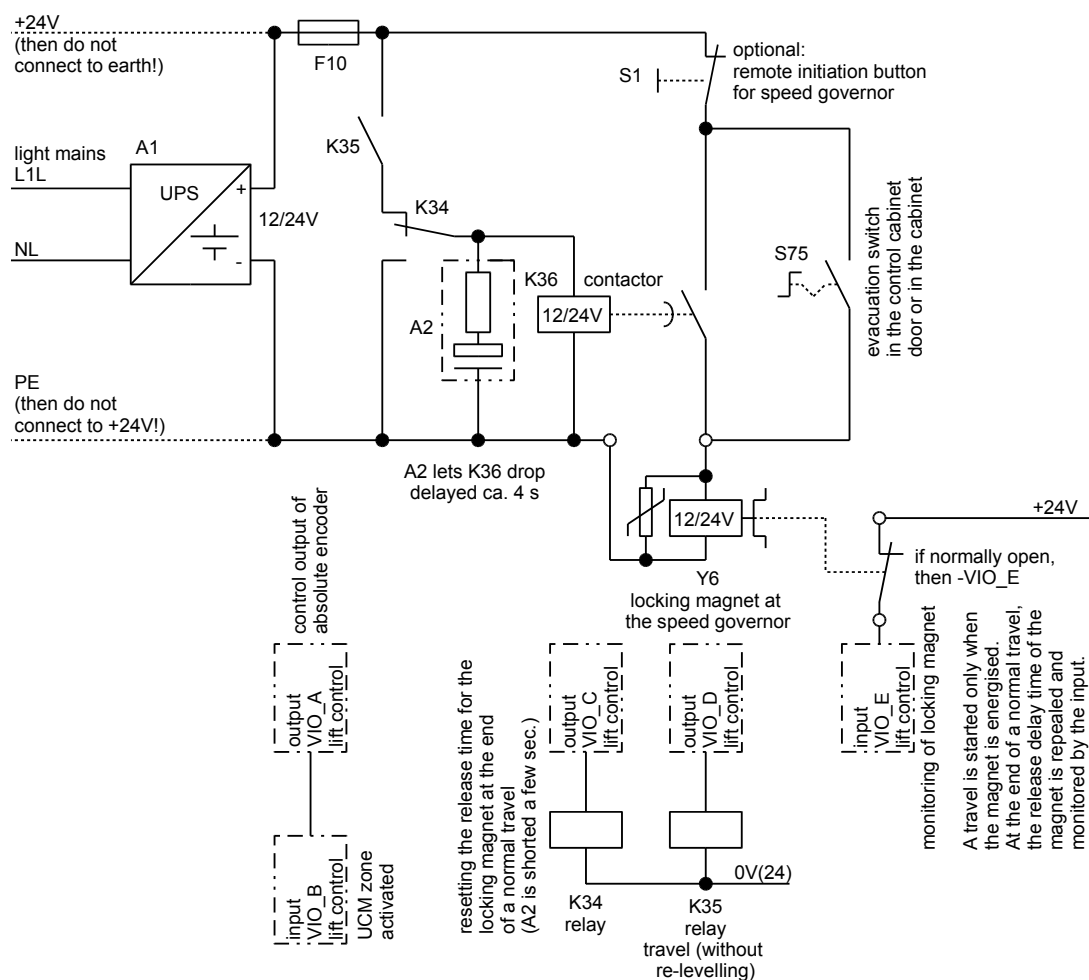
In case of interruption of the safety circuit or mains failures while travelling, as well as in inching mode for inspection/return Y6 is de-energised always with a delay of approx. 4 s. But if the lift stops normally in the destination level, the control destroys the energy of the release delay A2 for K36, and the locking magnet Y6 drops quickly, so that the detection of UCM is effective immediately.

In case of UCM, Y6 is already de-energised with a flush car. After intervention of the pendulum into the locking lugs of the speed governor indents the catch and slows down the lift. The lift control detects this condition, if the lift has moved from the (virtual) UCM zone area (the value can be set in the control menu).

3.6.3 Control values for the calculation of the UCM braking distance

Type	Unit	Value
none (the calculation starts with "maximum distance travelled before activation of the catch") Note: also the response time of the blocking magnet at the speed governor does not effect the UCM calculating	./.	./.

Circuit



VIO Numbers		
	SLC4-20	MULTIBUS
VIO_A	1689	272
VIO_B	1597	216
VIO_C	1695	273
VIO_D	1687	270
VIO_E	1686	269

3.7 GB1: Zone monitoring and UCM detector for locking magnet at speed governor (1x SHB)

3.7.1 Use

The UCM guard of the rope or hydraulic lift is realised by a UCM certified, acting in up and down direction catch and a UCM certified speed governor.

Conditions of use:

1. The lift has re-levelling, but no early-opening doors (customer request) → the circuit can be used.
2. The lift has re-levelling and has early-opening doors (customer request) and the other parts of the UCM guard (speed governor, catch) are able, to stop the lift within the permissible UCM braking distance in the UCM case (see also "Calculation of braking distance at UCM" page 22)

3.7.2 Circuit description

The drop protection lock magnet Y6 is either still being energised (control parameter), or attracts before each travel. A travel is started only if it has attracted.

In case of interruption of the safety circuit or mains failures while travelling, as well as in inching mode for inspection/return Y6 is de-energised always with a delay of approx. 4 s. But if the lift stops normally in the destination level, the control destroys the energy of the release delay A2 for K36, and the locking magnet Y6 drops quickly, so that the detection of UCM is effective immediately. But Y6 remains energized by the activated zone (path K81-K24).

In case of UCM, when leaving the zone Y6 is immediately de-energised by K81, the catch indents and slows down the lift.

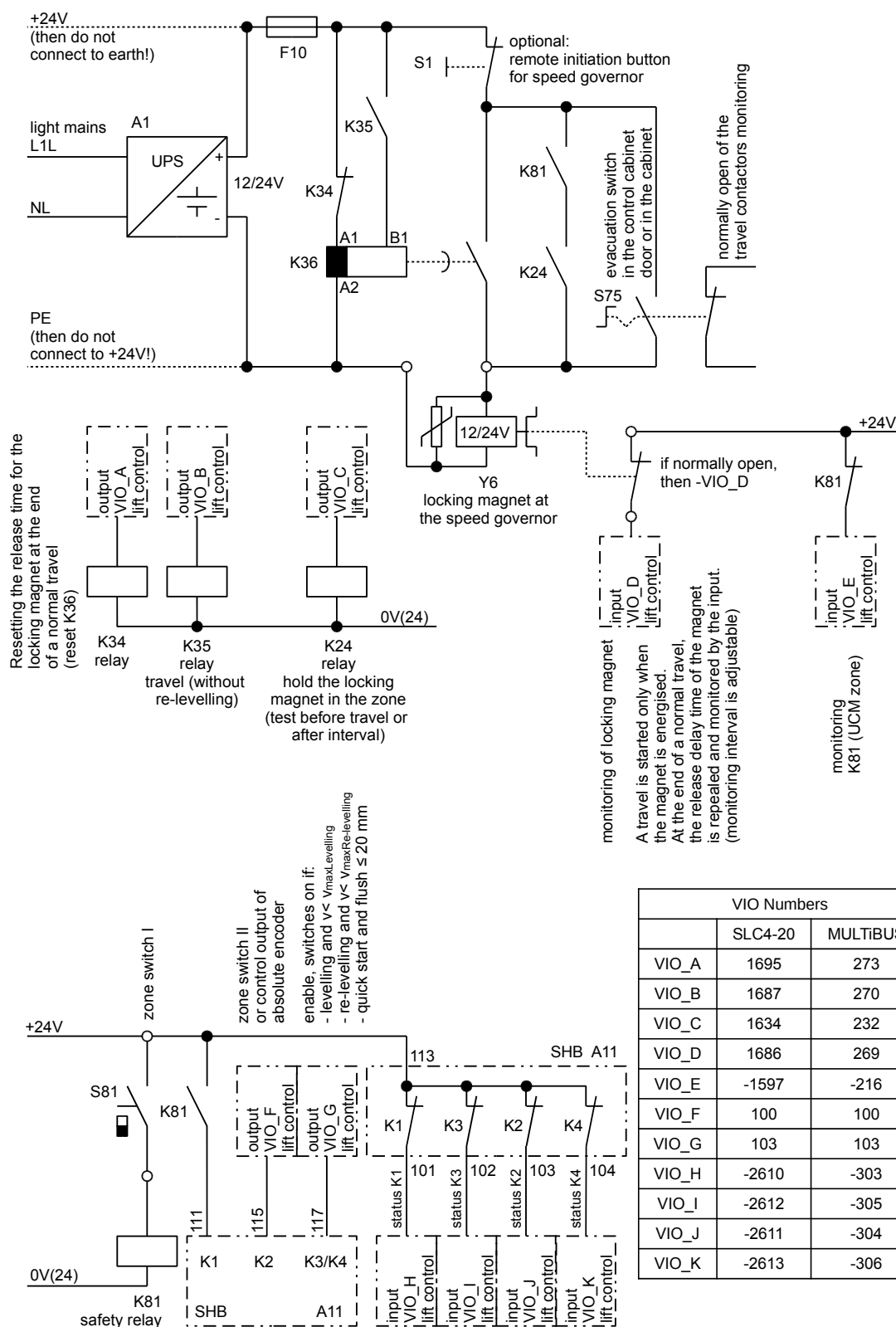
Note:

If the car would move a little bit when loading or unloading for example by rope stretching (few mm is already enough), there may be a snagging of the pendulum depending on the random position of the locking cam and the lift would drive necessarily into the catch during the next travel. Therefore, Y6 remains attracted after stopping in the level with the doors open. Via the control parameters you can adjust an adequate test interval for Y6 and his control. Values are permitted between "test after every travel" and "test once within 24 hours". The time of de-energising Y6 at closed doors for energy saving reasons is also adjustable.

3.7.3 Control values for the calculation of the UCM braking distance

Type	Unit	Value
Zone length	mm	acc. to individual UCM calculation (see also "Calculation of braking distance at UCM" page 22)
Response time of magnetic switch S81	ms	1
Response time of safety relay K81 (type MULTIBUS SR22)	ms	5

3.7.4 Circuit



3.8 GB2: Zone monitoring and UCM detector for locking magnet at speed governor (2x SHB)

3.8.1 Use

The UCM guard of the rope or hydraulic lift is realised by a UCM certified, acting in up and down direction catch and a UCM certified speed governor.

Conditions of use:

none (the circuit is used when 1x SHB is not sufficient, so the zone for levelling with early opening doors must be large and the UCM zone must be small)

3.8.2 Circuit description

The drop protection lock magnet Y6 is either still being energised (control parameter), or attracts before each travel. A travel is started only if it has attracted.

In case of interruption of the safety circuit or mains failures while travelling, as well as in inching mode for inspection/return Y6 is de-energised always with a delay of approx. 4 s. But if the lift stops normally in the destination level, the control resets the release delay of K36 by energising K34 a few seconds, and the locking magnet Y6 drops quickly by the de-energised K36, so the detection of UCM is effective immediately. But Y6 remains energized by the activated UCM zone A12 (terminal 121-123).

In case of UCM, when leaving the zone Y6 is immediately de-energised, the catch indents and slows down the lift.

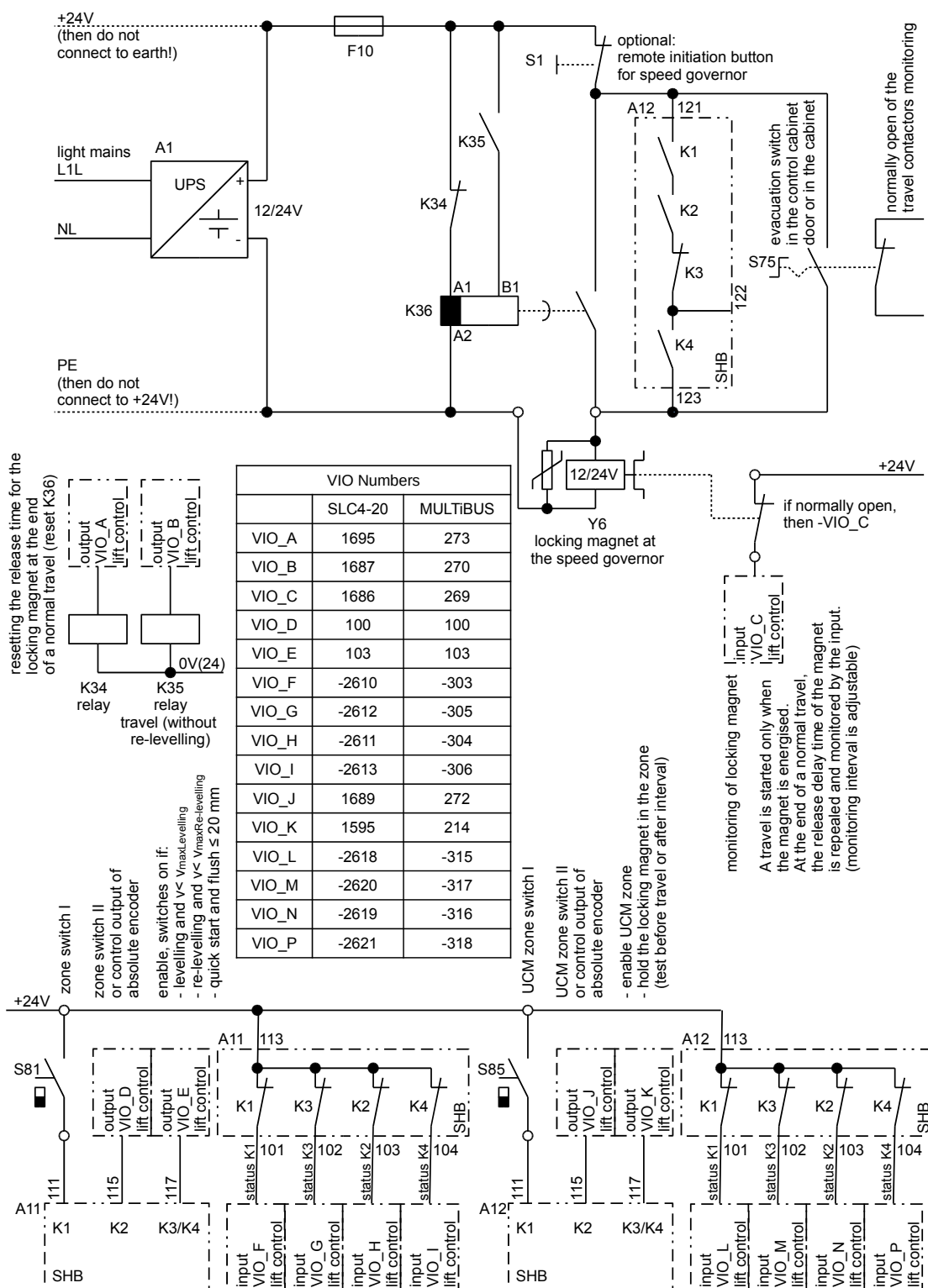
Note:

If the car would move a little bit when loading or unloading for example by rope stretching (few mm is already enough), there may be a snagging of the pendulum depending on the random position of the locking cam and the lift would drive necessarily into the catch during the next travel. Therefore, Y6 remains attracted after stopping in the level with the doors open. Via the control parameters you can adjust an adequate test interval for Y6 and his control. Values are permitted between "test after every travel" and "test once within 24 hours". The time of de-energising Y6 at closed doors for energy saving reasons is also adjustable.

3.8.3 Control values for the calculation of the UCM braking distance

Type	Unit	Value
Zone length	mm	acc. to individual UCM calculation (see also "Calculation of braking distance at UCM" page 22)
Response time of magnetic switch S85	ms	1
Response time of SHB (UCM zone)	ms	10

Circuit



3.9 ZB1: Zone monitoring and UCM detector for rope lift with certified brake (1x SHB)

3.9.1 Use

The UCM guard is realised by a UCM certified service brake or (also combined with) a separate emergency brake.

Conditions of use:

1. The lift has re-levelling, but no early-opening doors (customer request) → the circuit can be used.
2. The lift has re-levelling and has early-opening doors (customer request) and the other parts of the UCM guard (brake) are able, to stop the lift within the permissible UCM braking distance in the UCM case (see also “Calculation of braking distance at UCM” page 22)

3.9.2 Circuit description

Depending on the type of brake, a brake lever control can be added by the lift control or the drive control.

In the case of UCM, the safety circuit when leaving the zone is immediately opened by A11 (terminal 121-123) and K15 and K90 are de-energised. Control side the release time of the fastest of the two contactors K15 or K90 (usually K90) must be taken into account in the calculation of the UCM braking distance (see following chapter “Control values for the calculation of the UCM braking distance” page 16).

An average travel or brake contactor with AC or DC voltage coil drops with a delay of max. 50 ms, if the contactor is fitted within the manufacturer's specifications regarding the mounting position and temperature.

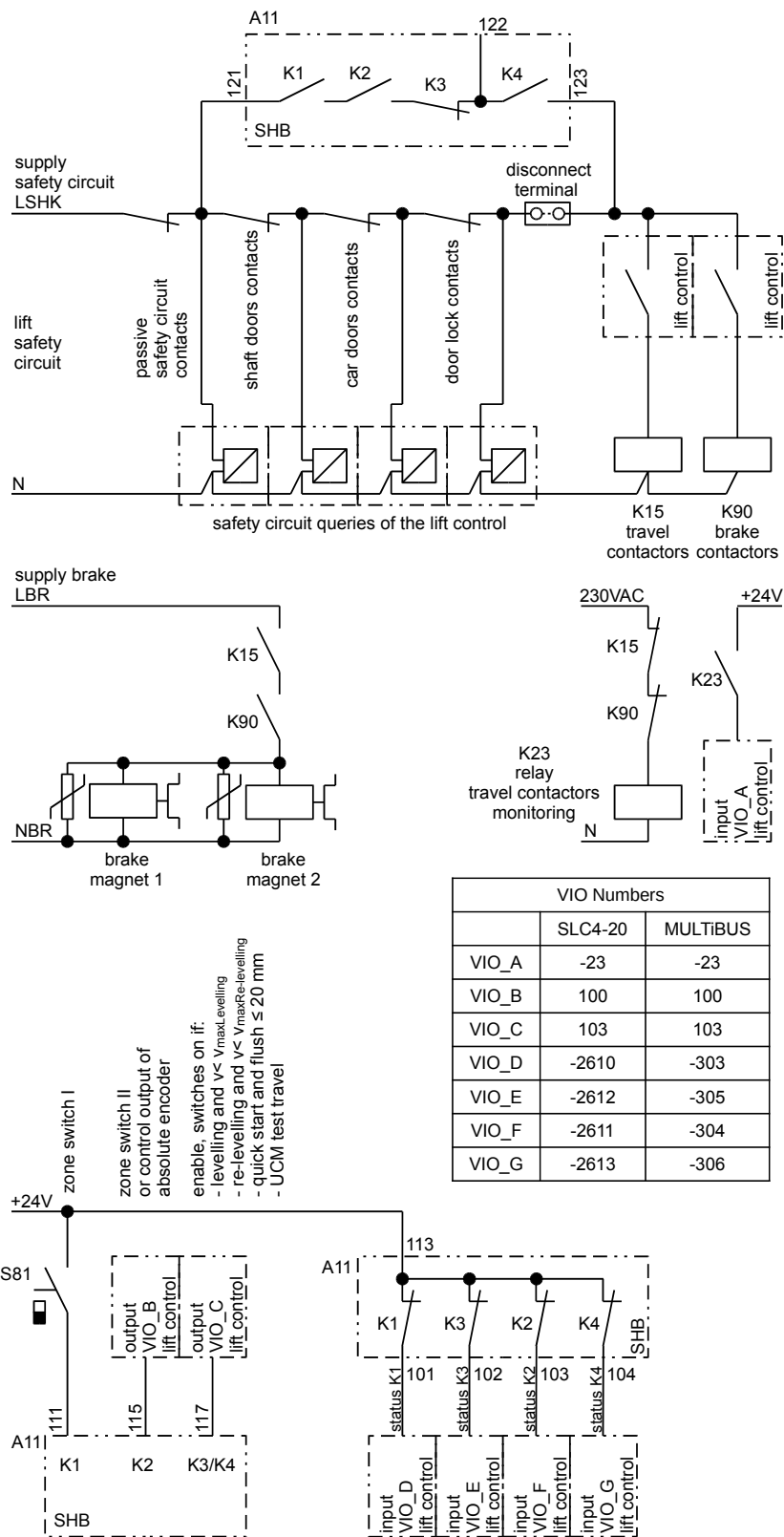
STRACK usually uses Siemens contactors. Usually 3RT1023 or 3RT2023 is used for the brake control.

The total switch-off time of this brake contactor is max. 35 ms (opening delay of 20 ms + arc time 10 ms + varistor delay 5 ms).

3.9.3 Control values for the calculation of the UCM braking distance

Type	Unit	Value
Zone length	mm	acc. to individual UCM calculation (see also “Calculation of braking distance at UCM” page 22)
Response time of magnetic switch S81	ms	1
Response time of SHB (UCM zone)	ms	10
Response time of the brake contactor K90 (Siemens 3RT with AC coil and <u>varistor</u>)	ms	35

3.9.4 Control



3.10 ZB2: Zone monitoring and UCM detector for rope lift with certified brake (2x SHB)

3.10.1 Use

The UCM guard is realised by a UCM certified service brake or (also combined with) a separate emergency brake.

Conditions of use:

none (the circuit is used when 1x SHB is not sufficient, so the zone for levelling with early opening doors must be large and the UCM zone must be small)

3.10.2 Circuit description

Depending on the type of brake, a brake lever control can be added by the lift control or the drive control.

A11 resembles a normal zone monitoring circuit. The length of this zone can be selected as large possible depending on the door type, so that the doors can open on request as soon as possible while levelling.

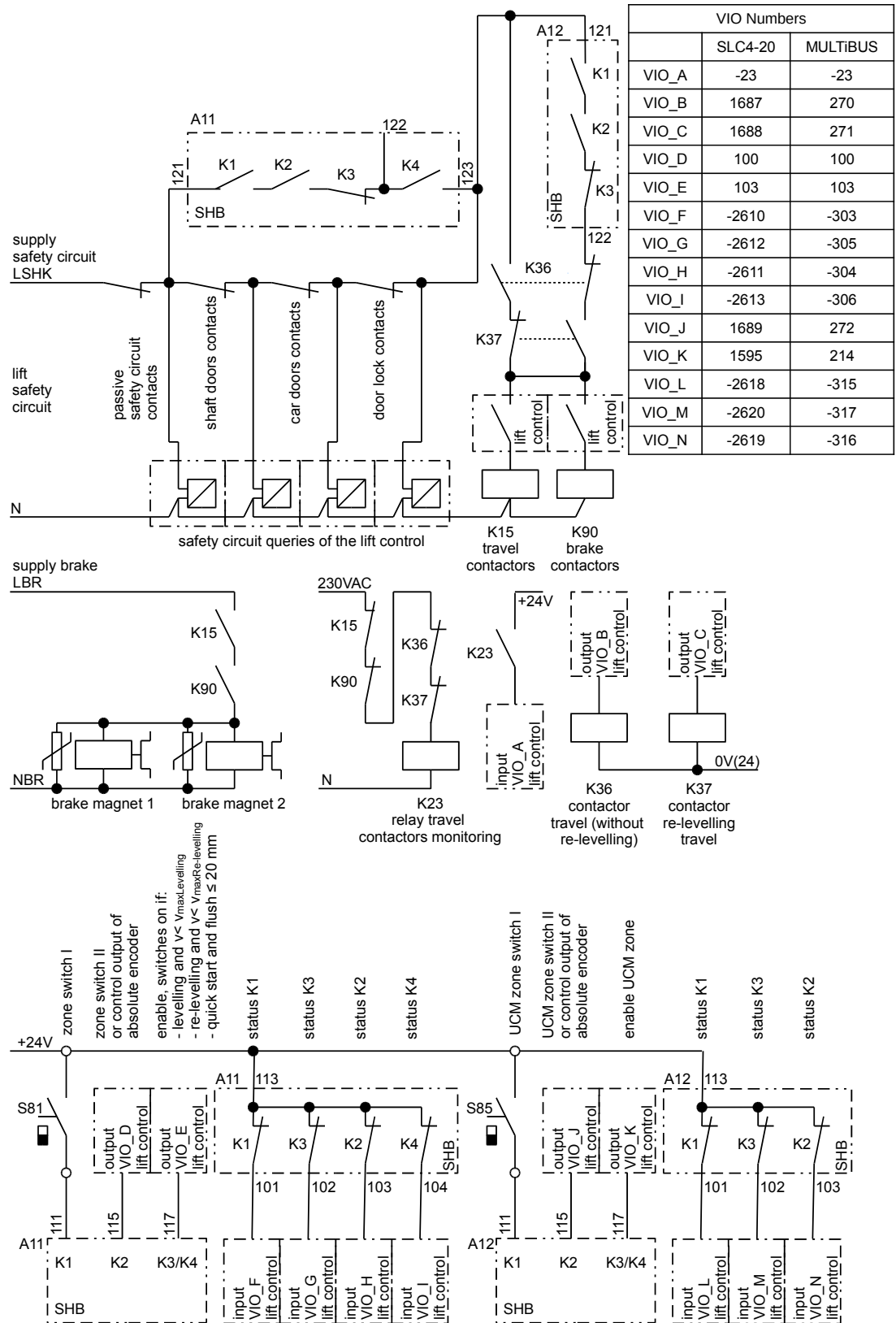
A12 serves only the detection of UCM.

In the case of UCM, the safety circuit opens immediately when leaving the zone by A12 (terminal 121-123) and K15 and K90 are de-energised.

3.10.3 Control values for the calculation of the UCM braking distance

Type	Unit	Value
Zone length	mm	acc. to individual UCM calculation (see also "Calculation of braking distance at UCM" page 22)
Response time of magnetic switch S85	ms	1
Response time of SHB (UCM zone)	ms	10
Response time of the brake contactor K90 (Siemens 3RT with AC coil and varistor)	ms	35

3.10.4 Circuit



3.11 Zone monitoring and UCM detector for hydraulic lift with certified valve

3.11.1 Use

The UCM guard is realised by a UCM certified hydraulic control block or an additional UCM shut-off valve. The execution or the make of these valves are not relevant for UCM detection of the control, so universally applicable.

Conditions of use:

none

3.11.2 Circuit description

Depending on the type of valve, a valve switch monitoring can be added by the lift control.

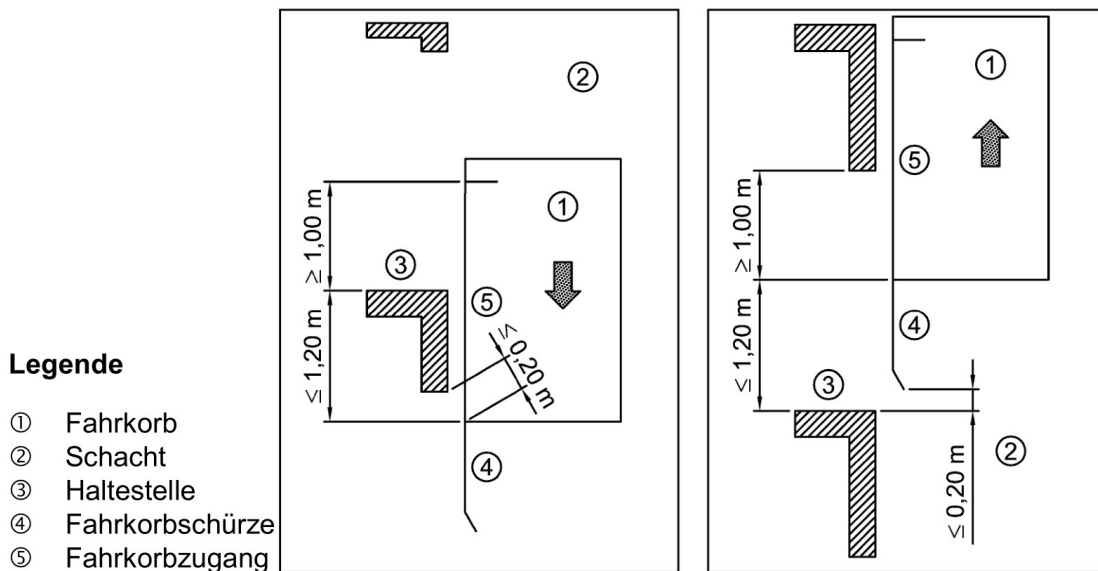
In the case of UCM, the safety circuit opens immediately when leaving the zone by A11 (terminal 121-123) and the UCM valve is de-energised.

3.11.3 Control values for the calculation of the UCM braking distance

<i>Type</i>	<i>Unit</i>	<i>Value</i>
Zone length	mm	acc. to individual UCM calculation (see also "Calculation of braking distance at UCM" page 22) or hydraulics manufacturer's instructions
Response time of magnetic switch S81	ms	1
Response time of SHB (UCM zone)	ms	10

3.12 Calculation of braking distance at UCM

Acc. to EN 81-20:2014, 5.6.7.5 the UCM guard must stop the lift at the latest as shown in the following image. I.e. the stopping distance must be no more than 1200 mm for a door height 2200 mm. However, if the height of the door is only 2000 mm, the stopping distance must be no more than 1000 mm.



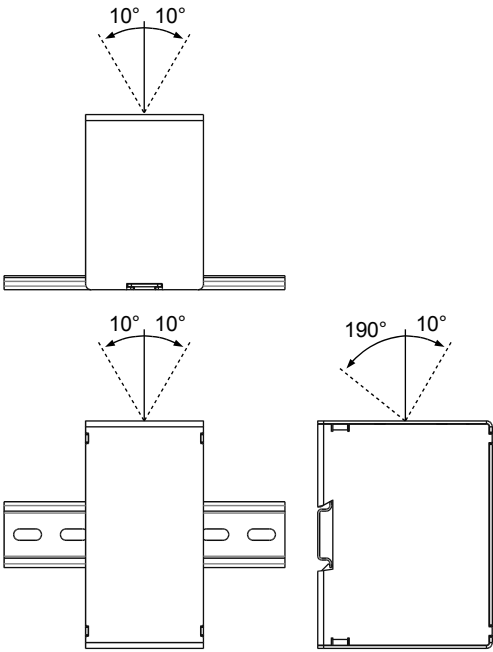
Assumption of the worst case

The worst case UCM case is individual per lift type and design. Some drive manufacturers, lift manufacturers, lift associations etc. have got calculation programs with known parameters such as the number and sizes of the ropes, traction sheave diameter and groove shape, car weight, counter weight and cable bulk, guide rail types, etc. with which a max UCM acceleration and deceleration can be calculated. Especially for lift modernisations, it is difficult to get this data.

In EN 81-50:2020, 5.8.1 is pointed out, that "the maximum attainable speed is on traction sheave lifts at a natural acceleration of 1.5 m/s^2 without the torque of the motor in the order of 2 m/s . This value is based on the speed achieved at the beginning of the deceleration (for example, as a result of a 'natural' acceleration of 1.5 m/s^2 during the response time of the protective device against unintended movement of the car, the circuits and the brake elements), assume, that the detector for the unintended movement becomes effective when the car reaches the edge of the unlocking zone. In case of electrical failure it can be assumed for traction sheave lifts, that acceleration can be achieved by no more than 2.5 m/s^2 due to internal monitoring devices."

On traction sheave lifts, the braking effect of the operating brake is limited by the driving ability. Under unfavourable constellations a delay could be achieved by only about 0.4 m/s^2 which can cause a very long, possibly illegal stopping distance.

4 Technical data

Type	Unit	Value
Height of installation	m	2000 above mean sea level
Mounting position		
Housing protection EN 60529		IP20 (clicked on mounting rail)
Protection against electric shock EN 61140		Protection class I
Pollution degree EN 60664-1		2 (see "Installation and wiring instructions" page 2)
Overvoltage category EN 60664-1		III
Conductor cross-section (stripping length 9 – 10 mm)	mm ²	without end sleeve single/fine wired max. 2,5 end sleeve without plastic flange max. 2,5 end sleeve with plastic flange max. 1,5
Input group I and output group II: Operating voltage	V DC	24 ±20%
Output group II: min. switching voltage / current	V / mA	10 / 10
Current consumption per relay with LED	mA	K1/K2/K3: 32 K4: 22
Output group I: necessary fuse	A	max. 6 (gL/gG)
Output group I: max. switching capacity	V / A	ohmic load: 250 / 6 AC15 (IEC/EN 60947-5-1): 250 / 2
Output group I: max. switching voltage	V	250 AC/DC
Life time of relays	Switch- ing cycles	mechanical: 4 million

Input group I and output group II: air and creepage distances (EN 60664-1)		rated voltage 50V
Output group I: air and creepage distances (EN 60664-1)		rated voltage 250V
Response time on leaving the door unlocking zone acc. to EN 81-20:2014	ms	10
Turn-off response time of the magnetic switch to channel 1 of the SHB, e.g. Schmersal BN65, BN85, BN325, Secatec MKF25, MKF30 (if other switches are used, this needs to be considered)	ms	1
Conditions operating, storage, transport: temperature relative humidity	°C %	-25 bis +65 +5 bis +85, non-condensing
Storage conditions EN 60721-3-1	class	1K4
Transport conditions EN 60721-3-2	class	2K3

5 Inspection instruction zone monitoring

Test of channel 1

1. The lift is flush, channel 1 and 2 are closed
2. Place a bridge between the terminals 112 and 114 (failure simulation of switch to channel 1)
3. Send the lift to the next level
4. There may be no bridging of the safety circuit by the SHB when levelling and the standstill of the lift
5. The control reports SHB error (error number or text depending on the control). The next travel remains locked.
6. Remove the bridge
7. Reset the error by switching off/on the control
8. The next travel runs normally

Test of channel 2

1. The lift is flush, channel 1 and 2 are closed
2. Place a bridge between the terminals 116 and 114 (failure simulation of switch to channel 2)
3. Send the lift to the next level
4. There may be no bridging of the safety circuit by the SHB when levelling and the standstill of the lift
5. The control reports SHB error (error number or text depending on the control). The next travel remains locked.
6. Remove the bridge
7. Reset the error by switching off/on the control
8. The next travel runs normally

Test of UCM function

If the SHB is used for the detection of UCM, the test instructions in the manual of the lift control must be considered.

6 Maintenance and replacement

6.0 Precautions

Be careful!



The module and the printed circuit board contained may be used only in technically perfect condition. Especially disturbances which may affect the safety, are to eliminate immediately. All supplied documents such as manuals and wiring diagrams should be kept at hand constantly in the field of control system. Always keep the documentation up to date. This applies in particular to subsequently changes of the control system. Observe all safety instructions and hazard warnings on the system and keep them in a legible state.

Be careful!



The environmental factors such as temperature, moisture, chemical or mechanical influences, changes during the operation or storage time of the control system, the control system manufacturer must be informed in order to adapt the system to the new realities.

Be careful!



Spare parts must comply with the technical requirements laid down by the manufacturer. This is always guaranteed with original spare parts. Changes to the printed circuit boards, e.g. for use of products from other manufacturers on the board or in the device, can add additional dangers and exclude a liability of the manufacturer for resulting damages.

Be careful!



Individual components or the circuit board may **not** itself be changed. This work must be carried out by the manufacturer STRACK LIFT AUTOMATION.

Replace always the complete module housing!

Printed circuit boards cannot be ordered individually.

6.1 Maintenance intervals

- The correct function of the safety circuit SHB must be controlled within the framework of the recurring inspection of the lift (see "Inspection instruction zone monitoring" page 25). When replacing the control software, we recommend also carry out this inspection.
- At every maintenance the correct positions of the magnets and magnet switches should be checked and a strong pollution removed.

7 Storage

Only store the equipment at the permitted temperature (see chapter 4 "Technical data") and under normal further store conditions for electrical appliances.

At inventories used, check the condition of the equipment. They may have no strong pollution, mechanical damage or deformation.

8 Packing and disposal

The customer assumes the obligation to dispose of the goods after termination of use at his own expense by the legal regulations and releases STRACK LIFT AUTOMATION of the obligations acc. to § 10 para. 2 ElektroG (back obligation of the manufacturer) and the related claims of third parties.

9 EU Declaration of conformity

We hereby declare that the product described below, based on its design and construction as well as the version that we have put into circulation, observing the operating manual included in the delivery, corresponds to the respective protection requirements of the directives specified below. The product complying with this declaration is provided with the CE mark. This declaration becomes invalid should the product be modified without our approval.

Type designation:	MULTiBUS SHB
Year of construction:	2023 / 2024 / 2025 / 2026 / 2027
Short description	Safety circuit for monitoring the door unlocking zone and UCM detection in controls for lifts
Relevant directives:	Lift Directive 2014/33/EU EMC Directive 2014/30/EU
Applied standards:	EN 81-20:2020 EN 81-50:2020
Name of the notified body within the meaning of Lift Directive	TÜV Rheinland Industrie Service GmbH - Zertifizierungsstelle für Aufzüge und deren Sicherheitsbauteile (NB Nr. 0035) Am grauen Stein 51105 Köln
No. of the EU type-examination certificate	01/208/4A/6109.01/22



This explanation is issued by the responsible manufacturer

STRACK LIFT AUTOMATION GmbH

submitted on 11.1.2023

by Dipl.-Ing. Dirk Strack, Managing Director

A handwritten signature in black ink, appearing to be 'DS', is written over a horizontal line.

Note

The products specified above are exclusively intended for the installation in lifts or the assembly with other lift parts. The commissioning or distribution within the European Union is admissible only if the finished product conforms to the relevant harmonised directives of the EU.

10 EU Type-Examination Certificate

EU-Type Examination Certificate



Reg.-Nr./No.: 01/208/4A/6109.01/22

Prüfgegenstand Product tested	Elektrische Sicherheitseinrichtung in Form einer Sicherheitsschaltung Electric safety device in the form of a safety circuit	Zertifikats- inhaber Certificate holder	STRACK LIFT AUTOMATION GmbH Lise-Meitner-Straße 2 42489 Wülfrath Germany
Typbezeichnung Type designation	MULTIBUS SHB		
Prüfgrundlagen Codes and standards	Directive 2014/33/EU EN 81-20:2020, 5.11.2.3, 5.6.7	EN 81-50:2020, 5.8.3.2.4, 5.15	
Bestimmungsgemäße Verwendung Intended application	- Erkennen der unbeabsichtigten Bewegung des Fahrkorbs gem. EN 81-20, 5.6.7.7 - Überbrückung der Tür- und Sperrmittelschalter während des Einfahrens und Nachstellens gemäß EN 81-20, 5.12.1.4 a) - Detection of unintended movement of the lift car acc. to EN 81-20, 5.6.7.7 - Bypassing the door and locking element switches during levelling and re-levelling acc. to EN 81-20, 5.12.1.4 a)		
Besondere Bedingungen Specific requirements	Die Hinweise in der zugehörigen Betriebsanleitung sowie der Anlage zu diesem Zertifikat sind zu beachten. The instructions of the associated Operating Manual as well as the annex to this certificate shall be considered.		

Es wird bestätigt, dass das Produkt mit den Anforderungen der EU-Richtlinie 2014/33/EU über Aufzüge übereinstimmt.

It is confirmed, that the product tested complies with the requirements for lifts defined in the EU-Directive 2014/33/EU.

Gültig bis / Valid until 2027-02-10

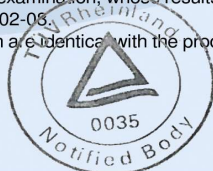
Der Ausstellung dieses Zertifikates liegt eine Prüfung zugrunde, deren Ergebnisse im Bericht Nr. 968/FSP 1304.01/22 vom 08.02.2022 dokumentiert sind.

Dieses Zertifikat ist nur gültig für Erzeugnisse, die mit dem Prüfgegenstand übereinstimmen.

The issue of this certificate is based upon an examination, whose results are documented in

Report No. 968/FSP 1304.01/22 dated 2022-02-08.

This certificate is valid only for products which are identical with the product tested.



Köln, 2022-02-10

Notified Body for Lifts and their Safety Components, NB 0035

Dipl.-Ing. Georg Theisen

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www.tuv.com

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