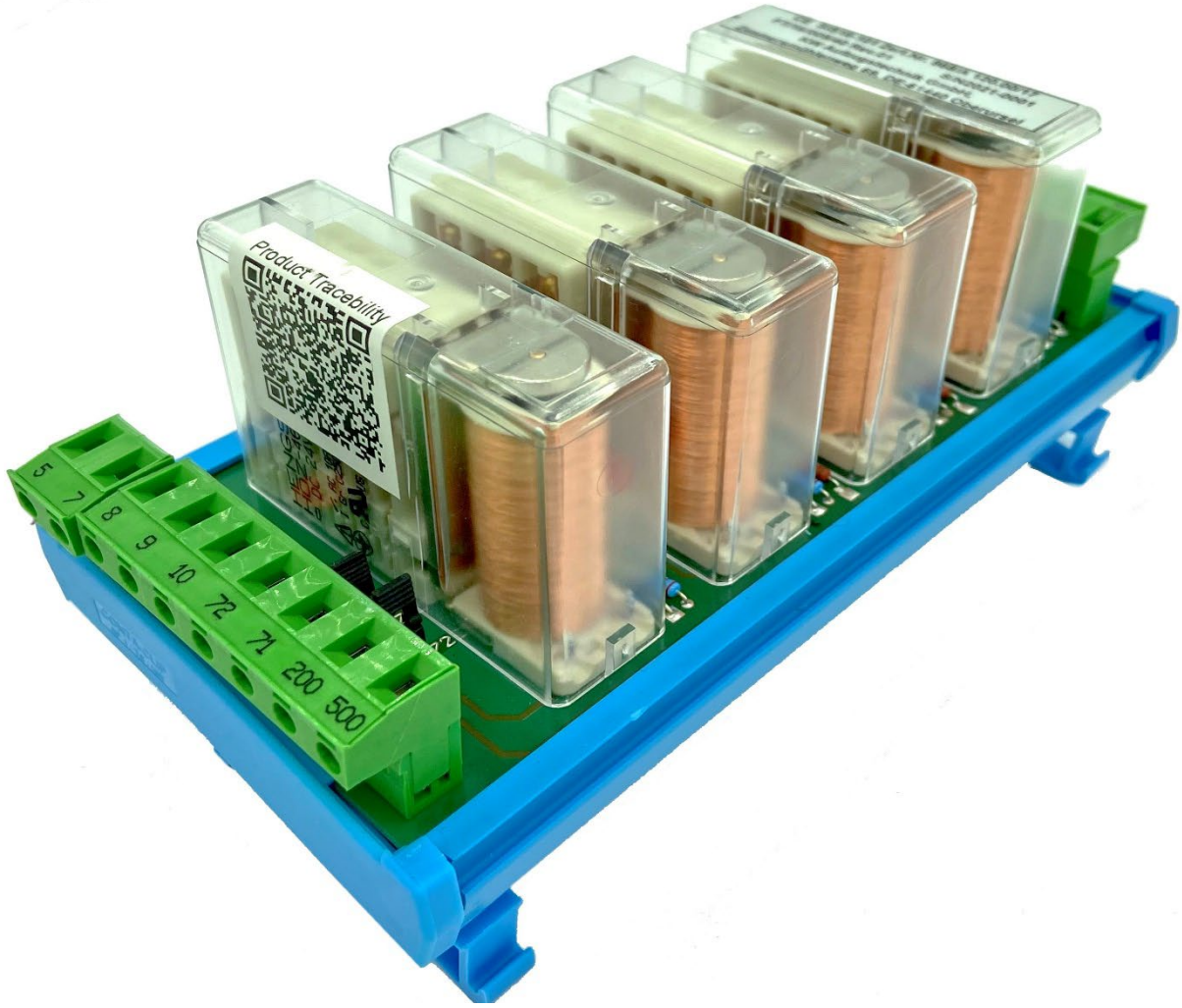
OPERATING INSTRUCTIONS
SECURITY CIRCUIT SIS16-101



Functions
Start-Up Instructions

EN81-20/50
Konform

KW Aufzugstechnik GmbH Security circuit SIS16-101 Version V1.19 English

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Index

1.	**System Description**	3
1.1	Product liability and guarantee	3
1.2	Intended use	3
1.3	Safety references	3
1.4	Technical data and measures	4
1.5	Description of function	5
1.6	Component diagram and list of components	6
1.7	EU-Declaration of Conformity	7
1.8	CONFORMITY EXAMINATION CERTIFICATE TÜV SÜD	8
2.	**Transport / Assembly / Start up**	13
2.1	Transport and storage, assembling instructions	13
2.2	Connection of Component assembly	13
2.3	Connecting the assembly instructions after EN81-20:2014-11	14
2.4	Functional test – Re-levelling with open or pre-operating doors	15
2.5	Functional test – Detect an unintended car movement	16
2.6	Functional test – Mech. Brake-Opening in landing and the car door is not in the closed position EN 81-20/50	17
3.	**Fault Clearance**	19
3.1	Switching status of the Component assembly	19
3.2	Fault clearance	20
4.	**Maintenance / Repair / Disposal Of Component Assembly**	22

1.0 System description

1.1 Product liability and guarantee

All work on this protection circuit may be made only by qualified technical personnel (Electrical specialist or electrotechnically instructed person). Please consider the safety references in this quidance.
This manual is for elevator technicians, which installs and commissions the control as well as at controller constructor, which inserts the controller into the switchgear and makes necessary wiring.
We guarantee for the accuracy of the product in the sense of the product informations published by us and this manual. It does not become warranty, legal responsibility, still any adhesion for economy or error free function for another purpose, than in chapter 1.2 defined granted.

Terms of guarantee

On the function of the equipment in accordance with this manual a warranty is granted by 24 months. A condition for the free repair are the proven attention of the manual with storage, transport, installation, start-up and enterprise. The general trading conditions of the company KW Aufzugstechnik GmbH are valid.

1.2 Intended use

The protection circuit SIS16-101 is intended for the employment in lifts. Other application type are be coordinated with the company KW Aufzugstechnik GmbH. The following legal agreements are to be considered with the installation and enterprise:

- Low-voltage guideline 2006/95/EU
- Guideline 2014/33/EU
- EN81-20:2020 und EN81-50:2020
- EN12015:2005
- EN12016:2009

1.3 Safety references

The manual of the protection circuit SIS16-101 must be freely accessible for the service personnel. It must be ensured that the operating personnel read the manual and in the handing of the safety assembly group is familier.
A condition is the intended enterprise of the protection circuit SIS16-101 according to chapter 1.2.
In the case of ignoring this regulation the danger exists of heavy damages to property and person.
All work on the protection circuit SIS16-101 may be accomplished only by qualified technical personnel.
The following safety regulations are to be considered:

DIN VDE0100, DIN VDE0110, IEC-364, IEC-664 and VBG 4.
Qualified technical personnel in the sence of this operating instructions are persons with
- Assemby
- Start up
- Maintenance
- Attention of the national rules for the prevention of accidents

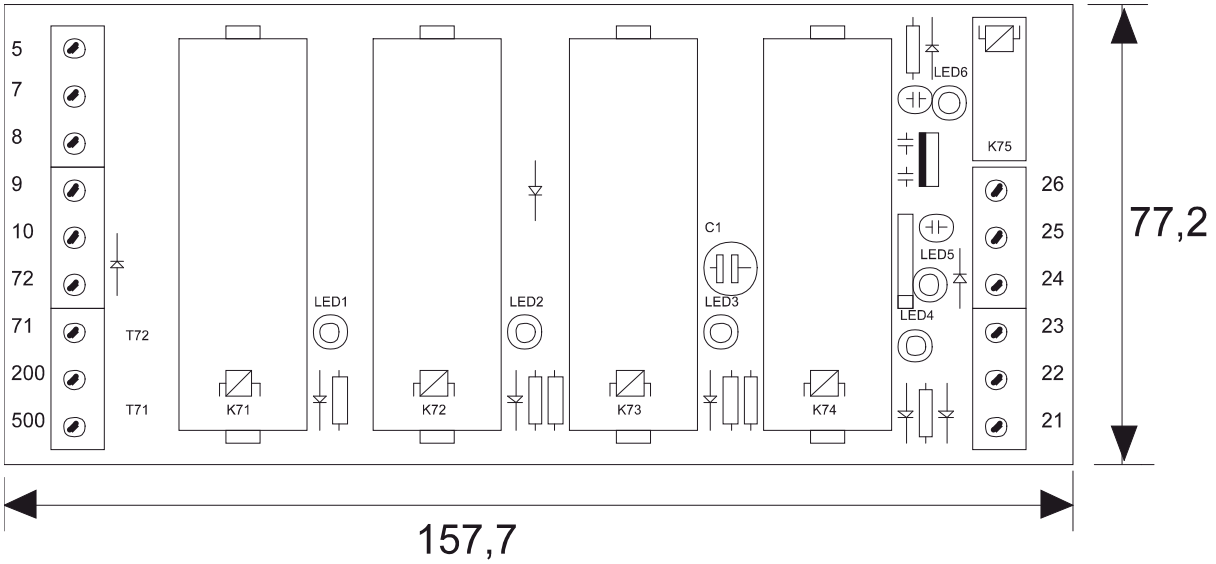
are trusts and can show appropriate vocational qualifications.

Never work under mains voltage – Danger of life!

Before you begin work on the protection circuit SIS16-101, **interrupt voltage supply** by main switches and the appropriate safety devices and secure you against **erroneous restarting**!
Survey the supply lines for **tension free**!
Neighbouring clamps and components, which could be energized must be covered!

1.4 Technical data and measures

The component assembly SIS16-101 is equipped with four safety relay, as well as small relay for the concise announcement. The c-clamps are laterally on the right of and on the left of the component assembly. The SIS16-101 is preparatory for the DIN rail assembly.



Relay- and Indicating elements:	K71= Zone Relays 71 with red LED-Display LED1 K72= Zone Relays 72 with red LED-Display LED2 K73=Controll Relay 73 with red LED-Display LED3 K74=Start Relay Drive/Releveling with red LED-Display LED4 K75=Concise Relay with red LED-Display LED 6 LED Status= Color green, Control display LED 5
Dimensions (with basin):	(L x B x H) 157,7mm x 77,2mm x 65,0mm
Weight:	Approx. 700 Gram
Voltage Supply:	Terminals 5,7 - 250V AC / 4A Terminals 71,72 - +24V DC / 50mA Terminals 200 - +24V DC / 100mA Terminals 24 - +12V bis +24V DC / 250mA source of emergency power Akku Terminals 26 - +12V bis +24V DC / 250mA Concise announcement
Switching Cycles:	Ca. 1.000.000 Switching cycles
Protective Class	IP 43
Ambient temperature:	0ºC to +65 °C
Reaction time from departure of the zone to switch off maincontactor	Worst-Case: 0,021 Seconds

1.5 Description of function

According to the legal defaults bringing and in releveling (during more opened shaft- and driving basket door and the resulting bypass of the door and magnetic circuit) must be supervised by two independent switching elements.

An independent switching element, also referred to as a zone switch, may be a magnetic switch, a Hall switch, a fork light barrier, an inductive switch, a capacitive switch, a roller switch, a switch which can detect a zone in the prior art. In the same way, a zone can be output via an absolute position measuring system in cooperation with the control computers. In conjunction with one of the above-described switching elements (S71 via discrete switching element, S72 via absolute value encoder & control computer output), this results in a higher level of safety than the use of similar switches (avoidance of system errors). In order to ensure perfect speech control we are talking about zone sensors (devices) that generate a zone signal!

In addition, this assembly is designed to protect against accidental movement of the car according to EN 81-20: 2014-11.The demanded of each other independent zone switch S71 and S72 are supervised in the security circuit SIS16-101 with the help of the relays K71, K72 and K73 on error free function. The monitoring circuit of the protection circuit SIS16-101 which is active between the terminals 200 and 22 controls the perfect switching status of the relays K71, K72 and K73. With antivalence(that's mean with different switching attitude of the relays K71 and K72) the current flow is interrupted to clamp 22 and the green LED5 of the status indication expires(following EN 81-20: 2014-11). With a hydraulic elevator an emergency sinking is accomplished and prevented then each further trip. With a rope elevator the next trip can be prevented immediately. The bypass door and bolts of the magnetic circuit between the clamps 5 and 7 is closed only in the zone range with running in and releveling. With opened doors within the zone range the contacts of the safety circuit affect directly the driving contactors, so that with running in an releveling immediately the elevator is switching off during the interruption. Via evaluation zone switch of the S71 can take place when ist activation via the zone magnet an external control of a concise announcement(over the relay K75 galvanic seperation). But only if the car is in the concise range of the floor. On the protection circuit is in addition the red LED 6 which indicates the switching status of the concise relay to K75.

For the protection of unintended car movement away from the landing with the landing door not in the locked position and the car door not in the closed position according to the new standard EN 81-20: 2014-11.

is done by the security circuit SIS16-101. The security circuit SIS16-101 causes the interruption of the safety circuit and thus acts directly on the drive contactors.

The monitoring is done by independent input channels of brake control elements monitoring of the control unit, or the regulation unit.

For hydraulic lifts according to the new standard EN 81-20: 2014-11 with one-way lock valve, like ALGI S5, BLAIN L10 and BUCHER LRV (DSV) A3, there is no monitoring of brake control elements necessary, because, the one-way lock valve is not operating normally used to control speed or delay.

The DSV-A3 is a one-way lock valve that can be held open electrically. The power circuit is designed in such a way that the valve is open when the power is on, and closed (locked) when the power is off – closing the valve automatically brakes and then stops downward movement of the cabin. For hydraulic lifts according to the new standard EN 81-20: 2014-11with A3 Certification like Valves with integrated, self-monitored redundancy, e.g. BUCHER iValve or GMV Oildynamic NGV-A3.

The Bucher Hydraulics iValve and the GMV Oildynamic NGV-A3 are equipped with a redundant locking device for the down ride to fulfil the requirements of EN 81-20: 2014-11. If the cabin moves away from the landing with the door open, the A3 solenoid of the iValve shuts off to brake and stop the cabin.

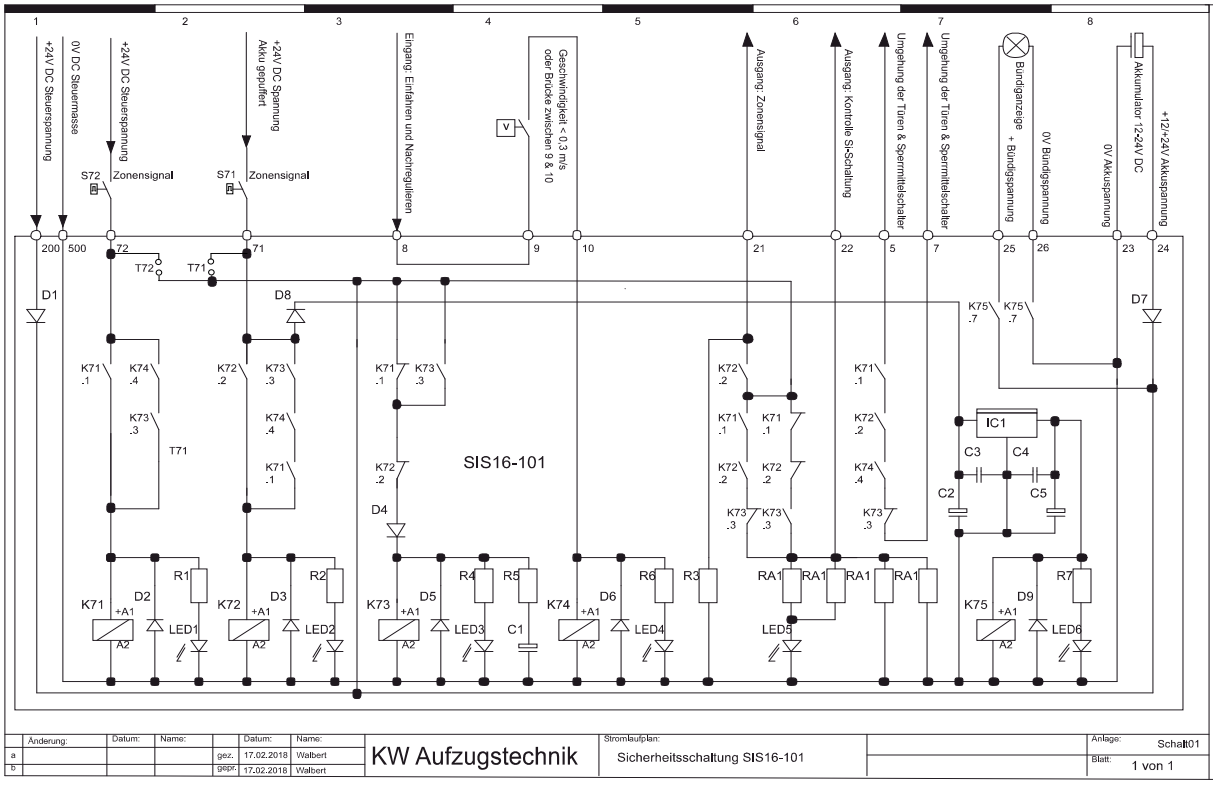
This function of the iValve (i.e. the closing of the 2 redundant locking devices for the down ride) is monitored electronically.

At hydraulic lifts of the company ALGI and the types AZRS and AZFR , according to the new standard EN 81-20: 2014-11, the Down Travel is initiatet with two series-connected hydraulic valves, which have a monitoring of the open and closed position. The monitoring is done by independent input channels of brake control elements monitoring of the control unit, or the regulation unit.

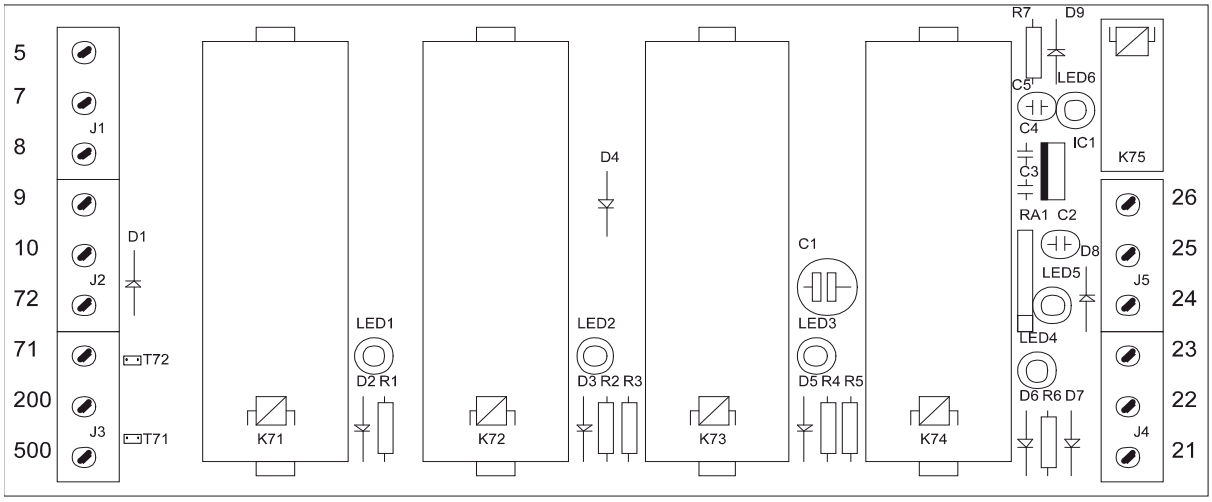
The detection zone for leaving the area with an open door, which is caused disruption of the safety circuit and thus acts directly on the drive contactors, again through the security circuit SIS16-101.

With traction elevator systems to EN 81-20: 2014-11 with certified braking devices to the new standard EN 81-20: 2014-11, like e.g. the types MAYER, Warner, ..., as a operating brake on the drives of the companies Wittur-SAD, Thyssenkrupp-Liftequipe, Ziehl-Abegg, Tornado, Sassi,..., or with A3 Certification brake control unit on the driving wheel, like the types of MAYER, Warner, ..., on the drives of Thyssenkrupp-Liftequipe-NBS, Sassi,...., the monitoring is done by independent input channels of brake control elements monitoring of the control unit, or the regulation unit.

The detection zone for leaving the area with an open door, which is caused disruption of the safety circuit and thus acts directly on the drive contactors, again through the security circuit SIS16-101.



1.6 Component diagram and list of components



POS.	Designation	Description
1	C1	Elko 100uF / 63V
2	C2, C5	Elko 2,2uF / 63V
3	C3, C4	Condenser ceramic 100nF
4	D1, D2, D3, D4, D5, D6, D7, D8	Diode 1N 4007
5	IC1	Fixed Voltage controller uA 7805
6	J1, J2, J3, J4, F5	C-clamp GMKDS3/3-762
7	K71, K72, K73, K74	Safety Relay OA 5602.54/2083
8	K75	Small Relay 30.22.7-5V
9	LED1, LED2, LED3, LED4, LED6	LED, 3mm, Color red
10	LED5	LED, 3mm, Color green
11	R1, R2, R4, R6, R7	Resistor 2,7 K ¼W
12	R3	Resistor 1,2K 1W and/or 1,2K 2W
13	R5	Resistor 330R 1W and/or 330K 2W
14	RA1	Resistor array SIL 8-4 4,7K
15	T71	DIL Contact strip R2.54
16	T72	DIL Contact strip R2.54

1.7 EG-Declaration of Conformity

EU DECLARATION OF CONFORMITY

FOR SAFETY COMPONENTS FOR LIFTS

Manufacturer:	KW Aufzugstechnik GmbH Zimmersmühlenweg 69 61440 Oberursel
Authorized Person:	Dipl.-Ing. (TU) Hans-Werner Walbert - CEO
Type:	Security circuit SIS16-101
Description safety:	Bypass of the Door- and bolt magnet. Detection of unintended car movement away from the landing with the landing door not in the locked position and the car door not in the closed position, as a part of protection of unintended car movement**.**
Year of manufactoring:	2026
Application scope:	Lifts Directive 2014/33/EU
Standard(s) unsed :	**DIN EN 81-20: 2020** **DIN EN 81-50: 2020** Safety rules fort he construction and installation of lifts.
Notified body for the EU type examtionation (Annex V.A)	TÜV SÜD Industrie Service GmbH Westendstr. 199 80686 Munich - Germany Identification No. 0036
EU type examination certificate no.:	CA 904
Notified body for the random checks (Annex XI)	TÜV SÜD Industrie Service GmbH Westendstr. 199 80686 Munich - Germany Identification No. 0036

Hereby we explain the component assembly SIS16-101 due to conceiving and construction mentioned above which to general protection requirements corresponds to the EEC elevator guideline 2014/33/EU. The manual is attached to the devices. The safety references are to be exactly read before employment of the equipment. Through with us this explanation their validity loses not coordinated changes.

Oberursel, den 07.04.2016

Hans-Werner Walbert
Geschäftsführer

1.8 CONFORMITY EXAMINATION CERTIFICATE TÜV SÜD

ZERTIFIKAT ◆ 认证证书 ◆ CERTIFICATE ◆ 認証書 ◆ CERTIFICATO ◆ 인증서 ◆ CERTIFICADO

EU-TYPE EXAMINATION CERTIFICATE

according to Annex IV of Directive 2014/33/EU

Certificate No.:	EU-ESD 069
Notified Body:	TÜV SÜD Industrie Service GmbH Westendstr. 199 80686 München - Germany Identification No. 0036
Certificate Holder:	KW Aufzugstechnik GmbH Zimmersmühlenweg 69 61440 Oberursel - Germany
Manufacturer of the Test Sample: (Manufacturer of Serial Production - see Enclosure)	KW Aufzugstechnik GmbH Zimmersmühlenweg 69 61440 Oberursel - Germany
Product:	Safety circuit with electronic components
Type:	SIS16-101
Directive:	2014/33/EU
Reference Standards:	EN 81-20:2020 EN 81-50:2020
Test Report:	EU-ESD 069 dated 2026-05-15
Outcome:	The product conforms to the essential health and safety requirements of the mentioned Directive if the requirements of the annex to this certificate are kept.
Date of Issue:	2026-06-04

DAkkS Deutsche Akkreditierungsstelle D-ZE-14153-03-00

Achim Janocha
Notified Body LCC

TÜV SÜD Industrie Service GmbH 00 36 Notified Body

TÜV®

Annex to the EU-Type Examination Certificate
No. EU-ESD 069 of 2026-06-04

1 Scope of application

The electric safety device in the form of a safety circuit as part of the processor system is used in passenger and goods passenger lifts. It is used for monitoring during levelling, re-levelling and preliminary operations according to EN 81-20, section 5.12.1.4 a).

The electric safety device according to EN81-20, section 5.11.2.3 is to be used instead of positively opening safety switches for bypassing of the door and the locking element.

It also serves to detect when the car leaves the unlocking zone while the car door is open. If the car moves beyond the unlocking zone, it is capable of opening a chain of contact elements.

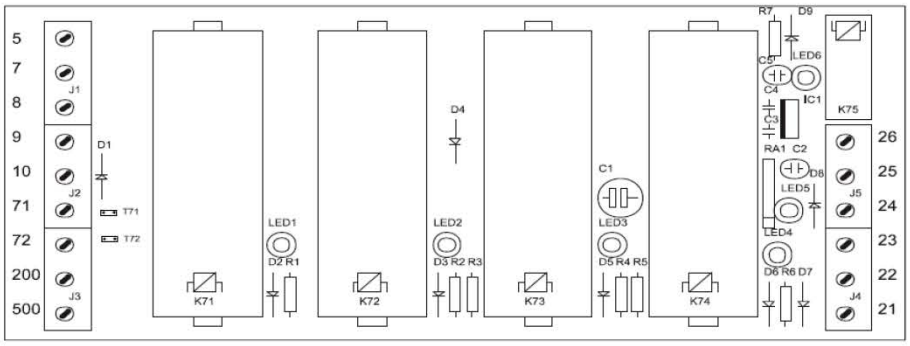


Figure 1: Structure of the safety circuit SIS16-101

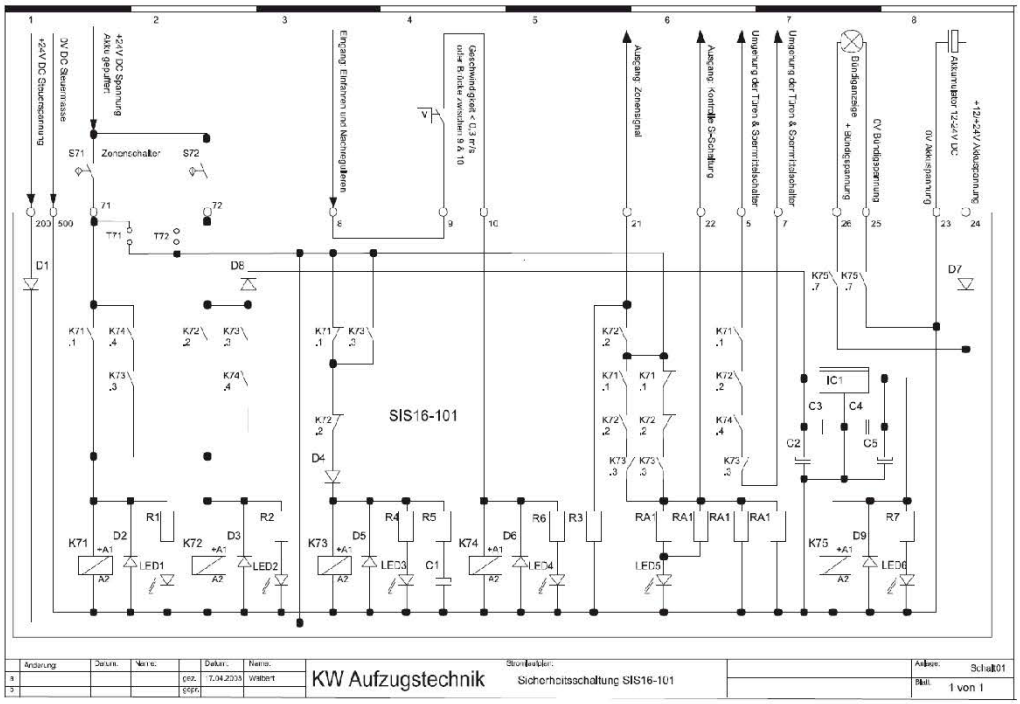


Figure 2: Circuit diagram of the safety circuit SIS16-101

Annex to the EU-Type Examination Certificate
No. EU-ESD 069 of 2026-06-04

1.1 Technical Data

Input voltage:	24V DC / 0,1A
Input Impedance:	> 510 Ω
Output voltage:	0 – 250 V AC
Output current:	< 4 A
Operating temperature:	0 to +65°C
Pollution degree:	3
Material group:	III
Delay time:	21 ms

The delay time is defined as the time interval between a signal change at the input (terminals 71, 72) and the corresponding signal change at the output (terminals 5, 7).

Protection degree:	IP 43 (to be ensured by housing/enclosure)

2 Conditions

2.1 The component SIS16-101 represents only one part (detector) of the protection device against unintended movement of the car with the doors open. Only in combination with additional components, which have also been subjected to an EU-type examination, is the overall system suitable for fulfilling the requirements for a protection device in accordance with EN 81-20, 5.6.7. The suitability of the complete protection device requires a separate assessment.

2.2 The installation company must prepare a test instruction and, if necessary, provide suitable auxiliary equipment to ensure safe testing (e.g. with the doors closed).

2.3 The installation of the signal generators must take place within the unlocking zone.

2.4 The correct operation must be checked periodically.

2.5 On the installation an EMC-compatible wiring must be considered.

2.6 The wiring of the sensors (e.g. zone signals) as well as the output circuit shall fulfil the requirements for short-circuit proof.

2.7 By the selection of an appropriate installation place, it must be ensured that environmental influences like water, conductive dust and condensation don't have a negative impact on the safety-related operation of the component.

2.8 The specifications in the operating instructions for installation, commissioning, operation and operation of the modules must be observed.

2.9 In line with the initial operation and the periodic checks of the lift the following checks must be performed:

- Check of the correct installation,
- Check of the hardware version,
- Check of the safety function of the safety circuit according to the operating manual – chapter 2.4 "Funktionsprüfung – Einfahrt mit offener Tür / Nachregulierung"

Annex to the EU-Type Examination Certificate
No. EU-ESD 069 of 2026-06-04

3 Remarks

3.1 This Conformity examination has been issued in accordance with or on basis of the following standards:

- EN 81-20:2020, 5.6.7 and 5.11.2.3
- EN 81-50:2020, 5.6, 5.8 and 5.15

A revision of this conformity examination is inevitable in case of changes or additions of the above-mentioned standards or of changes of state of the art.

3.2 On the installation, the national regulations and the EN 81-20:2020 are to be considered.

3.3 The test results refer only to the monitoring circuits the associated Conformity examination.

2.0 Transport / Assembly / Start up

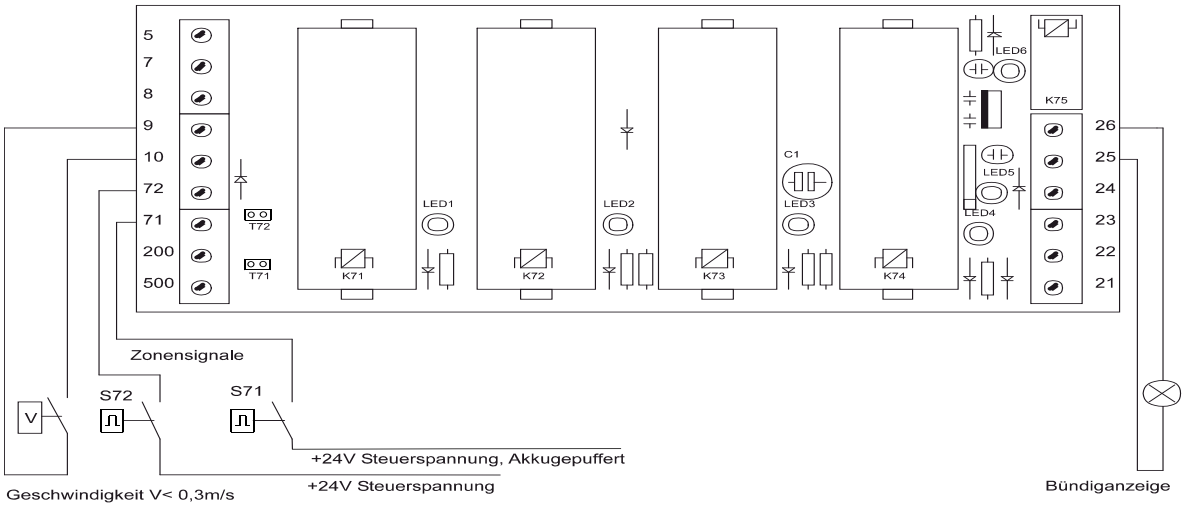
2.1 Transport and storage, assembling instructions

The protection circuit SIS16-101 is to be protected before inadmissible demand in the case of transport and handling. The contact of electronic elements and contacts is to be avoided.
Electrical components may not be damaged or destroyed mechanically. Clamping procedures at the strips may be accomplished only with tension-free equipment.
All leading connections lead also after switching off still tension until the codensers unloaded themselves (approx. 5 min). Lager dusty condition, penetration of water , high concentration of chemically active pollutants, danger of fungus growth or penetration of parasits endanger safe enterprise of the complete system. Therefore the protection circuit SIS16-101 must be built into a switchgear cabinet. The ambient temperature must be in a range between 0ºC and + 45ºC.

2.2 Connection of Component assembly

Never work under mains voltage – Danger of life!

Before you begin work on the protection circuit SIS16-101, **interrupt voltage supply** by main switches and the appropriate safety devices and secure you against **erroneous restarting**! Survey the supply lines for **tension free**! Neighbouring clamps and components, which could be energized must be covered!

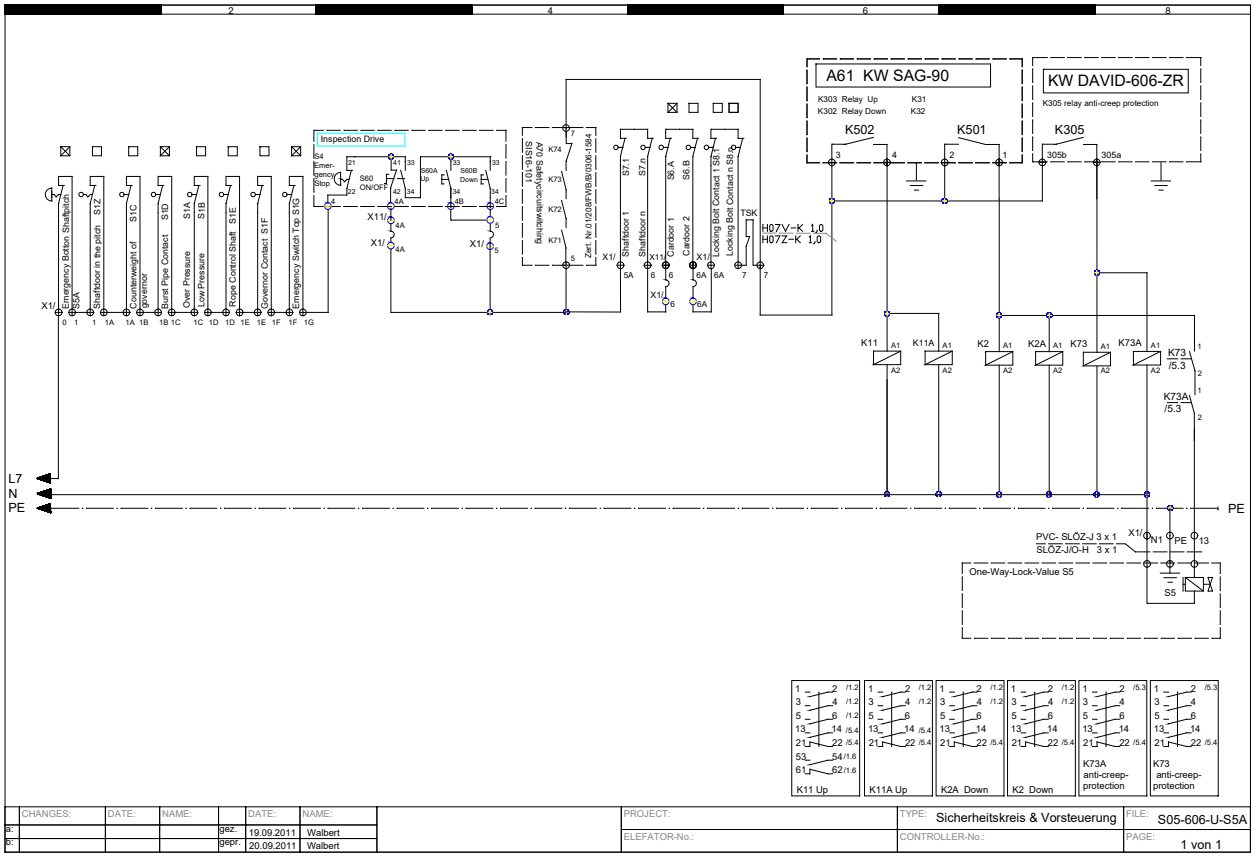


Terminal	Function	
5 and 7	- Evasion door and check central switch	An independent switching element for the zone, also known as a zone switch, can be a magnetic switch, a Hall switch, a fork light barrier, an inductive switch, a capacitive switch, a roller switch ..., a "sensor" that detects a zone according to the state of the art may be. A zone can also be output via an absolute position measuring system in cooperation with the control computer. In interaction with one of the switching elements described above (S71 via discrete switching element, S72 via absolute encoder & control computer output), this results in a higher level of security than the use of switches of the same type (avoidance of system errors). **In order to guarantee a perfect speech regulation we are talking about zone sensors (devices) which generate a zoom signal!**
8	- Entrance running-in and releveling	
9 and 10	- Stud or contact V< 0.3m/s	
71	- Zone switchers S71	
72	- Zone switchers S72	
200	- Connection +24V DC Control voltage	
500	- Connection 0V DC GND	
21	- Output +24V DC Zones signal	
22	- Control exit +24V DC	
23	- Negative pole of the source of emergency power	
24	-Positive pole of the source of emergency power +12V to +24V DC	
25	- Positivel concise announcement	
26	- Negativel concise announcement	

Together with the operating instructions SIS16-101-V115-D from March 25, 2018, the input terminals S71 and S72 were changed for one another. If a SIS16-101 is used as a spare part, pay attention to the terminal designation of the original SIS16-101 that is to be replaced and, if necessary, adapt the wiring!
For the safe function of the SIS16-101, the zone sensors S71 and S72 must be fed from the same voltage source, i.e. both have the same ground reference to terminal 500 - 0V DC control ground.

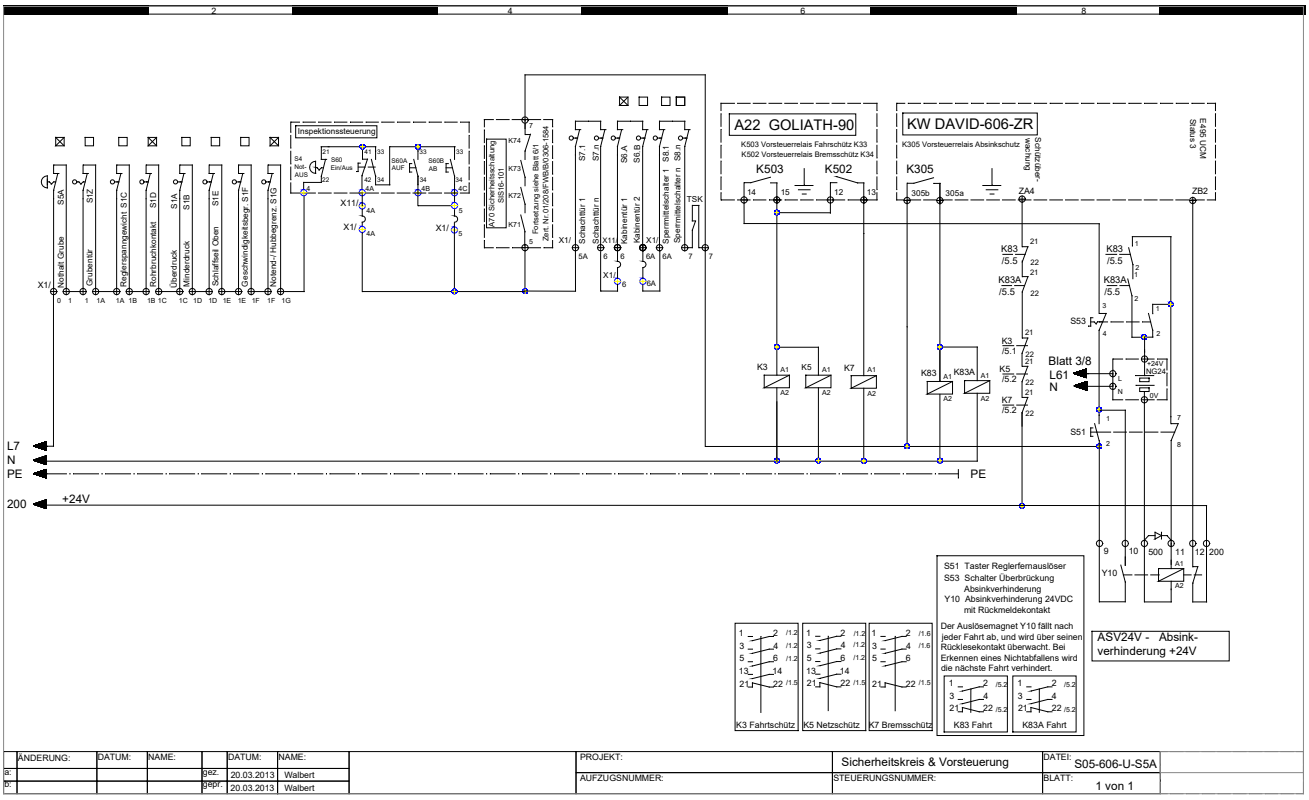
2.3 Connecting the assembly instructions after EN81-20:2020-06

Principle is to prevent external voltages to prevent a drop in the up-and down-contactors and the braking element, despite safety circuit interruption.
An example is shown in the drawing below, the safety circuit of a hydraulic elevator system with control of up-and down-contactors, as well as controlling a one-way lock valve.

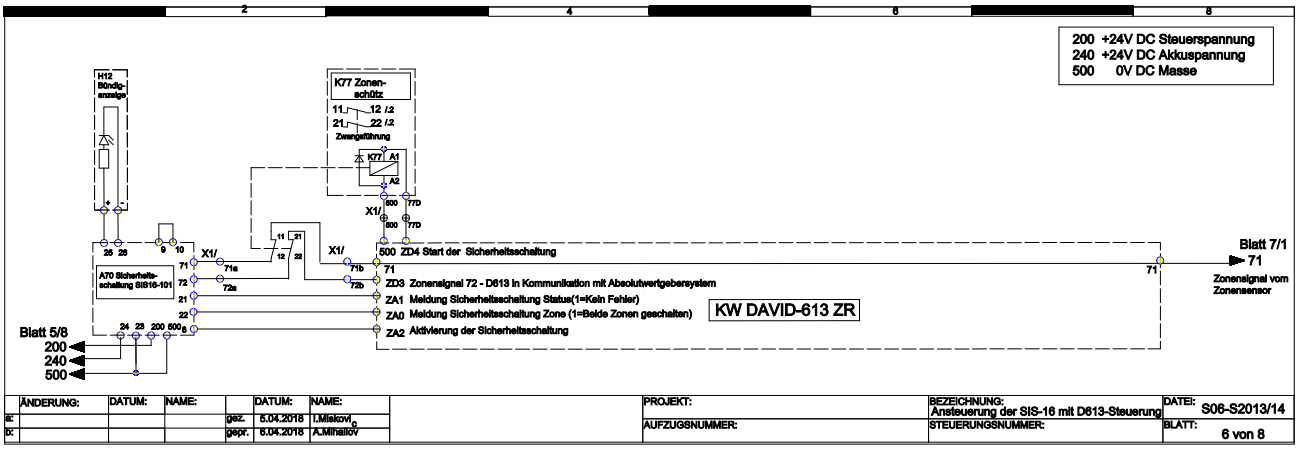


As mentioned above, the one-way lock valve from the safety circuit is powered. When the safety circuit is interrupted, the one-way lock valve closes immediately.
The wiring inside the cabinet is done with H07V-K, or K-H07Z white with 1mm² cable wiring in color according to company standard KW Aufzugstechnik GmbH.
Cables are routed in cable-conduits.
The terminal connections on the control unit A61 SAG-90 and the control unit ZR-DAVID D606 is observed exactly.
The output terminals 4 on the contactors K11 / K11A, or the output terminals 1 for the down-contactor from K2 / K2A, or the output terminals 305a limits for anti-creep protection contactors K73 / K73A from 3 sides at ground potential, due to trace routing, or down to ground metal housing.
External voltage > = 230 lead directly to a metal housing parts to trigger the circuit breakers for safety.
According to the switching contacts of the contactors wiring leads to the terminals of the one-way lock valve.
When connecting PVC pipe SLÖZ-J 3 x 1mm² or SLÖZ-J/OH 3 x 1mm² is used. The valve must be grounded on the PE wire.

Similarly, the design for a rope-frequency-controlled system with a creep protection at the speed limiter. As soon as the safety circuit is interrupted, the contactors K83 and K83A drop out, as a result of which the solenoid of the fall-prevention device becomes current-free and drops. The contactors K83 and K83A are integrated in the chain of contactor monitoring.



Wiring of the SIS16-101 safety circuit for DAVID-613 processor controllers is the same for cable and hydraulic controls. The example circuit diagram below should be noted:



2.4 Functional test – Bypass of the Door- and bolt magnet

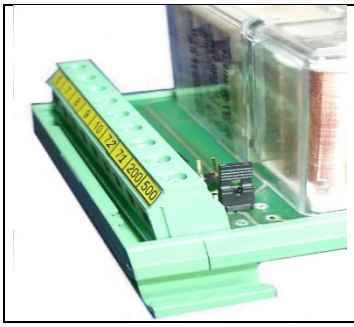


Illustration:

Security circuit SIS16-101 with the two contacts strips T71 and T72, and one Jumper.
Here you can set a Jumper for permanently activation of the safety-relais for the zone 71 or zone S72 in order to simulate a no opening contact set of a zone-switch.

Definition
An independent switching element for the zone, also referred to as a zone switch, may be a magnetic switch, a Hall switch, a forked light barrier, an inductive switch, a capacitive switch, a roller switch, a "sensor" which according to the prior art can detect a zone , Likewise, a zone can be output via an absolute position measuring system in cooperation with the control computers. In conjunction with one of the switching elements described above (S71 via discrete switching element, S72 via absolute value encoder & control computer output), this results in a higher level of safety. In order to guarantee a perfect speech regulation we talk about zone sensors (devices), which generate a zone signal!

General
The zone switches S71 and S72 are installed after the defaults in the solenoid plan and the switching contacts are closed, i. E. the car is within the zone range.

Experation
Give a call to any floor and keep you closed with the start of the car the zone switch to S71. In addition you push a Jumper over the upper Dil-contact strip T71 with the clamp 71.
At the entry into the finish level now no bypass of the door contacts and the check central switch take place. The green LED „status“ does not shine any longer and the next trip remains closed.

Procedure for systems with external Servicepaneel
Give you a call in any floor and hold it at the start of the car closed the zone switch S71. This is the terminal to 71 to 200 bridges.
At the entrance to the destination floor now takes no bridging de door contacts and the locking means switch instead. In the HPG, the error message “F92 – safety ciruit”.

Properties
With elevators with hydraulic drive and adjusted sinking trip an error of the protection circuit 16-101 leads not to an immediate blockage during the next trip, but only after the emergency sinking and reaching the sinking level. With rope elevator plants the reaction is adjustable in the menu production circuit.

Unblocking
Ater you removed the Jumper over the Dil contact strip T71 you must switching off and on the controller. The accumulator buffering must be interrupted however likewise at short notice(to take off emergency powe akkus).

Repetition
The same procedure must be repeated now for the zone switch S72. Therefore the Dil contact strip T72 is to you at the disposal. The further operational sequence the reaction as well as the unblocking is an equivalent procedure.

Attention!

Remote the put Jumper in any case after the functional test!

Functional test – Detection of an unintended car movement EN 81-20:2014-11

To initiate the journey from the zone, note the following:

1.) Stopping the elevator car flush with the bottom landing (top stop) .
2.) Turning the Return Motion Drive -> Close the doors.
3.) Function “UCM-zone drive” in the TÜV Menue-C416 activate
4.) Return Motion Drive UP (DOWN), until the security circuit SIS16-101 interrupt.
5.) Open the shaft door and measure the stopping distance.
6.) Close the shaft door
7.) In the **C0 RESET menu** error „F60 A3-case“ reset
8.) Cabin with Return Motion Drive downwards (top down) drive.
9.) Return Motion Drive off -> door opens -> normal operation
10.) Repeated process for the top stop on your way down zone -> () note entries!

General

According to the new standard **EN 81-20: 2014-11** “protection of unintended car movement away from the landing with the landing door not in the locked position and the car door not in the closed position” the car must leave the door zone and must come to a halt within the legal stopping distance.
As a worst-case scenario here, the “Motor-driven exit” door opener in the zone with acceleration values of the normal operation is considered.

Basically, the simulation of the process never done with an open door!

To facilitate this, a separation in the control terminal,is availabel a Relay “K69”, the safety circuit of the door lock of SIS16-101 / feedforward separates drive contactors in the simulation case. In order to allow the elevator to the start of the journey, is a software function in TüV menu of the control computer of the series D606, D912 and D2005 activates the security circuit for a drive, so that the drive and braking elements contactors are energized until they leave the zone. After leaving the zone, the drive is disconnected and so the car comes to a stop. You can now open the landing door with the emergency release and determine the stopping distance, based on the hatch door to the cabin doorway clamp.

Experation

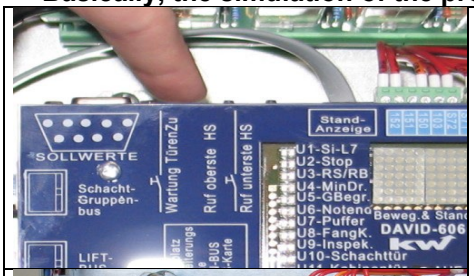
The elevator car is parked in the lowest landing floor and turned on the Return Motion Drive. This will be the landing and car door closed and a Call input over indoor and outdoor control is suppressed.
Please listen in with the local intercom in the cabin, if there are people in it. You can take the handheld terminal HPG-60 in the control computer to the TÜV menu 416th UCM-zone drive. The UCM-zone drive is set to ON. Now you can start with the Return Motion Drive Switch UP holt the drive, which ends when you leave the zone. Automatically increase the speed to rated speed and the acceleration was increased to 100% (in conjunction with GOLIATH inverter).
The stopping distance is displayed in mm on the display. The system is locked with the error “F60 A3-case”. Optionally, you can open the Landing door chess with the emergency release and measure the stopping distance (Chess doorway to the cabin door threshold).
After re-closing the landing door and turning off the safety circuit fuse F7. Before switching on the safety fuse F7 in the circuit, **C0 RESET menu** must be reset the A3 error then you can drive with the Return Motion Drive Switch DOWN, the elevator car in the lowest station.

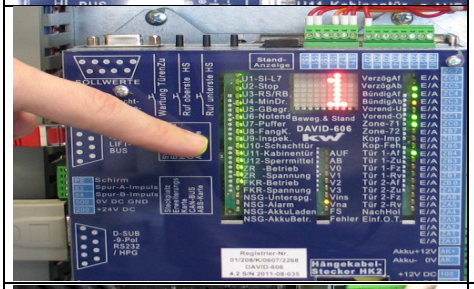
Repetition

The same process must now be repeated for the top stop. Therefore, the elevator car at the top station is placed flush with the zone and performs way down.

2.6 Functional test – Mech. Brake-Opening in landing and the car door is not in the closed position EN 81-20: 2014-11

According to the new standard EN 81-1:1998 + A3: 2009 resp. EN 81-2:1998 + A3: 2009 “protection of unintended car movement away from the landing with the landing door not in the locked position and the car door not in the closed position” the car must leave the door zone and must come to a halt within the legal stopping distance. **Basically, the simulation of the process never done with an open door!**





1.) Stopping the elevator car aligned in a middle floor.

2.) Listening-with the phone, if there are people in the elevator car.

3.) If there any persons, then push the service-button on the upper left of the central unit D606/ D613/ D2005 to close the doors.

4.) All the doors are closed, when all the LED lights are green of the Safety-Circuit-Positions U1 to U12!

5.) Switch off the landing control via the switch S36 in the service panel in right position.

6.) Please switch off the fuse F7 of Safety-Circuit.

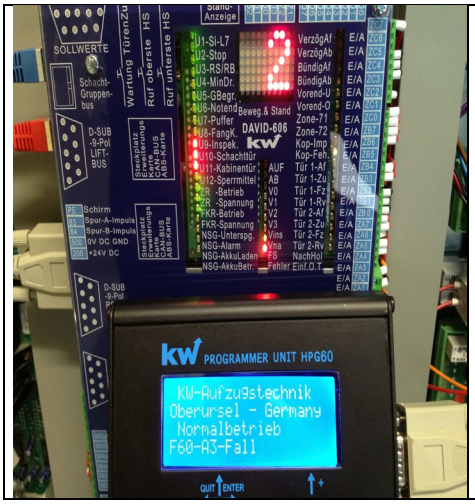
7.) Please put away the wire X1/6 Number 6.

8.) Please isolate the wire!

9.) Please switch on the fuse F7 of Safety-Circuit.

10.) Now the LEDs are red for the Safety-Circuit-Positions of the doors, but in reality are the doors closed!

11.) Mechanical press brake lever until the safety circuit SIS16-101 interrupts the journey when leaving the zone, or at a safety device with anti-creep until the catch engages.



12.) The Communicator HPG-60 shows the error F60 A3 case. The elevator system is locked!
13.) Please open the shaft door and possibly measure the stopping distance. Then close shaft door again.
14.) Please switch off the fuse F7 of Safety-Circuit.

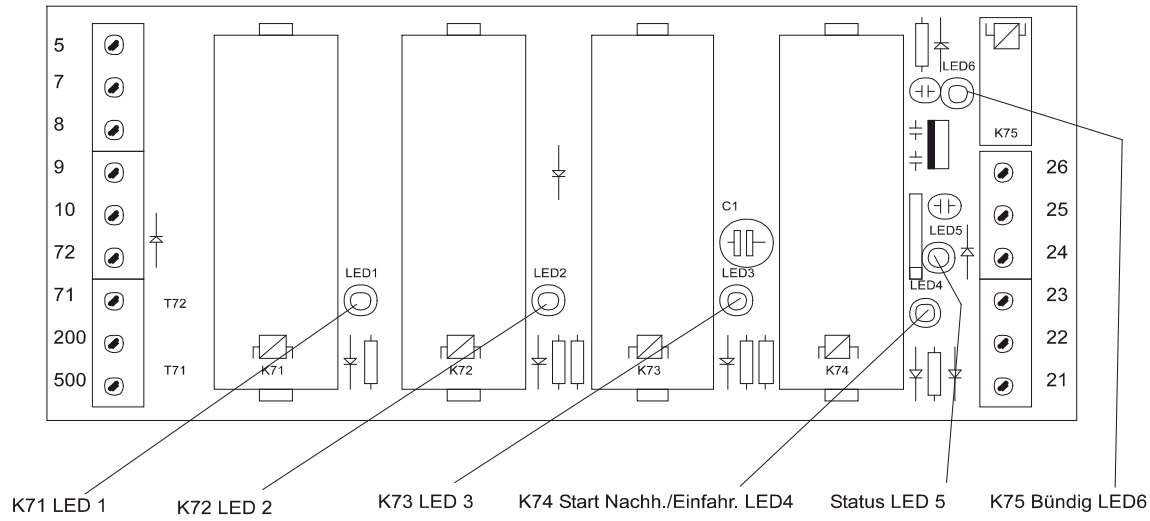
15.) Please put in the wire X1/6 with the designations 6.

16.) Please switch on the fuse F7 of Safety-Circuit.

17.) Reset the error "F60 A3-case" in the C0-RESET menu.
18.) Switch on the landing control via the switch S36 in the service panel in right position.

3.0 Fault clearance

3.1 Switching status of the Component assembly SIS16-101



The following table shows the possible switching status of the relays K71, relays K72 and relay K73 by the assigned LEDs. The „0“ means that the relay is not active and from there the LED does not shine. Turned around „1“ means an active relay and a shining LED.

K71	K72	K73	Condition	Door and check central switch bridge
0	0	0	Error	-
0	0	1	Outside of the zone range	-
0	1	0	Error	-
0	1	1	Error	-
1	0	0	Error	-
1	0	1	Error	
1	1	0	Car door in zone range	Yes
1	1	1	Error	-

Risk analysis

Construction	Error response	Consequence
Relay K71	Relay stay energized	K73 cannot energize, thus K72 cannot energize; The door bypass circle between clamp 5 and 7 can be never closed -> safe condition!

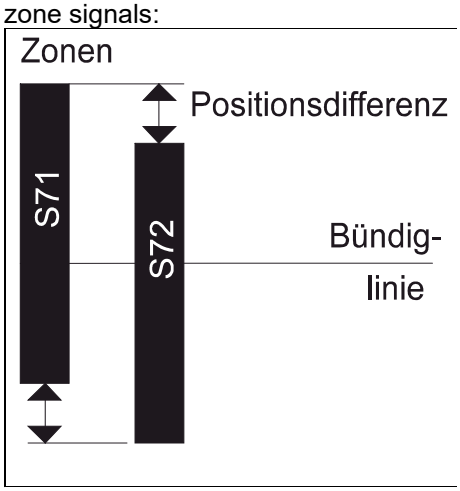
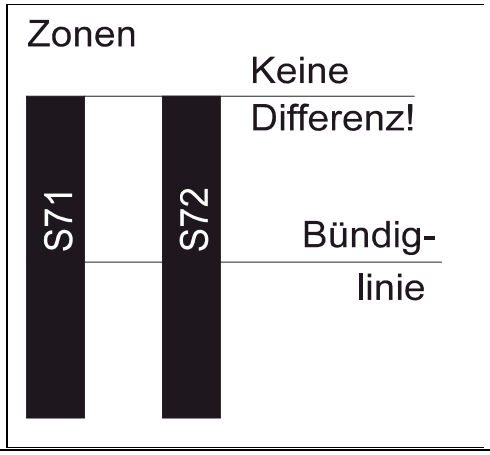
Relay K71	Relay never energize	The door bypass circle between clamp 5 and 7 can be never closed -> safe condition!
Relay K72	Relay stay energize	K73 cannot energize, thus K71 cannot energize; The door bypass circle between clamp 5 and 7 can be never closed -> safe condition!
Relay K72	Relay never energize	The door bypass circle between clamp 5 and 7 can be never closed -> safe condition!
Relay K73	Relay never energize	K71 cannot energize, thus K72 cannot energize; The door bypass circle between clamp 5 and 7 can be never closed -> safe condition!

Table1: Error exclusions after EN81-50 of the used construction units

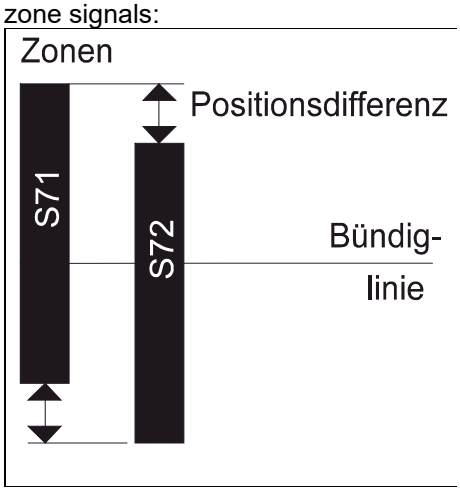
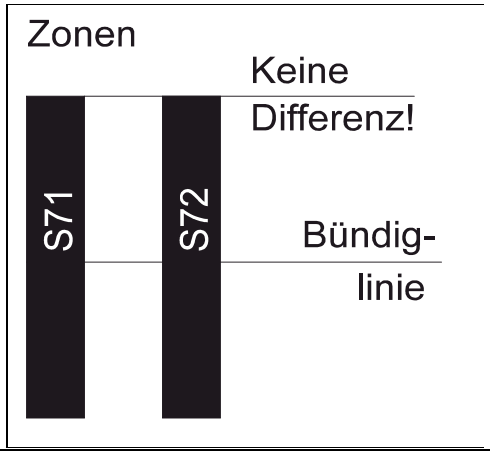
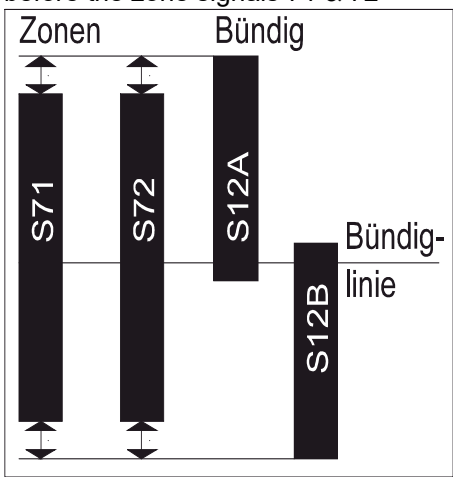
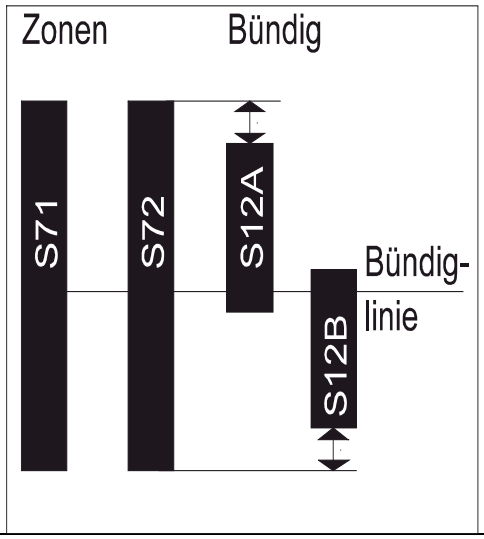
3.2 Fault clearance

In the microprocessor system DAVID-2001/2003 an error memory with a depth of 100 possible entries exists. You find the handling of the microprocessor system in the technical manual. On the basis the entry in the error memory and announcement of the **LED from K71,K72,K73** and of the **status LED** can be made an exact fault-tracing.

Definition
An independent switching element for the zone, also referred to as a zone switch, may be a magnetic switch, a Hall switch, a forked light barrier, an inductive switch, a capacitive switch, a roller switch, a "sensor" which according to the prior art can detect a zone , Likewise, a zone can be output via an absolute position measuring system in cooperation with the control computers. In conjunction with one of the switching elements described above (S71 via discrete switching element, S72 via absolute value encoder & control computer output), this results in a higher level of safety. In order to guarantee a perfect speech regulation we talk about zone sensors (devices), which generate a zone signal!

Visualization by the status LED-> Green LED does not shine!		
Error	**Error causes**	**Error correction**
F36 Releveling – range leave & F89 DSK – No Zone	One the zone senors, and/or all two zone sensors are defective.	Fairs of the tension at the inputs 71 and 72. Is the connection of the zone signals correct? Exchange of the defective zone sensors.
F36 Releveling – range leave & F89 DSK – No Zone	Position and situation of the magnets, switch distance	Control on the basis the magnet plan the situation of the magnets up - Covering of magnet & Switch - Polarity of the magnets(North & South) - Distance between magnet & switch - Correct sequence of the magnets
F89 DSK – No Zone	There is a position difference with the zone signals: 	The two zone signals must sit on the same height. The range of the tolerance amounts to max. 300ms! 

Visualization by the status LED-> Green LED shine!		
Error	**Error causes**	**Error correction**
F36 Releveling – range leave & F89 DSK – No Zone	One the zone switchers, and/or all two zone switchers are defective.	Fairs of the tension at the inputs 71 and 72. Exchange of the defective zone switchers.
F36 Releveling – range leave & F89 DSK – No zone	Position and situation of the magnets, switch distance	Control on the basis the magnet plan the situation of the magnets up - Covering of magnet & Switch - Polarity of the magnets(North & South) - Distance between magnet & switch - Correct sequence of the magnets
F36 Releveling- rance leave & F89 DSK – No zone	Defective information lines between DAVID-613 ZR and of the protection circuit SIS16-101	Examine they clamps 8, 21 and 22 for tightness and their lines for soundness.

F89 DSK – No zone	There is a position difference with the zone signals: 	The two zone signals must sit on the same height! The range of the tolerance amounts to max. 300ms! 
F36 Releveling- range leave	The concise signals 12B & 12B are before the zone signals 71 & 72 	The zone signals 71 & 72 must come before the concise signals 12B & 12B ! 
F89 DSK – No zone	The zone is over-drives	Control please the following attittude on the regulation: - Entry speed V0 too highly? - Switching off way too briefly? - Bringing in ramp increase!
F36 Releveling- range leave	With the Releveling the zone range will leave.	Control please the following attittude on the regulation: - Releveling speed degrade!

4. Maintenance/ Repair/ Disposal of the Component assembly

Maintenance

The cleaning of the protection circuit SIS16-101 is only with halogeneous-free and dry substances permissible. Examine with each maintenance the c-clamps for their fixity. With each maintenance you must drive through one „**Functional test of the Component assembly**". You find the discription in **chapter 2.3**

Never work under mains voltage – Danger of life!

Before you begin work on the protection circuit SIS16-101, **interrupt voltage supply** by main switches and the appropriate safety devices and secure you against **erroneous restarting**!
Survey the supply lines for **tension free**!
Neighbouring clamps and components, which could be energized must be covered!

Repair of the Component assembly

Defective protection circuits SIS16-101 can be repaired only by the manufacturer since it acts over safety components assembly. Therefore you return defective components assembly to the manufacture.

Never work under mains voltage – Danger of life!

Before you remove and/or dismantle the protection circuit consider the safety and assembling instructions from chapters 1.3 and 2.2!

Waste management of the Component assembly

The company KW Aufzugstechnik GmbH takes old devices back when delivery to KW Aufzugstechnik-Werk Oberursel is free of charge.
With user disposal and with the exchange of components the regionally in each case valid waste treatment and disposal regulations for spezial refuse is to be considered.
The company KW Aufzugstechnik GmbH does not take over adhesion for duly not disponsed of construction units and components.