

SLC4-20

Lift control Information for the expert

Status: 18.2.2017



1 The software supports you during the following tests

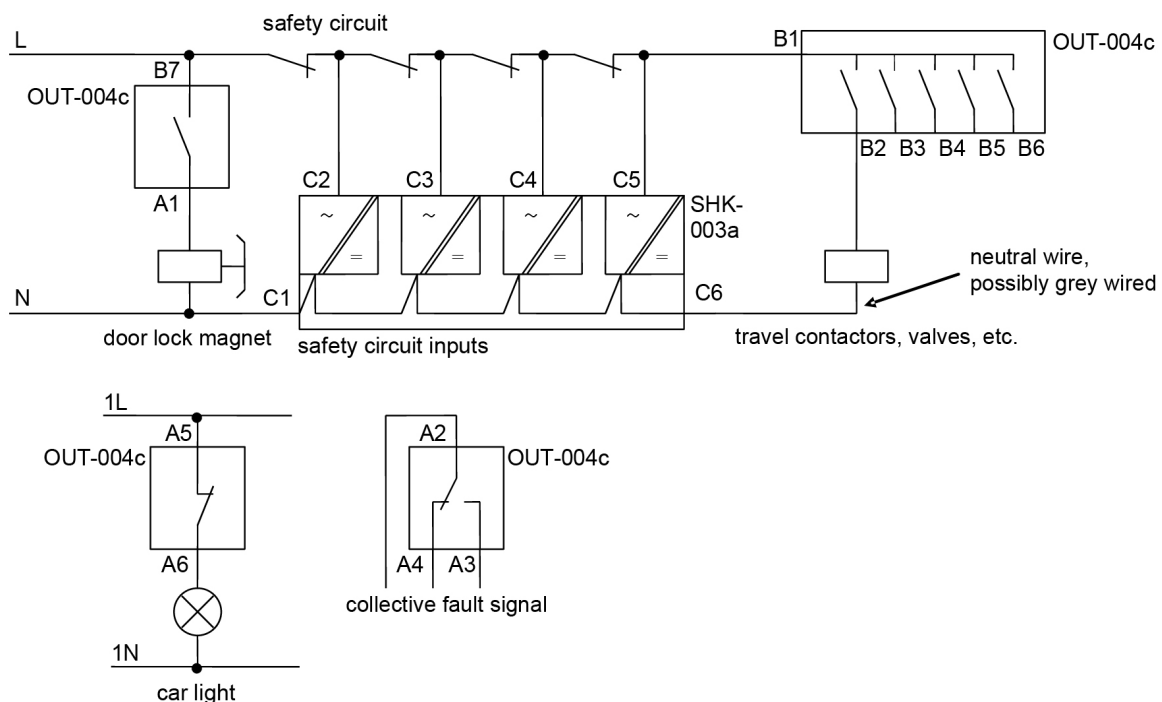
- Run time monitoring upwards / downwards
- Limit switch top / bottom
- Buffer top / bottom
- Traction capability
- UCM testing with and without drive

You find these menu items in the folder `SYSTEM/SLC4-INTERNAL/TÜV-INSPECTION`.

2 Sections of the main board of AZE0

- Status inputs for safety circuit SHK-003a
- Relay outputs OUT-004c

2.1 Connecting diagram SHK-003a and OUT-004c



2.2 Design SHK-003a

The section SHK-003a on the AZE0 main board ZeGrund may be connected directly to the safety circuit (SHK) of the lift to query the status of the SHK contacts. The basic structure of the SHK is shown in the above connection diagram.

Note! The travel contactors (e.g. contactors for traction motor, brake, or valves) may be connected only to the grey wired neutral (terminal C6). This ensures that no improper bridging of the SHK can result in a broken neutral and thus the energy is safely separated from traction motor, brake and valves.

2.3 Design OUT-004c

The section OUT-004c is located on the AZE0 main board ZeGrund. The basic structure of the SHK is shown in the above connection diagram. Each output group of OUT-004c may be directly connected to the safety circuit (SHK) of the lift. The four groups are potential separated to each other and can switch different circuits. In addition neighbouring groups may have dangerous and non dangerous voltages, for example the output group B1-B6 is connected to the travel contactors at the SHK, the output group A5-A6 is connected to 230VAC cabin light, and output group A2-A4 is connected to a 24VDC collective fault signal.

2.4 Technical data SHK-003a and OUT-004c

Common data	
Installation height	Max 2000 m above sea level
Printed circuit board and electronic components, creepage and clearance distances between neighbouring circuits	EN 81-1/-2:1998+A3:2009 table H.1 EN 81-20:2014, 5.10.3.2.2 EN 81-50:2014, 5.15, table 3 rated voltage 250V
Pollution degree EN 60664-1	The user must ensure pollution degree 2 through appropriate methods or the place of installation.
Can be connected to the safety circuit of the lift?	Yes
Protection of the SHK	Max 6A (gL/gG)
Environmental conditions operating: temperature relative humidity	0 to +65 0 to +85, non-condensing
Environmental conditions storage: EN 60721-3-1 temperature relative humidity	1K4 -25 to +55 +5 to +95, non-condensing
Environmental conditions transport: EN 60721-3-2 temperature relative humidity	2K3 -25 to +70 +5 to +95, non-condensing
SHK-003a	
Input voltage detection "SHK closed"	190 – 250 (50/60 Hz)
Current consumption per SHK input	1,2 mA
OUT-004c	
May a neighbouring group of outputs also be connected to another net?	Yes
Relay 1-7: min. switching load contacts	500mW / 12V / 10mA
Relay 1-7: max. switching capacity contacts	AC1: 1500VA / 250V / 6A AC15: 300VA / 250V / 6A DC1: 30V / 6A 110V / 0.2A 220V / 0.12A
Relay 1-7: min. switching load contacts	100mA / 5VDC
Relay 8: max. switching capacity contacts	AC1: 250V / 6A DC1: 192W / 250V / 5A

2.5 Inspection instruction SHK-003a and OUT-004c

1. Check the wiring of the safety circuit and all connections for integrity (no protruding individual strands, proper insulation...)
2. Review the course of the may gray wired N-conductor in the safety circuit (visual inspection). The course must match the wiring diagram supplied with the control system (compulsory wiring). The N-conductor must be divided and must be leaded via the input group SHK-003a.
3. In particular, ensure the correct N-conductor wiring by inspecting the dropping of the security contactors with separation of the N-conductor at the connection point for the system neutral (terminal C6 acc. chapter "Connecting diagram SHK-003a and OUT-004c" page 2 or analogously at other wirings).

3 Insulation test



Be careful!

Insulation tests on the power circuit, safety circuit, etc. acc. EN 60204-1, carried out with a test voltage of 500VDC, can destroy the electronics. Following things need to be done before such an examination:

1. Disconnect the N-conductor of the power supply either at the input side or at the control side (see electrical diagram of the control system). The disconnection at the control side is necessary if N is bridged with PE at the control terminals.
2. Disconnect all electronic components (unplug the connector); particularly the control computer (power supply, emergency light device, queries of safety circuit) and, if provided, the separate power supply for 24VDC (attention: in high-rise systems a second power supply unit is possibly installed in the car terminal box), the drive control, light grid if supplied with 230VAC, door control, ...
3. To be sure, measure with an ohmmeter between N and PE in the control system. No resistance must be found between N and PE.

If the above mentioned points were duly observed, the measuring action will not involve any risk for the electronics. Reconnect everything properly after completion of the test (**do not forget the N-conductor, otherwise there is a risk of overvoltage!**).

4 Operational earth

All voltages (except the controller-internal 5VDC) are single-end earthed and separately fused in order to recognize earth faults and to prevent the uncontrolled switching-on of power consuming devices.



Be careful!

After successful commissioning the earth conductor must be reconnected from terminal G1 (earth test) to terminal G2 (earth). Thus, the operational earth of the signal voltage becomes effective.

5 Door zone and UCM monitoring

The safety circuits SHB100 (EN 81-1 / -2) and MULTiBUS-SHB (EN 81-1 / -2 / -20) can monitor the door unlocking zone and can serve as a detecting device for unintentional movement of the car (UCM) as part of UCM guard system.

For more information please see the operating instructions SHB100 and MULTiBUS-SHB.

5.1 Guidelines for functional testing

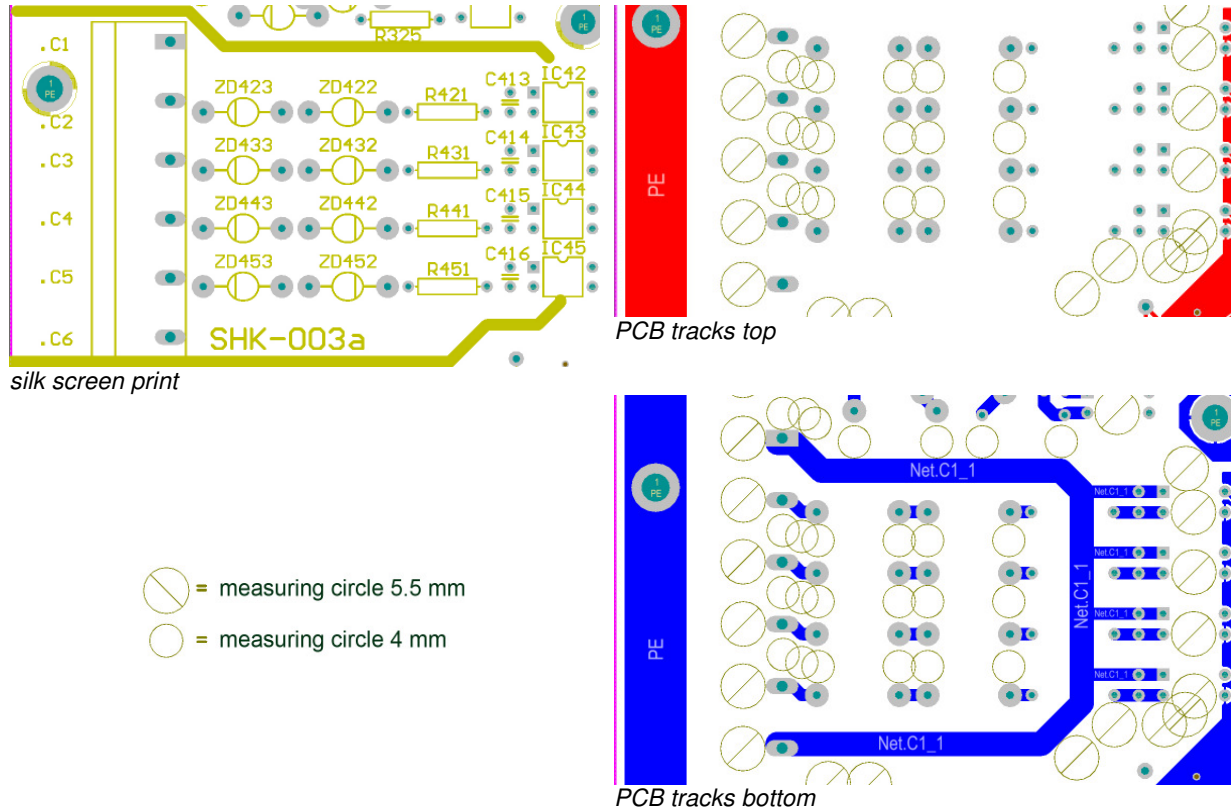
For more information about performing the UCM function test please see the appropriate "SLC4 lift control system description". The control assists you in the following tests:

- **Test the test function for the locking magnet on the overspeed governor**
- **Test of UCM with block magnet on the overspeed governor**
- **Test of UCM with certified brake**
- **Test of UCM with hydraulic drive and certified valve system**

6 Declarations of the manufacturer

6.1 SHK-003a

We hereby confirm that the PCB section SHK-003a has been manufactured in full conformity with the directive 2014/33/EU.



The represented measuring circles show that the creepage and clearance distances are at least 5.5 mm or 4 mm in these areas. The isolation voltage between input and output inside an optocoupler is at least 5000 Vrms.

Test regulations: Lift Directive 2014/33/EU
EN 81-1/-2:1998 + A3:2009
EN 81-20:2014
EN 81-50:2014

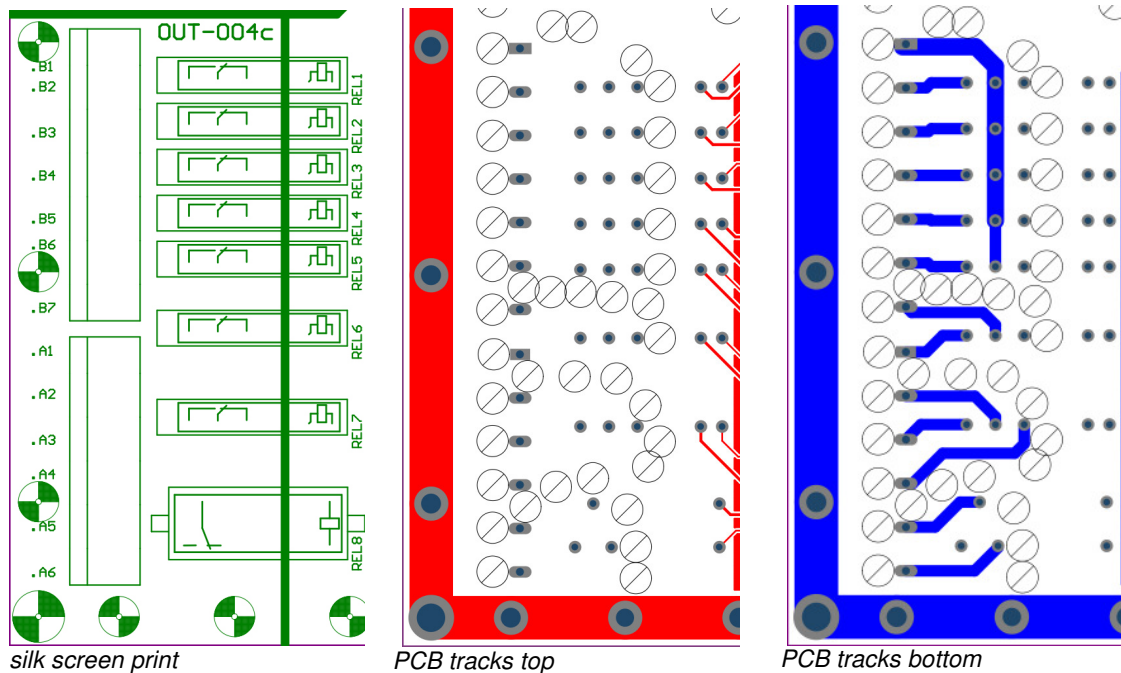
Application: Query of safety circuit contacts. The connection to the safety circuit of the lift is permitted under the conditions of chapter 2.1 "Connecting diagram". The technical data acc. to chapter 2.4 have to be taken into account.

Wülfrath, on 18.2.2017

STRACK LIFT AUTOMATION GmbH
Dipl.-Ing. Dirk Strack, Managing Director

6.2 OUT-004c

We hereby confirm that the PCB section OUT-004c has been manufactured in full conformity with the directive 2014/33/EU.



⊘ = measuring circle 5.5 mm

The represented measuring circles show that the creepage and clearance distances are at least 4 mm in these areas. The creepage and clearance distances inside a relay between contact and coil are at least 8 mm.

Test regulations: Lift Directive 2014/33/EU
EN 81-1/-2:1998 + A3:2009
EN 81-20:2014
EN 81-50:2014

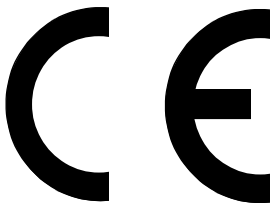
Application: Relay outputs for the control of consumers on the safety circuit and other circuits. The connection to the safety circuit of the lift is permitted under the conditions of chapter 2.1 "Connecting diagram". The technical data acc. to chapter 2.4 have to be taken into account.

Wülfrath, on 18.2.2017

STRACK LIFT AUTOMATION GmbH
Dipl.-Ing. Dirk Strack, Managing Director

7 EU Declaration of conformity

This is to confirm that the product described below, based on its design and construction, as well as the version that we have put into circulation, complies with the operating manual included in the delivery and corresponds to the relevant fundamental 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	Lift controller SLC4-20 with main board ZeGrund revision 1.40
Year	2017 / 2018
Short description	Control computer for lifts
Basis are the following directives	Lift Directive 2014/33/EU EMC Directive 2014/30/EU
Applied standards	EN 81-1:1998 + A3:2009 EN 81-2:1998 + A3:2009 EN 81-20:2014 EN 81-50:2014
	

This explanation is issued by the responsible manufacturer
STRACK LIFT AUTOMATION GmbH

on 18.2.2017

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 aforementioned products are exclusively intended for the installation in lifts or the assembly with other lift parts. Commissioning or distribution within the European Community is admissible only if the finished product also conforms to the relevant EU directives.