Instructions

TSG

in

OTIS Multidrop Serial Link

Documentation history

No.	Ver.	Version	Editor
1	1.0	24.06.19	AL
2	1.1	24.02.20	AL
3	1.2	09.06.20	AL
4	1.3	01.02.22	APöt
5	1.4	08.03.22	AL
6	1.5	11.08.22	AL
7	1.6	12.10.22	AL
8	1.7	22.03.23	AL

Fordern Sie die Umbauanleitung auf **Deutsch** an, indem Sie den QR Code einscannen.

Demandez les instructions d´instruction de montage en **français**, en scannant le code QR.

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1 Basic information

1.1 Importance of the assembly instructions

Installation instructions for the product are included by the manufacturer or supplier in order to provide the customer or fitter with the essential knowledge required for proper and safe installation. These brief assembly instructions serve to illustrate the basic mechanical assembly steps. Electrical connection, commissioning and setting of the TSG are expressly not part of these instructions.

1.2 Copyright

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1.3 Notes in the assembly manual

All notes in the assembly instructions must be observed.

1.4 Informal measures by the installer

The installer of the system must ensure that he himself attends a training course. He must immediately inform the manufacturer/supplier of missing or defective parts.

1.5 Requirements for installation personnel

Persons responsible for installation and maintenance should be informed about the generally applicable safety and occupational hygiene regulations. They should be familiar with Langer&Laumann products. The installation tools should be functional and the measuring instruments should be checked continuously.

2 Requirements - TSG V4 electronics

The TSG V4 electronics must meet these requirements:
- TSG hardware version: from V4.05
- TSG SW version: from 4.61.21
- Otis module hardware version: from V000204
- Otis module software version: from V2.00

3 Requirement DCSS4 or DCSS5
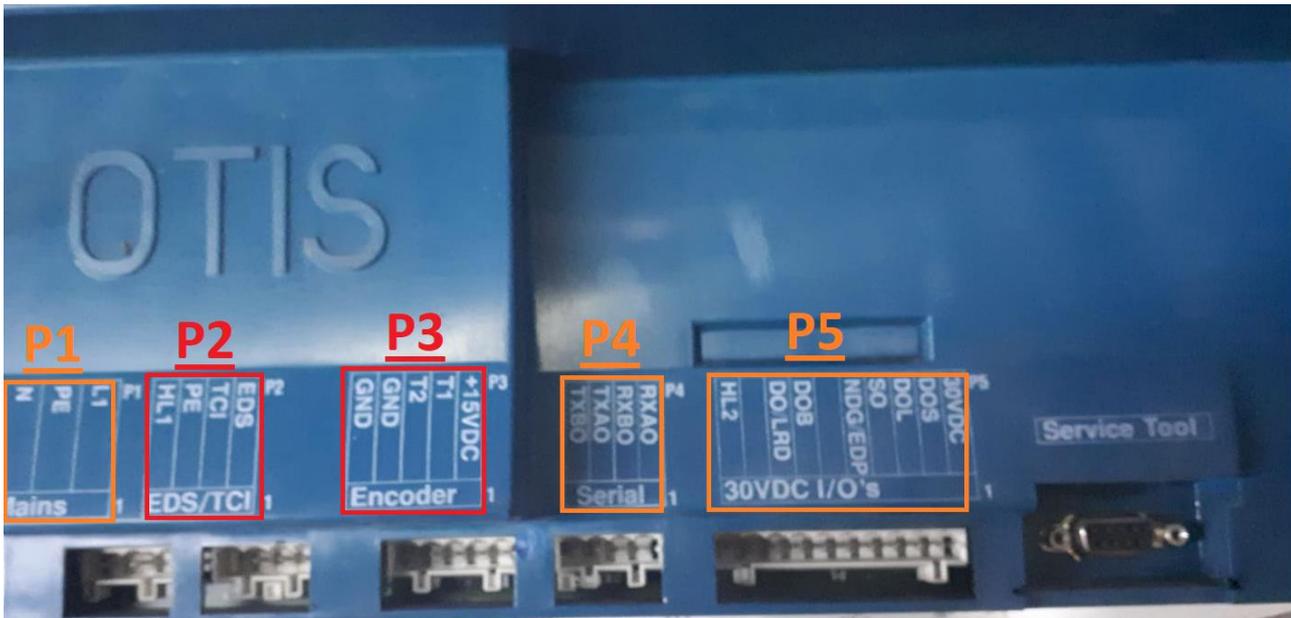
Fig. 1: Otis DCSS4 door control
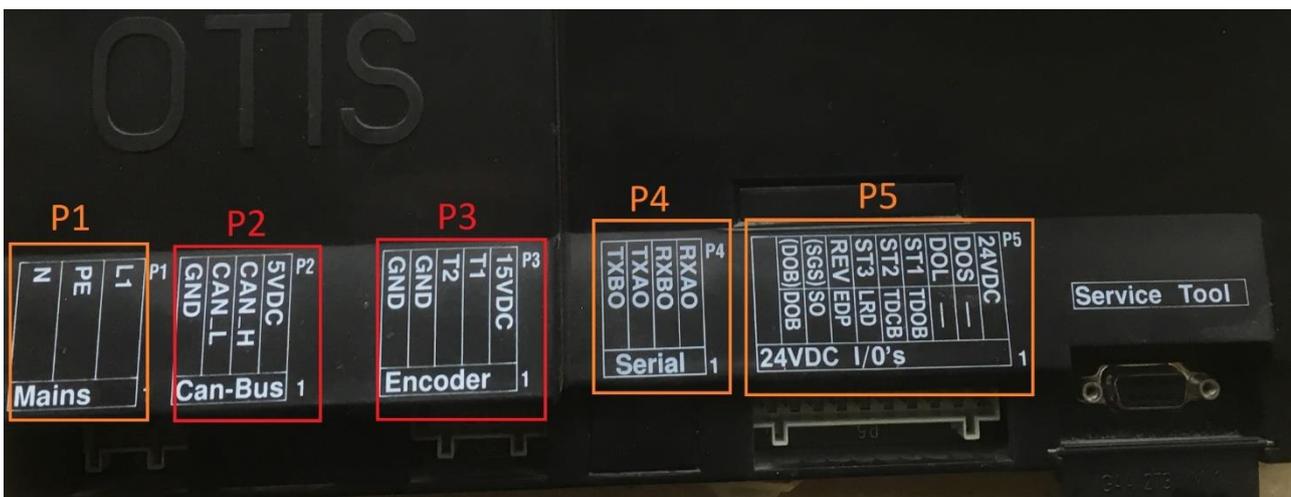
Fig. 2: Otis DCSS5 door control

The Otis DCSS4 or DCSS5 door controls are replaced by the TSG V4 electronics.

For this, it must be assumed that terminal strip P1 (mains connection, see Fig. 1 the orange rectangle **P1**) and terminal strips P4 and P5 (signal wires, see Fig. 1 the orange rectangles **P4** and **P5**)) are used on the Otis DCSS4 or DCSS5.

Terminal strip P2 is not connected (see Fig. 1 the red rectangle **P2**).

The terminal block **P3** is no longer used because the connector for the encoder of the drive is no longer required.

4 Electrical connection
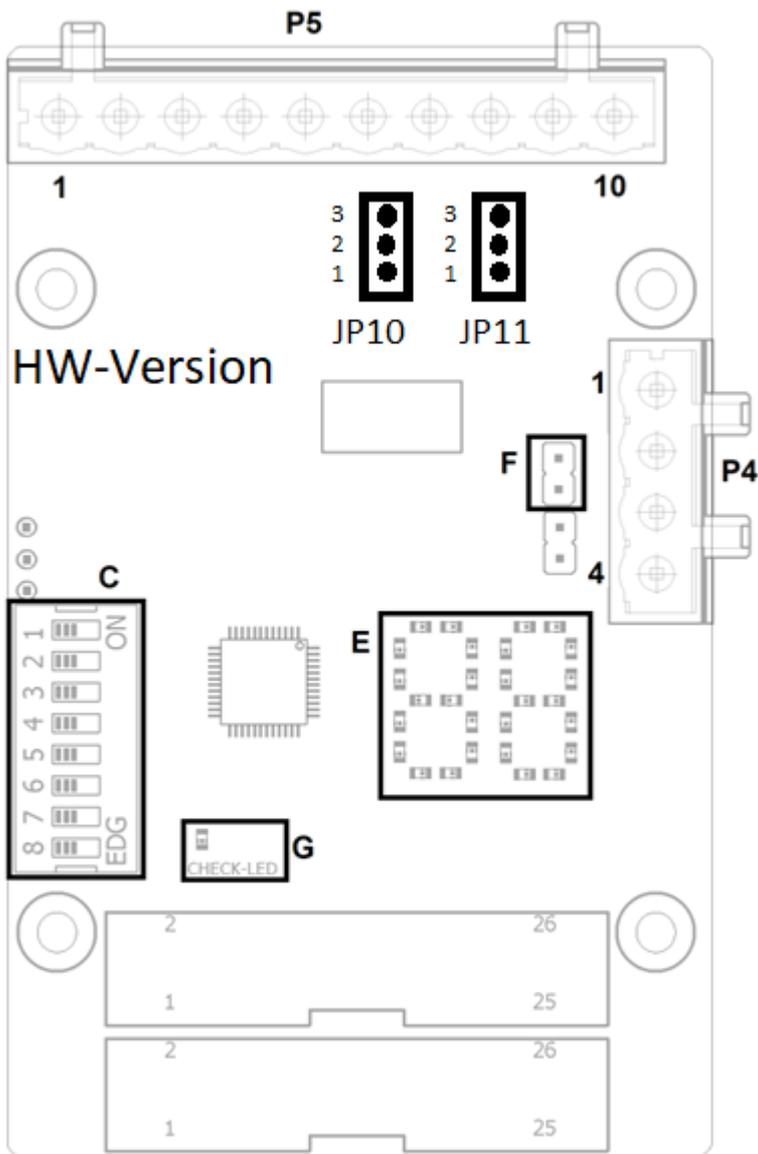
Fig. 3 Extension of interface to DCSS4 (or DCSS5)

The Otis DCSS4 (or DCSS5) door control is switched off.

The connector on terminal strip P1 is removed and the individual wires are removed from the connector. The three wires from P1 are connected in the TSG V4 electronics to terminals X18, X19 and X20 (230 [VAC] power supply).

The plug on the terminal strip P5 is removed. In order to be able to insert the plug into the TSG V4 housing, the strain relief is dismantled. The connector P5 is inserted into the TSG housing and plugged directly into the expansion board of the TSG electronics (see Fig. 3 Extension of interface to DCSS4 (or DCSS5) - slot P5).

The plug on the terminal strip P4 is removed. In order to be able to insert the plug into the TSG housing, the strain relief is dismantled. The connector P4 is inserted into the TSG housing and plugged directly into the expansion board of the TSG electronics (see Fig. 3 Extension of interface to DCSS4 (or DCSS5) - slot P4).

5 Configuring the module

Step 1: Activate the expansion board

To activate the Otis expansion board on the TSG electronics, set parameter hA = 13.
If the FKTx module is also used, the parameter hA=29 must be set.

A change of the parameter hA leads to an automatic reset of the further required parameters h1 and h4.

Step 2: Configuration of the control

The configuration of the module depends on which DCSS device is to be replaced and how this device was previously controlled. Several options are available.

Configuration of parameter h4	Functional description
Parameter h4 =**00**	**DCSS4, multidrop control** Connector P4 connected to DCSS4. Connector P5 connected to DCSS4. Jumper setting HW-Version: V000403, see Fig. 3. JP10: 2&3, Activation input P5.7 Pull-Up resistor JP11: 1&2, Activation input P5.8 Pull-Up resistor
Parameter h4 =**01**	**DCSS4, discrete control** Connector P4 <u>not</u> connected to DCSS4. Connector P5 connected to DCSS4. Jumper setting HW-Version: V000403, see Fig. 3. JP10: 2&3, Activation input P5.7 Pull-Up resistor JP11: 1&2, Activation input P5.8 Pull-Up resistor
Parameter h4 =**02**	**DCSS5, multidrop control** Connector P4 connected to DCSS5. Connector P5 connected to DCSS5. Jumper setting HW-Version: V000403, see Fig. 3. JP10: 1&2, Activation input P5.7 Pull-Down resistor JP11: 2&3, Activation input P5.8 Pull-Down resistor
Parameter h4 =**03**	**DCSS5, 3-Wire, Fast-DOB** Connector P4 <u>not</u> connected to DCSS5. Connector P5 connected to DCSS5. Jumper setting HW-Version: V000403, see Fig. 3. JP10: 1&2, Activation input P5.7 Pull-Down resistor JP11: 2&3, Activation input P5.8 Pull-Down resistor
Parameter h4 =**04**	**DCSS5, 3-Wire, DOB via the elevator controller** Connector P4 <u>not</u> connected to DCSS5. Connector P5 connected to DCSS5. Jumper setting HW-Version: V000403, see Fig. 3. JP10: 1&2, Activation input P5.7 Pull-Down resistor JP11: 2&3, Activation input P5.8 Pull-Down resistor

HPDO door operators:

For HPDO door operators, the connection of the DOB and LRD signals to the system must be checked first. If the signals are positive switching, the DCSS4 setting can be selected, and the signals wired according to Fig. 4.
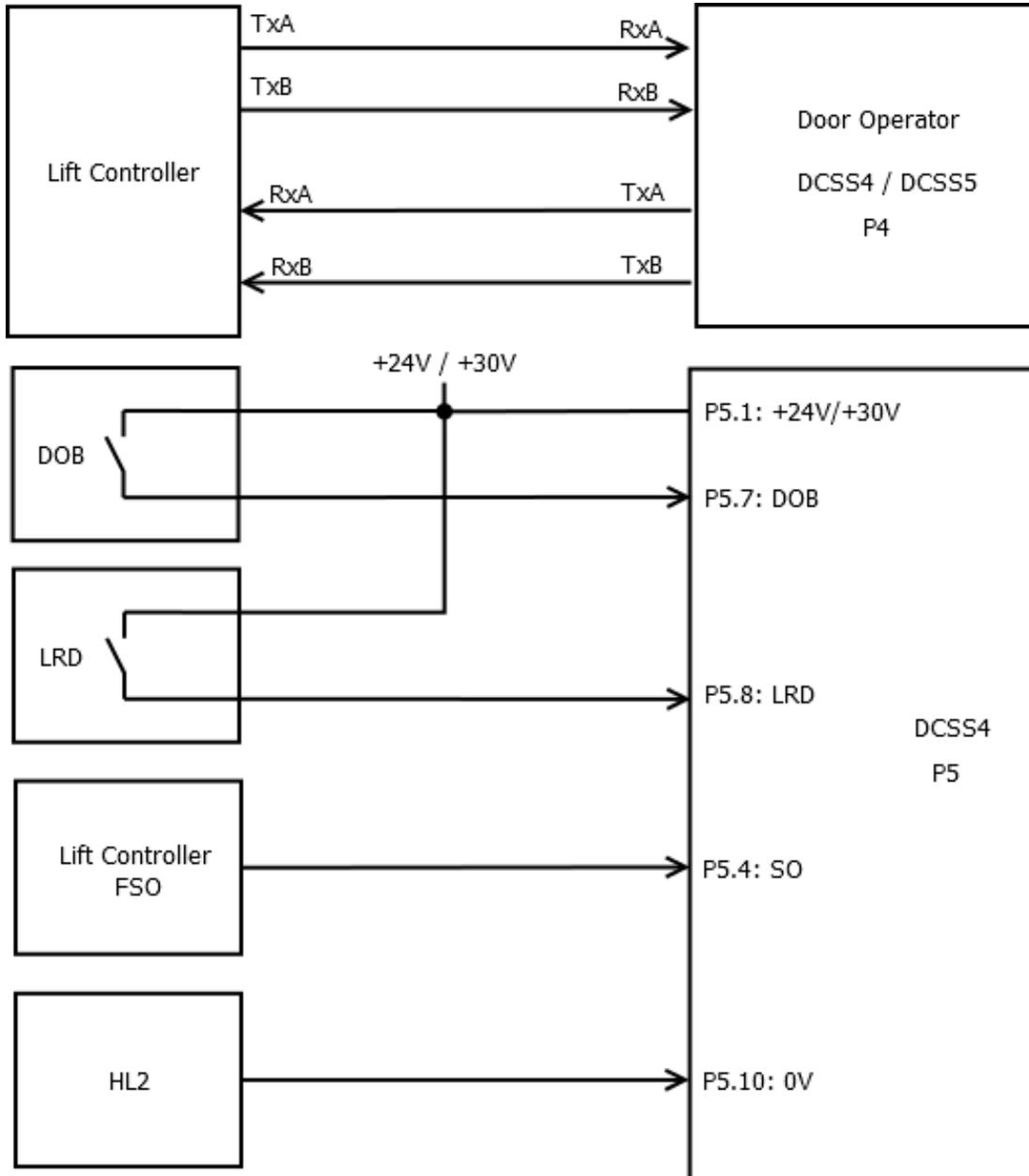
Fig. 4: HPDO connection with DCSS4 setting

HPDO door operators:
For negative switching signals DOB and LRD, the setting DCSS5 can be selected, and the signals wired according to Fig. 5.
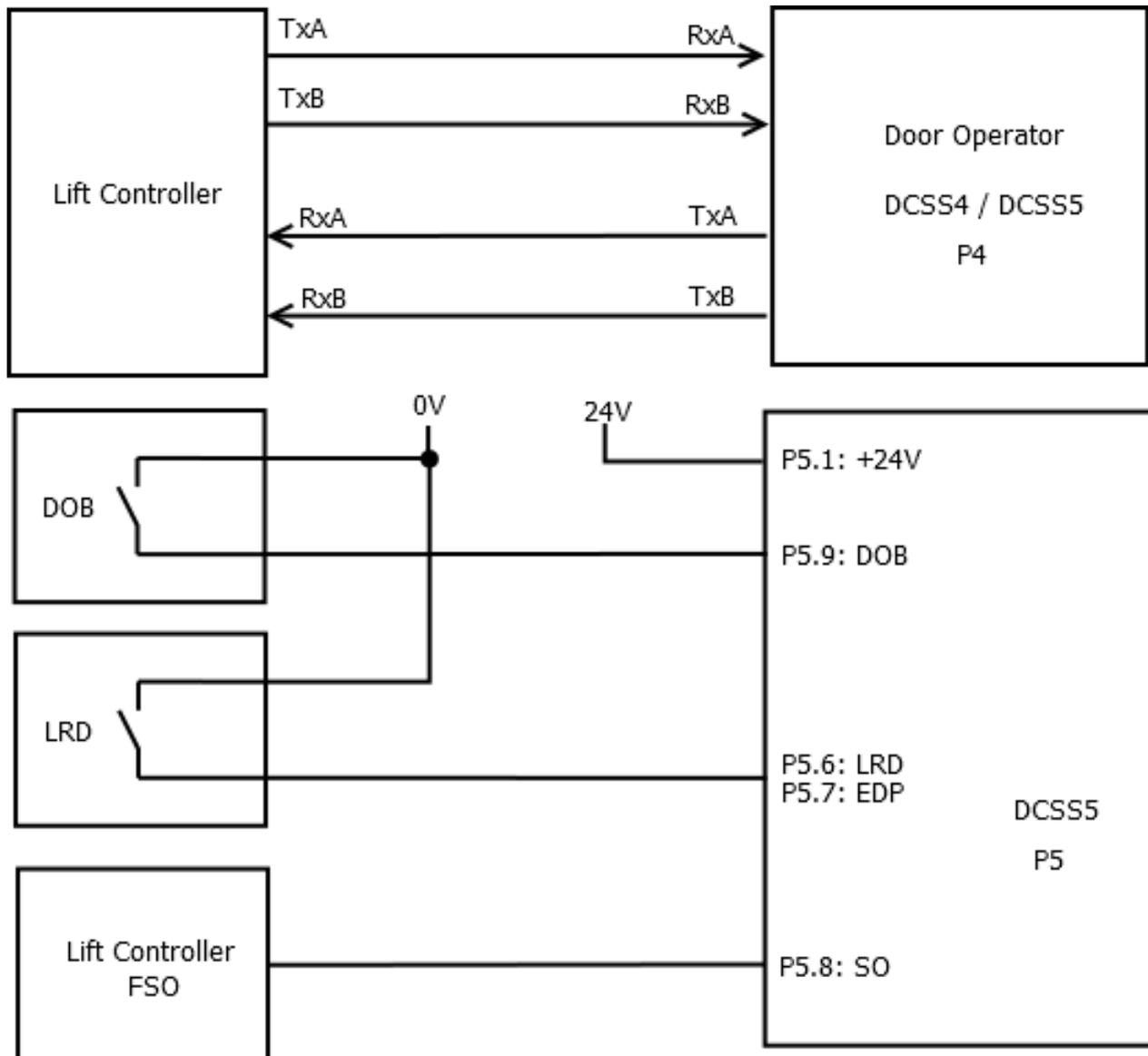
Fig. 5: HPDO connection with DCSS5 setting

Step 3: Setting the door number

This step is only relevant for multidrop control of the TSG.

The door number can be set using parameter h1.
    Door number 1 (or front door) is set via h1=01.
    Door number 2 (or rear door) is set via h1=02.

Step 4: Check the baud rate

This step is only relevant for the multidrop control of the TSG.

The baud rate for the multidrop connection is set on the elevator controller and the bus nodes. The default setting is 9600 kB. If the TSG receives the signals of the elevator control correctly, the LED display shows symbols like "u0", "u1", ... "u5". If the baud rate is incorrect, "F1" is shown in the display.

The baud rate can be adjusted via parameter h0.
h0=03: 4800 kB
h0=04: 19200 kB
h0=00/01/02: 9600 kB

If the setting of h0 is changed, the TSG V4 must be disconnected from the mains supply and reconnected after 5s. Only then can the new baud rate setting be accepted.

6 Commissioning

6.1 Calibrating the door

The TSG can be programmed into the existing door by setting the parameter hA to the value 00. The calibration process can then be carried out according to the document: "Operating instructions for the device series door control devices TSG V4" Chap. 7.4 "Calibration". After the TSG V4 has been successfully calibrated, the parameter hA must be reset to the value 13.

6.2 Activating the extension of the Otis Multidrop Serial Link interface

To activate the Otis adapter, the value in parameter hA must be set to 13. If the parameter hA is set to the value 13, the following parameters are also changed on the TSG V4:
- Parameter b.4 = "on", automatic reversing activated in the case of an obstacle in the closing direction.
- Parameter bd = 99, reversing takes place up to the open position.
- Parameter h.3 = 01, the light curtain signal is evaluated by the TSG V4.
- Parameter h.5 = 05, after reversing there is a pause of 5s.

7 Bus termination

By default, bus termination (see Fig. 3 Extension of interface to DCSS4 (or DCSS5) - element **F.**) is switched off at the TSG. It must be checked on site whether bus termination is necessary.

Bus termination (See Fig. 3 Extension of interface to DCSS4 (or DCSS5) - element **F.**)		
Doordrive1 (DCSS1)	Doordrive2 (DCSS2)	Load weighing device (LWSS)
ON	not installed	not installed
ON	OFF	not installed
OFF	OFF	present

8 Firefighters' lift with control via Multidrop

An additional discrete signal is required for firefighting lifts, which informs the TSG that firefighting mode is activated. The signal must be connected to terminal X1.1 on the TSG V4:
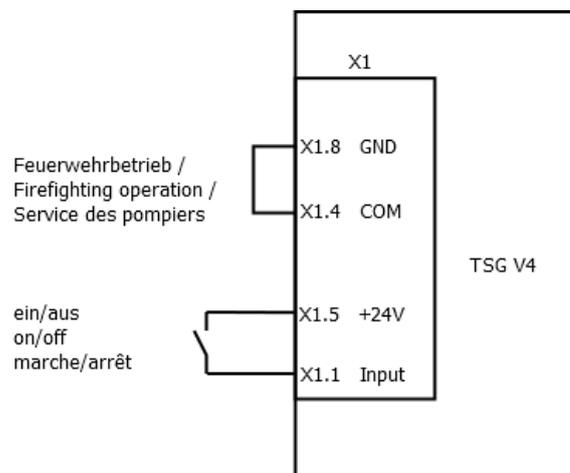
Fig. 6: TSG connection at the firefighting lift

X1.1 switched on: Firefighting operation activated
X1.1 switched off: Firefighting operation deactivated

9 LED description for the Multidrop operation

Two 7-segment displays are used for display (see Fig. 3 Extension of interface to DCSS4 (or DCSS5) - display E).

Table 1: Status description display

Display	Meaning
u0	"Open door button" active
u1	"Sensor" active
u2	"Close door" active
u3	"Open door" active
u4	"Stop" active
u5	"Push" active
u6	"Open door" active, the SO signal is missing
u7	"Open door button" active, the SO signal is missing
u8	"Sensor" active , the SO signal is missing
--	no control available

Table 2: Display of error symbols

Display	Meaning	Fault resolution
F0	No internal communication	Set parameter hA=13 or hA=29
F1	No communication with the elevator controller	Check wiring of P4. Test activation of terminating resistors (Fig. 3 Extension of interface to DCSS4 (or DCSS5) - Element **F)**.

In addition, the TSG-Otis-Multidrop extension has a check-LED for diagnosis. This flashes yellow at a rate of 1 Hz (see Fig. 3 Extension of interface to DCSS4 (or DCSS5) - element **G)**.

In the event of an error, there is no flashing output. Please contact L&L.

10 LED description for the 3-wire operation

The display is a 7-segment display (in Fig. 3- display **E**).

Outputs are displayed as numbers in the first 7-segment display, the inputs are displayed as letters in the second 7-segment display. The respective meanings are shown in the tables.

Table 3: display, as TSG outputs

Display	Description
1	Obstacle detected
2	RESERVE
3	Door not completely open
4	Door open

Table 4: Switch pushed down (h4=03): TSG evaluates the DOB signal

Display	Description
Off	No signals present
B	No signals present
c	Closing, sensor switched off
d	Opening, SGS active
h	Opening, DOB active
n	Closing, sensor switched off
o	Nudging
r	Opening, DOB active
u	Closing
A	Opening, sensor (REV) active
C	Opening, Door-Open-Button (DOB) active
E	Opening, SGS active
F	Closing
H	Opening, REV active
L	Opening, SGS active
P	Opening

Table 5: Switch pushed up (h4=04): The lift control unit evaluates the DOB signal

Display	Description
off	No signals present
b	No signals present
c	Closing, sensor switched off
n	Closing, sensor switched off
o	Nudging
u	Closing
A	Opening, sensor (REV) active
F	Closing
P	Opening

Terminal configuration TSG expansion card Otis Multi-drop

Table 6: Terminal P4

DCSSx – 4- pole connector		
1	RXAO	0…5[VDC]
2	RXBO	0…5[VDC]
3	TXAO	0…5[VDC]
4	TXBO	0…5[VDC]

Table 7: Terminal P5 – Connection data

Terminal P4 (4 - pole connector):	
Conductor cross section solid/flexible (min./max.) (stripping length: 10[mm])	0,2 / 2,5 [mm²]
Conductor cross section flexible, with ferrule with/without plastic sleeve (min./max.)	0,25 / 2,5 [mm²]
Conductor cross section AWG (min./max.)	24 / 12
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve (min./max.)	0,5 / 1,5 [mm²]
AWG according to UL/CUL (min./max.)	26 / 12
Use 60[°C] copper conductors only.	

Table 8: Terminal P5 for setting h4=00 or h4=01

DCSSx – 10- pole connector		
1	Connection signal supply 30VDC	24…34 [VDC] / min. 0.5[A]
2	DOS	0….34 [VDC]
3	DOL	0….34 [VDC]
4	SO	0….34 [VDC]
5	NDG/EDP	0….34 [VDC]
6	Not connected	0….34 [VDC]
7	DOB	0….34 [VDC]
8	DI/LRD	0….34 [VDC]
9	Not connected	0….34 [VDC]
10	Reference potential of the signal supply	0 [VDC]

Table 9: Terminal P5 – h4=02

DCSSx – 10- pole connector		
1	Connection signal supply 24VDC	16…28 [VDC] / min. 0.5[A]
2	DOS	0….28 [VDC]
3	DOL	0….28 [VDC]
4	TDOB	0….28 [VDC]
5	TDCB	0….28 [VDC]
6	LRD	0….28 [VDC]
7	EDP	0….28 [VDC]
8	SO	0….28 [VDC]
9	DOB	0….28 [VDC]
10	Not connected	---

Table 10: Terminal P5 – h4=03 or 04

DCSSx – 10- pole connector		
1	Connection signal supply 24VDC	16…28 [VDC] / min. 0.5[A]
2	DOS	0….28 [VDC]
3	DOL	0….28 [VDC]
4	ST1	0….28 [VDC]
5	ST2	0….28 [VDC]
6	ST3	0….28 [VDC]
7	REV	0….28 [VDC]
8	SGS	0….28 [VDC]
9	DOB	0….28 [VDC]
10	Not connected	---

Table 11: Terminal P5 - Connection data

Terminal P5 (10 - pole connector):	
Conductor cross section solid/flexible (min./max.) (stripping length: 10[mm])	0,2 / 2,5 [mm²]
Conductor cross section flexible, with ferrule with/without plastic sleeve (min./max.)	0,25 / 2,5 [mm²]
Conductor cross section AWG (min./max.)	24 / 12
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve (min./max.)	0,5 / 1,5 [mm²]
AWG according to UL/CUL (min./max.)	26 / 12
Use 60[°C] copper conductors only.	

11 Contact

If you have any questions or concerns, we can be reached at the following address:

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