Instructions

TSG

OronaCAN adapter

Module

Documentation history

No.	Ver.	Stand	Processor
1	1.0	14.05.24	FH
2	1.1	14.03.25	FH
3	1.2	24.03.25	FH

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Contents

1 Basic information

1.1 Copyright

We reserve all rights to this technical document. It may not be reproduced, made accessible to third parties or otherwise used without authorisation without our prior consent. Changes require our express prior written consent.

1.2 Notes in the instructions

All instructions in the manual must be observed.

1.3 Informal measures by the fitter

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

1.4 Requirement assembly personnel

Persons responsible for installation and maintenance should be informed about the generally applicable safety and industrial hygiene regulations. They should be familiar with Langer&Laumann products. The installation tools must be in good working order and the measuring instruments must be subject to constant inspection.

1.5 Explanation of symbols

WARNING:
You will be made aware of a possible imminent danger that could lead to serious bodily injury or death.

CAUTION:
You are warned of a possible imminent danger that could lead to minor physical injury. You will also find this signal for warnings of material damage.

NOTE:
You will be referred to applications and other useful information.

2 General

By using the TSG OronaCAN module, the ▶️*Langer & Laumann Ing. Büro GmbH door drive* can be connected to the Oronabus of the ARCA II and ARCA III lift controllers. A maximum of 2 doors per car can be operated.

CAUTION:
All work on the door control unit must be carried out with the system de-energised.
If the bus connection is interrupted during operation, this can lead to **serious damage to the electronics of the lift controller.**

3 Interface

The CAN interface of the TSG OronaCAN module has status LEDs, is electrically isolated and can be terminated via a slide switch.

The door number can be selected using a parameter from 1-2.

4 Hardware
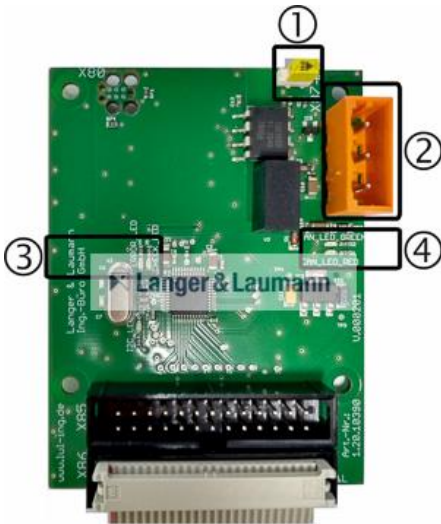
Fig.1 : OronaCAN adapter module

No.	Designation	Description	
①	JP2	Slide switc	(see chap. Bus termination Setting / page - 11 -)
②	X87	Connection to CAN bus	(see section 4.1 CAN connector / page - 6 -)
③	LED81	Check (yellow)	(see section 6.1 Check / page - 13 -)
	LED82	Error (red)	(see chapter 6.2Error / page - 13 -)
④	LED83	CAN Run (green)	(see section 6.3CAN_Run / page - 13 -)
	LED84	CAN error (red	(see chap. CAN_Error / page - 14 -)

4.1 CAN connector

Fig.2 : CAN connector

Pin	Signal	Description of the
X87 -	CAN_GND	CAN ground
X87 - 2	CAN_L	CAN bus signal (dominant low)
X87 - 3	CAN_H	CAN bus signal (dominant high)

4.2 TSG connection set ORONA

⚠️ **CAUTION:**
Always switch off the door control unit **before working on the CAN bus!**
Only remove the CAN connectors from the device after switching off.
Failure to do so may result in **a defect in the CAN communication of the lift controller.**

The TSG ORONA connection set with article number 8.20.81630 consists of two cables.
These are used to simply extend the cables of the original Orona door control unit.

Fig.3 Power supply cable

4.2.1 Control line

1. TSG page

    a. CAN connector X87, orange, 3-pin
    b. Input connector X1, green, 8-pin

2. Extension side

    a. X4, 4-pin, CAN socket
    b. X2, 3-pin, light curtain (RX)
    c. X3, 4-pin, light barrier/light curtain (TX)

Fig.4 Control signal cable
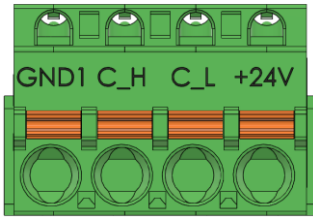
4.2.1.1 CAN bus connection

Fig.5 : X4, CAN socket connection

Pin	Signal	Description of the
X4.4	GND1	CAN ground
X4.3	C_L	CAN bus signal (dominant low)
X4.2	C_H	CAN bus signal (dominant high)
X4.1	+24V	CAN +24V

CAUTION:
Bus **connector X4** and **connector X3** for the light curtain are both 4-pin.
It is essential to ensure that the plugs are plugged together.
Connecting terminal points X4 and X3 together can destroy the electronics

4.2.1.2 Light curtain/light barrier connection

Fig.6 : X2, light curtain RX connection

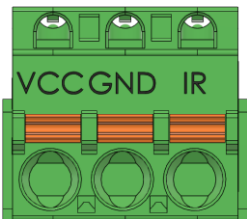| Pin	Signal	Description of the
X2.1	VCC	Power supply
X2.2	GND	Mass
X2.3	IR	Exit light curtain (bridge B6)
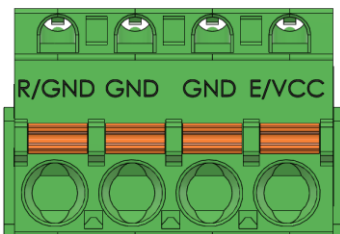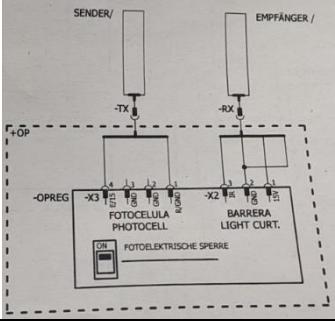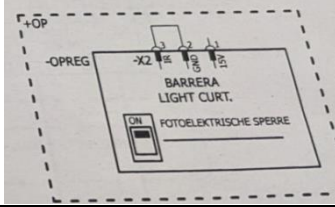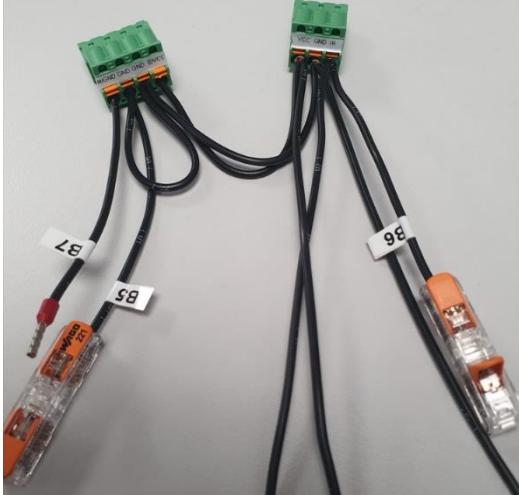
Fig.7 X3, light curtain TX/light barrier connection
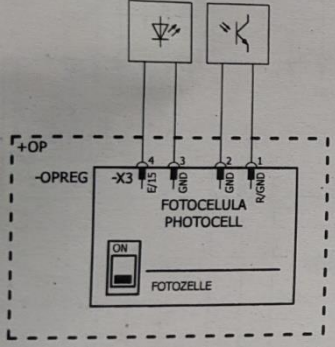
Pin	Signal	Description of the
X3.1	R/GND	Light barrier/ground output (bridge B7)
X3.2	GND	Mass
X3.3	GND	Ground (bridge B5)
X3.4	E/VCC	Power supply

4.2.1.3.1 Selection of light barrier/light curtain/no detector

With the original Orona door control unit, a slide switch is used to select whether a light curtain or a light barrier is to be operated.

With the TSG connection set ORONA, this selection is made using the jumpers B5, B6, B7, see table below.

Case 1	Original device: **Light barrier** Slide switch: OFF	
Case 2	Original device: **Light curtain** Slide switch: ON	
Case 3	Original device: **No detector**	

TSG connection set ORONA		
Case 1:	Use as a light curtain: **- Parameter h3=02** **- B7 to B6**	
Case 2:	Use as a light barrier: **Parameter h3=02** **- B7 to B5**	
Case 3:	No detector available: **Parameter h3=00**	

5 Configuration

All possible settings for the electronics relating to the OronaCAN bus are described here.

5.1 Setting the bus communication

In order for the OronaCAN module to be recognised by the TSG electronics, the parameter must be set according to the application. The parameters of the TSG OronaCAN adapter module required for communication with the lift controller must be set appropriately.

Parameter-setting	Function
hA=10	TSG control via OronaCAN.
hA=16	Locking or sword drive (e.g. QKS9, can be used with additional drive board) and the TSG control via OronaCAN.
hA=17	Interlocking with NSG (e.g. Koch, can be used with additional drive board) and TSG control via OronaCAN.
hA=18	Locking drive for shaft swing door (can be used with additional drive circuit board) and TSG control via OronaCAN

NOTE:
Only the door signals that are sent via the CAN bus are analysed; the discrete signals via input connector X1 are no longer taken into account.

5.2 Bus termination Setting

A CAN bus must be terminated so that no reflections occur in the network. To do this, both ends of the network must be terminated with a resistor (120Ω). The slide switch JP2 on the circuit board must be **set to ON** for termination to take place on the OronaCAN adapter module.
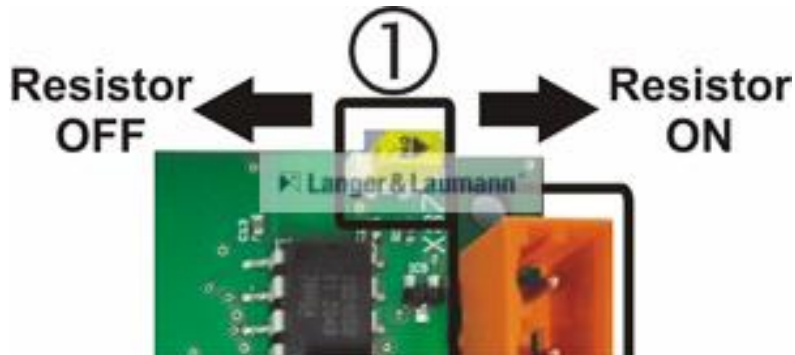

Fig.8 : TSG OronaCAN adapter module - bus termination

NOTE:
It is important to ensure that the termination only takes place at the beginning and end of the entire network.

CAUTION:
If the termination does not take place at the end or at the beginning, but in between in the network, or if additional resistors (120Ω) are connected in addition to the end termination, interference will occur in the CAN bus.

5.3 Setting the mechanical transmission

In the standard setting, a fixed gear ratio is stored in the TSG door control unit.
A modified mechanical transmission means that the forces, speeds and accelerations are different to those set in the TSG door control unit. To compensate for the difference, the existing mechanical transmission ratio in the TSG door control unit can be adjusted.

To set the desired gear ratio, parameter A8 "*Mechanical, additional gear ratio"* must be selected appropriately. Parameter A9, "*Enable parameter A8"* must be activated so that the value set in A8 can be accepted.

Series	Mechanical transmission	Enable parameter A8
Standard pinion	A8=1.0	A9=1.0
Small pinion	A8=1.5	A9=1.0

5.4 Setting TSG parameters

Parameters	Meaning	Value
h1	Door number	Standard: 01 = Door 1 alternative: 02 = Door 2
hA	OronaCAN operation	10
	OronaCAN operation and TSG sine wave drive	16
	OronaCAN operation, TSG sinusoidal drive and NSG	17
	OronaCAN operation and shaft swing door locking system	18

NOTE:
As soon as the parameter hA is set to 10, 16, 17 or 18, the following parameter values are set:
h0, h1 and h4 to default values (see chapter ,5.1Setting the bus communication , page)- 10 -
- b4 to on (see TSGV4 manual)
        - cC, and cd to 0A (see TSGV4 manual)

NOTE:
If the parameter hA has already been set to 10 and is then set to a value other than 10, the parameter b4 remains on.

6 LED - states and meanings

There are four LEDs on the TSG OronaCAN adapter module (see section 4Hardware / page- 6 - andFig.9 : Display status with flashing sequence / page- 15 -).

6.1 Check LED

Status LED	Status description	Possible causes
Off	No voltage present	- Check mains voltage supply to TSG electronics. - Check the flat cable connection to the TSG electronics.
blinking	TSG OronaCAN adapter module is ready for operation.	

6.2 Error LED

Status LED	Status description	Possible causes
Off	Communication be-tween TSG electronics and TSG OronaCAN adapter module suc-cessful.	
On	No communication be-tween TSG electronics and OronaCAN adapter module	- Check the flat cable connection to the TSG electronics. - Check parameter hA setting (see chap. 5.1 Setting the bus communica-tion/ Page - 10 -).

6.3 CAN_Run

The status of the OronaCAN Adapter Lift module in the CAN network is displayed.

Status LED	Status description	
Off	RESET	A RESET is carried out.
blinking	PRE-OPERATIONAL	Module is in PRE- OPERATIONAL state
single flash	STOPPED	Module is in STOPPED state
On	OPERATIONAL	Module is in OPERATIONAL state

6.4 CAN_Error

The status and any existing errors of the OronaCAN adapter module are indicated.

Status LED	Status description	
Off	No error	The OronaCAN adapter module is ready for operation.
blinking	Invalid configuration	Error during configuration
single flash	Warning, limit reached	At least one of the error counters of the OronaCAN adapter module has reached or exceeded the warning level.
double flash	Error monitoring	CAN errors have occurred (no CAN connection).
On	Bus Off	TSG OronaCAN adapter may no longer transmit.

6.5 Flashing behaviour

| CAN_Run	CAN_Error	Error LED	Meaning
ON	OFF	OFF	Module is OPERATIONAL and can be used.
Blinking	OFF	OFF	Module is PRE-OPERATIONAL (lift controller must set this to OPERATIONAL mode)
blinking	Blinking (change)	ON	No communication with TSG. Required parameters set incorrectly: The parameter hA is not equal to 10, 16, 17 or 18 (see chapter 5.1Setting the bus communication , page- 10 -).
blinking	Blinking (same)	OFF	No communication via CAN bus.
blinking	Single flash	OFF	CAN network not available - Orona CAN module not connected (Guard event) - Master not connected (heartbeat event) - Wiring faulty - Bus is not terminated correctly (see chapter 5.2Bus termination Setting , page)- 11 -
ON	ON	OFF	No communication possible on the CAN bus: - CAN_High and CAN_Low signals are reversed - Cross connection between: - CAN_GND and CAN_H - CAN_H and CAN_L - Hardware defective
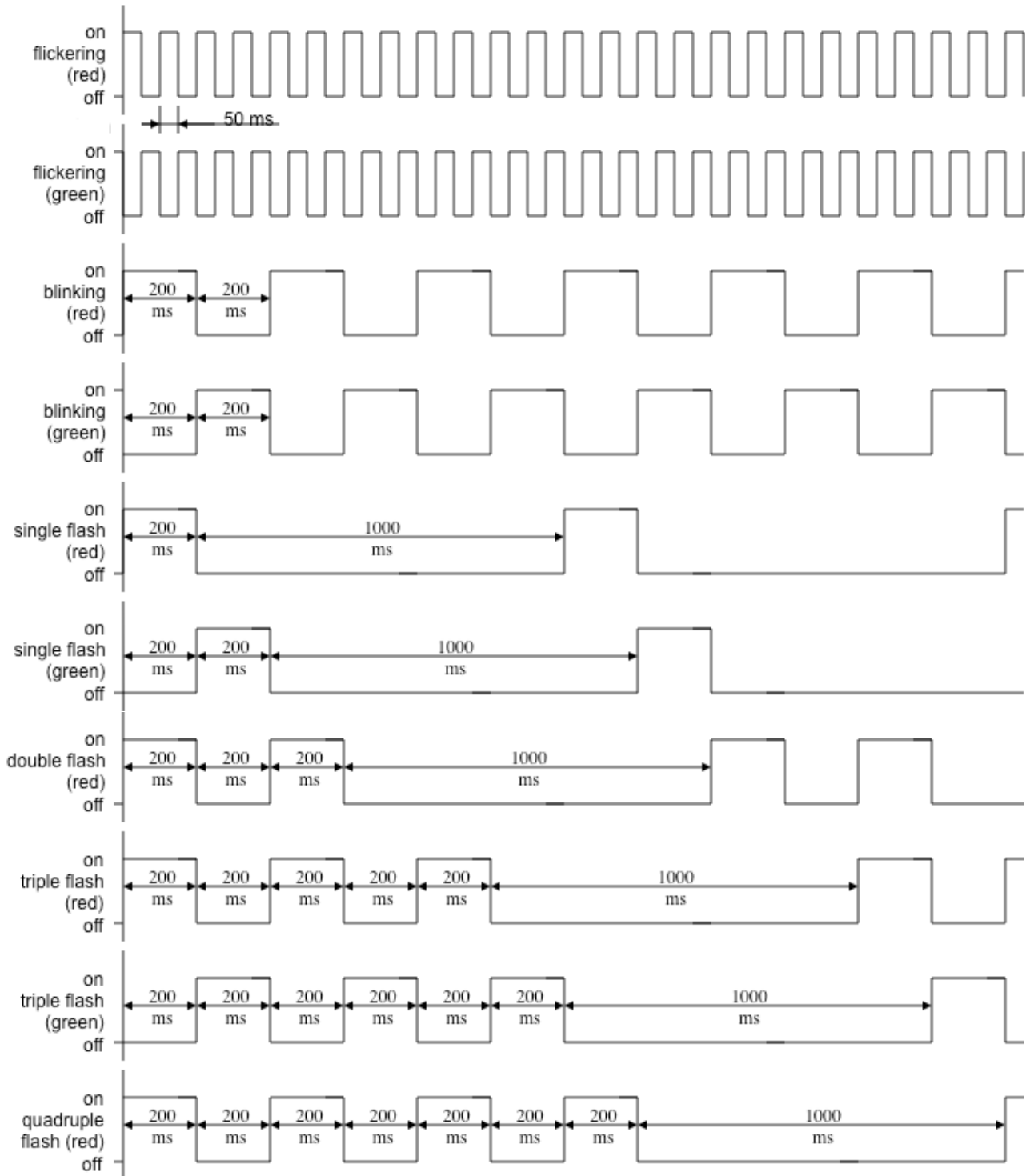
Fig.9 : Display status with flashing sequence

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