

Connection and installation manual

Radio transmission system TX 310





GENERAL WARNING AND SAFETY NOTES for installation

- These installation and operating instructions form an integral part of the product TX310 and they have been specifically written for professional installers trained and skilled in the trade and should be carefully read in their full length before carrying out the installation. This is for Radio transmission system TX 310, and not for the complete installation of automatic gate. After the installation this manual has to be handed over to the user.
- Installation, connection, adjustments, putting into operation, and servicing may only be carried out by trained professionals in full accordance with these installation- and operating instructions.
- Before carrying out works at the gate-system, the power supply has to be turned off.
- The arrangement of the components is dependent on the structural conditions and the gate design.
- The switching device may only be used to hedge dangers at crushing and shearing points on automatic sliding gates (specifications regular use). Any other use is prohibited.
- When using non-original components (including safety edges) any warranty or liability expires.
- The national and international regulations for gate safety must be observed. The safety function of the application must always be considered as a whole and never referred only to the individual plant part.
- Connections must be observed and complied with in accordance with the applicable EC or national standards in their current version.
- The current in the specific case OVE / VDE regulations and standards must be observed.
- The EU Machine Directive, laws and rules concerning the prevention of accidents, and laws and standards which are in force in the EU and in the individual countries have to be strictly followed.
- The packaging materials (cardboard, plastic, EPS foam parts and filling material etc.) have to be properly disposed of in accordance with the applying recycling- and environmental protection laws. They may be hazardous to children and therefore have to be stored out of children's reach.
- The product is not suitable for installation in explosion-hazardous areas.
- The product may only be used in accordance with its original purpose, for which it has been exclusively designed, and which is described in these installation and operating instructions. The TOUSEK Ges.m.b.H. rejects any liability if the product is used in any way not fully conforming to its original purpose as stated herein.
- Children have to be instructed, that the gate facility as well as the belonging parts may not be used improperly, e.g. for playing. Furthermore handheld transmitters have to be kept in safe places and other impulse emitters as buttons and switches have to be installed out of children's reach.
- The TOUSEK Ges.m.b.H. rejects any liability for claims resulting from usage of the product in combination with components or devices which do not fully conform to the applying safety laws and rulesvorschriften entsprechen.
- Only original spare- and replacement parts may be used for repair of the product.



Important

The radio transmission system TX 310 is only suitable for use with tousek products!

Declaration of Conformity:

The company TOUSEK Ges.m.b.H, Zetschegasse 1, 1230 Vienna, declares that the radio transmission system TX 310 following directives:

- Machinery Directive 2006/42 / EC, the R & TTE Directive 1999/5 / EC

It was here applied the following standards: EN ISO 13849-1, EN 12978

October 2013

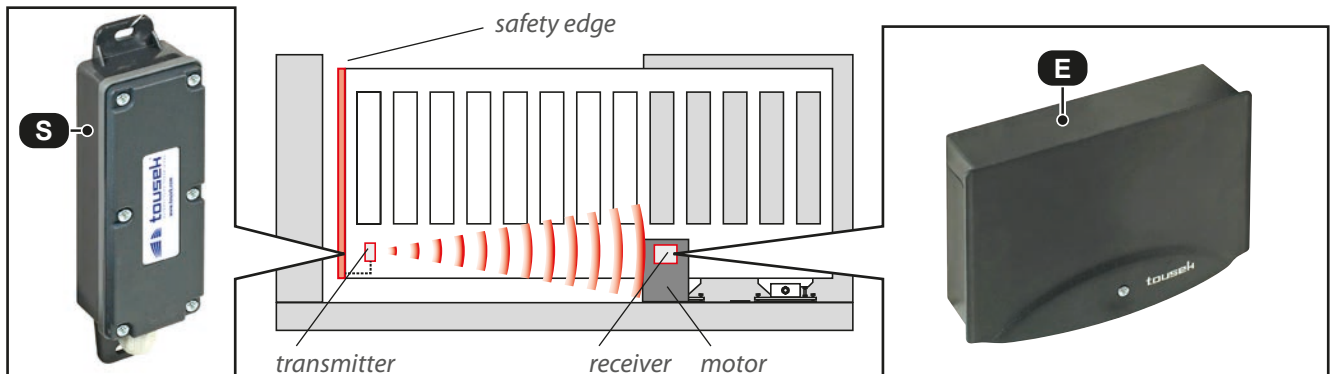
Features

- Bidirectional radio transmission system 868,95MHz and 869,85MHz
- Receiver with 1 output (so that the door can be secured either CLOSED or OPEN direction)
- 10 transmitters can be learned into receiver (1-channel)
- Automatic frequency adjustment or manual frequency settings provides high noise immunity
- 1 input selectable for 8,2kΩ resistance contact strip or potential free contact e.g. pedestrian contact or wicket door.
- 1 output 8,2kΩ or N.C. (normally closed contact)
- Battery use of transmitter with 2 Lithium-Batteries 3V (Type CR2032)
- Accoustic signal (inside receiver) when battery low
- Power supply for receiver: 12–24V a.c./d.c.
- **CE**

General

The TX 310 is a wireless signal transmission system (radio) in combination with safety edges to avoid dangers at crushing and shearing at gate systems. There is a connection between a receiver that is connected to the controller of the engine, and a transmitter that is attached to the gate and performs the evaluation of 8.2 kOhm resistor strips or potential free contacts. Up to 10 stations can be stored in the receiver.

Connection example of TX310 System:



- The receiver (E) is mounted near the operator - with operators with integrated control unit inside or on the operator.
- The mounting of the transmitter (S) has to be made on the gate (Cable exit down).



IMPORTANT: When screwing the housing cover of the transmitter necessarily follow the max. torque of 45 Ncm, otherwise there is a risk of leakage due to bending of the cover!



Technical Data

Radio transmission system TX 310 (transmitter- receiver kit 1-channel)			
Frequency bands	868.95 MHz & 869.85 Mhz	Software	class A
Range	10 m in optimal conditions	Operating temperature	-20°C bis +55°C
degree of pollution	2	article code. TX 310-Kit	13660380
Ball pressure test (IEC 695-10-2)	PCB: 125°; Gehäuse: 75°	article code. 1battery for transmitter (Lithium Type CR2032)	13140040
Transmitter		Receiver	
supply voltage	3 V d.c (2 x Lithiumbatterie CR2032)	supply voltage	12 / 24 V a.c./d.c.
power consumption	on sending: 17 mA, in stand-by: 16 µA	station memory	10
Resistances of the safety edges	8,2kΩ	Output	Relay, 24 V, 0,5 A; micro shutdown 1B
		power consumption	0,4 W bei 12 V 1,2 W bei 24 V
		Rated impulse withstand voltage (gem. EN 60730-1)	300 V
Protection class	IP 55	Input test signal	12 / 24 V a.c./d.c.
Dimensions (WxHxD)	190 x 51 x 36 mm	Protection class	IP 54
		Dimensions (WxHxD)	137 x 45 x 95



Important

- Transmitter and receiver should not be mounted on the same surface due to spark/radio technical reasons.
- The distance between transmitter and receiver and between transmitters themselves with each other must be at least 1m.
- For safety reasons, the memory mode is exited 10 seconds after the last button activity automatically..
- TIP: For longer distances between transmitter and receiver, we recommend that you save the transmitter before mounting on the receiver. The transmitter can (max 10 stations. Learnable) are stored with or without attached circuit bar or NO contact (eg wicket door).

2.1 Transmitter

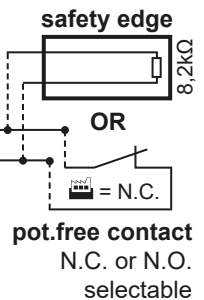
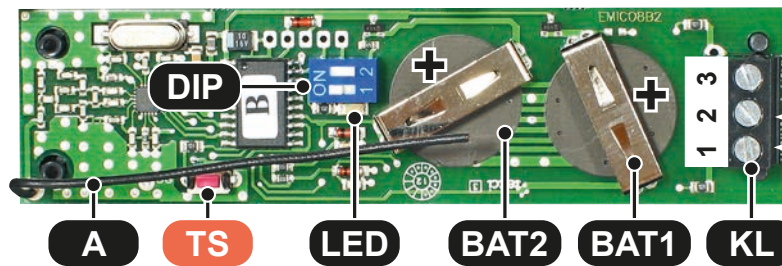
Connection / Adjustments



IMPORTANT: When screwing the housing cover of the transmitter necessarily follow the max. torque of 45 Ncm, otherwise there is a risk of leakage due to bending of the cover!



- (KL) connection clamps
- (BAT1) battery 1 CR2032
- (BAT2) battery 2 CR2032
- (LED) LED (actuation)
- (DIP) DIP-switches
- (TS) programming button of transmitter
- (A) antenna



Input (term. 1/2) : selectable for 8,2kΩ safety edge or pot.free contact

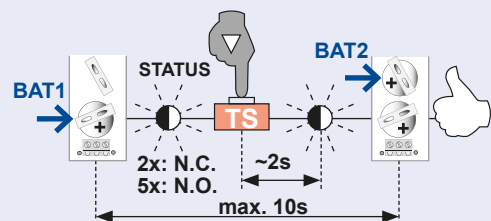


For the safety operation mode with a 8,2kΩ safety edge (terminals 1/2) set DIP 1 = ON !



For connecting a **potential free contact** (terminals 1/2), e.g. pedestrian contact, set DIP 1 = OFF !
Switching the potential free input from N.C. (= factory setting) to N.O.:

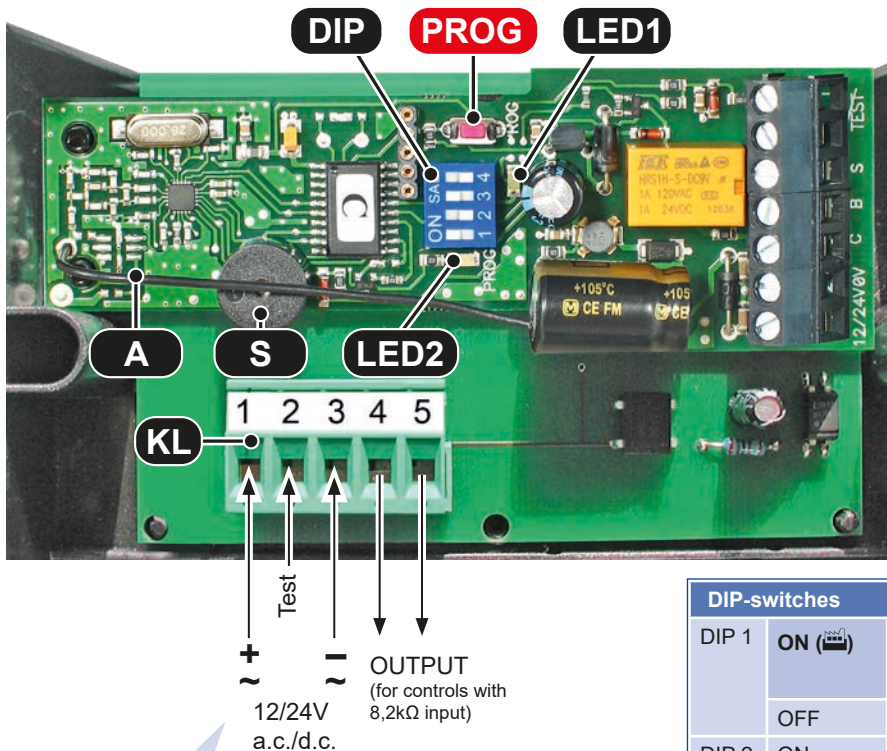
- After insert the 1. battery (BAT1) the current input status is going to be indicated by LED:
N.C.: 2x flash, N.O.: 5x flash
- If you would like to switch over the input, push the button (TS) **within 10s** until the LED flashes. Now insert the 2. battery (BAT2) - switching over is finished.



Batteries

- Take print from the housing place 2 batteries (Type CR2032) in the correct order BAT1, BAT2 as shown in picture (Plus-Pole above) .
- If the order is not complied with, is not guaranteed to function properly!
- We kindly recommend to replace the batteries during the annual maintenance!

DIP-switches			 factory preset
DIP 1	ON	for connection of a 8,2kΩ safety edge	
	OFF	for connection of a NO contact	
DIP 2	ON	Frequency 1: 869,85 MHz	
	OFF	Frequency2: 868,95 MHz	



- (KL) connection clamps
 1/3 power supply
 12/24V a.c./d.c.
 2 Test input
 4/5 output
 (LED1) LED 1 (system standby)
 (LED2) LED 2 (Program mode)
 (DIP) DIP- switches
 (PROG) programming button of receiver
 (S) buzzer
 (A) antenna



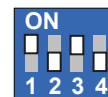
Connection

- Connect the terminals of the TX 310 with the terminals of the used tousek control (acc. to table on next page):
 - Terminals 1/3 supply 12/24V a.c./d.c.
 - Terminals 2 Test input
 - Terminals 4/5 OUTPUT

DIP-switches

DIP 1	ON (ON)	Standard setting ➔ DIP 1 always on Position ON!
	OFF	no safety operation
DIP 2	ON	Frequency 1: 869,85 MHz
	OFF (OFF)	Frequency 2: 868,95 MHz
DIP 3	ON (ON)	Test input NC ➔ DIP 3 always on Position ON!
	OFF	Test input NO
DIP 4	ON	frequency adjustment on
	OFF (OFF)	frequency adjustment off

DIP-switches
factory setting (ON)

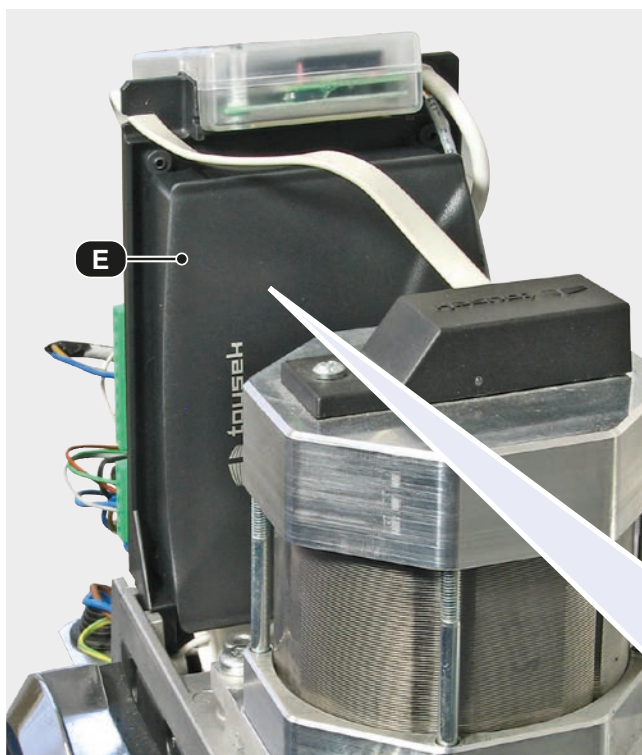


Important

- DIP Switch 2 does not normally need to be changed. To avoid interference with the operation of two systems that are operated close to each other, the frequency of a system (transmitter and receiver) should be changed.
- DIP Switch 4: In heavily disturbed environments (eg if there are cranes in the vicinity) this function helps to improve the disturbance response. However, this really should be used only when it is really needed, because the system is thus slightly slowed.
- The lengths of the antennas in the transmitter and receiver are tuned to the operating frequency and must not be changed!

The receiver (E) is mounted near the operator - so for operators with integrated control boards on (in) the operator (eg. in PULL T5, -T8, -T10 operator: mounting of TX 310 receivers with Velcro strap - see picture)

- ➔ The receiver **can not be mounted** in the operators PULL T15, PULL T24 and PULL T24speed!





- **IMPORTANT:** The TX 310 System has to be activated in the control board menu!
- In case the TX 310 is going to be used with Master/Slave automation system (=system with two sliding gates running in opposite direction) you need to connect it to the master control unit and to the slave control unit.
- For more information on the control system used see the appropriate manual.
- * The receiver is not suitable for PULL T15, -T24, -T24speed housings!

tousek-control board:		Terminals receiver TX 310					
		INPUTS Power supply/Test			OUTPUT		
		Terminal 1	Terminal 2	Terminal 3	Terminal 4	Terminal 5	
		+ / ~	Test	- / ~	Common safety edge	safety in CLOSE-direction	safety in OPEN-direction
sliding gate operator controls	PULL T24*, T24speed*	17	41	16	50	52	51
	PULL T4speed, T5, T8, T10, T15*	40	41	43	50	52	51
	DYNAMIC Series, TPS 60 PRO						
	Series TPS-20, -35, -40, -6speed	44	41	43	50	51	56
	in Master-Slave operation	For sliding gates running in opposite direction are two separate TX 310 systems (one for Master and one for Slave) required. The terminals above need to be connected to the Master- and Slave control unit.					
Swing gate operator controls ST 51, ST 61		44	41	43	50	safety left leaf or inside 52	safety right leaf or outside 53

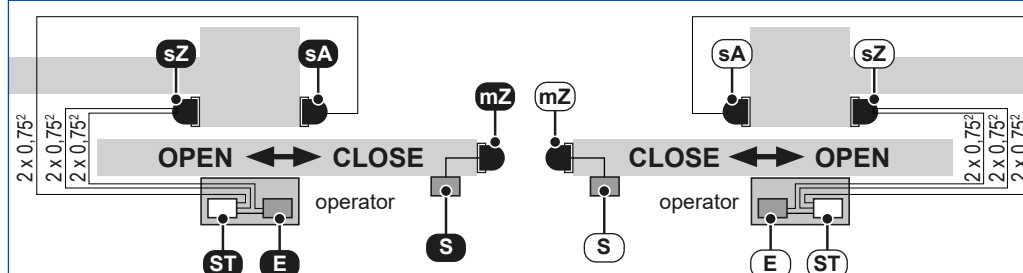
Connection examples

Connection / Adjustments



- The TX 310 transmitter (S) inform the receiver (E) with a triggering of the mobile contact strip, then the receiver forwards this via an output to the connected controller (ST) ..
- The receiver output (terminals 4/5) has the desired function, safety in the CLOSED or OPEN direction, are connected to the control terminals concerned (stationary contact strips with the same function to be connected in series).
- A TX 310 receiver can manage via multiple transmitters several mobile safety contact edges with the same function. For different functions you will need two transmitters and two receivers.

Connection example TX 310 to PULL -T8, -T10, -T15 Master/Slave



Connect the two TX 310 systems separate. Once to the Master control unit and afterwards to the Slave control unit!

Connection shown on this picture

Components of the MASTERS

ST Master control, **E** TX 310 receiver
S1 TX 310 transmitter 1, **S2** TX 310 transmitter 2

safety in CLOSE-direction:

mZ mobile safety contact edge (final edge)
sZ stationary safety edge (passage edge)

safety in OPEN-direction:

sA stationary safety edge (final edge)

Components of the SLAVE

ST Slave control, **E** TX 310 receiver
S1 TX 310 transmitter 1, **S2** TX 310 transmitter 2

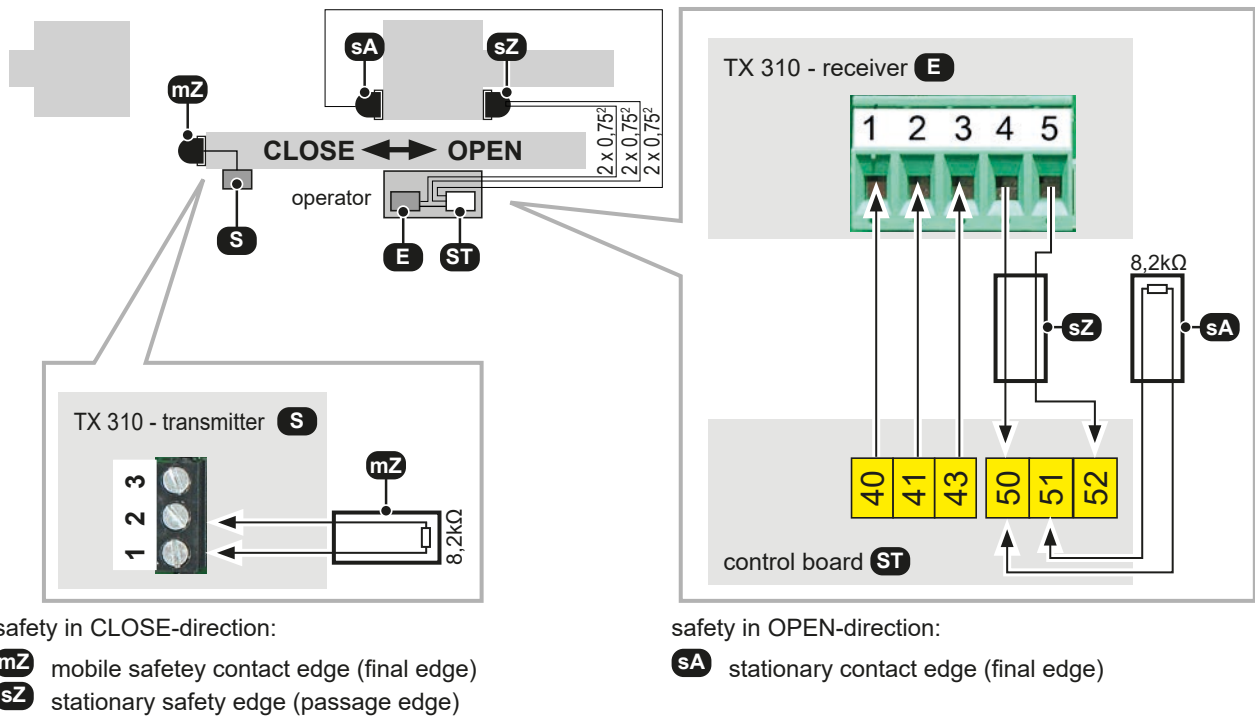
safety in CLOSE-direction:

mZ mobile safety contact edge (final edge)
sZ stationary safety edge (passage edge)

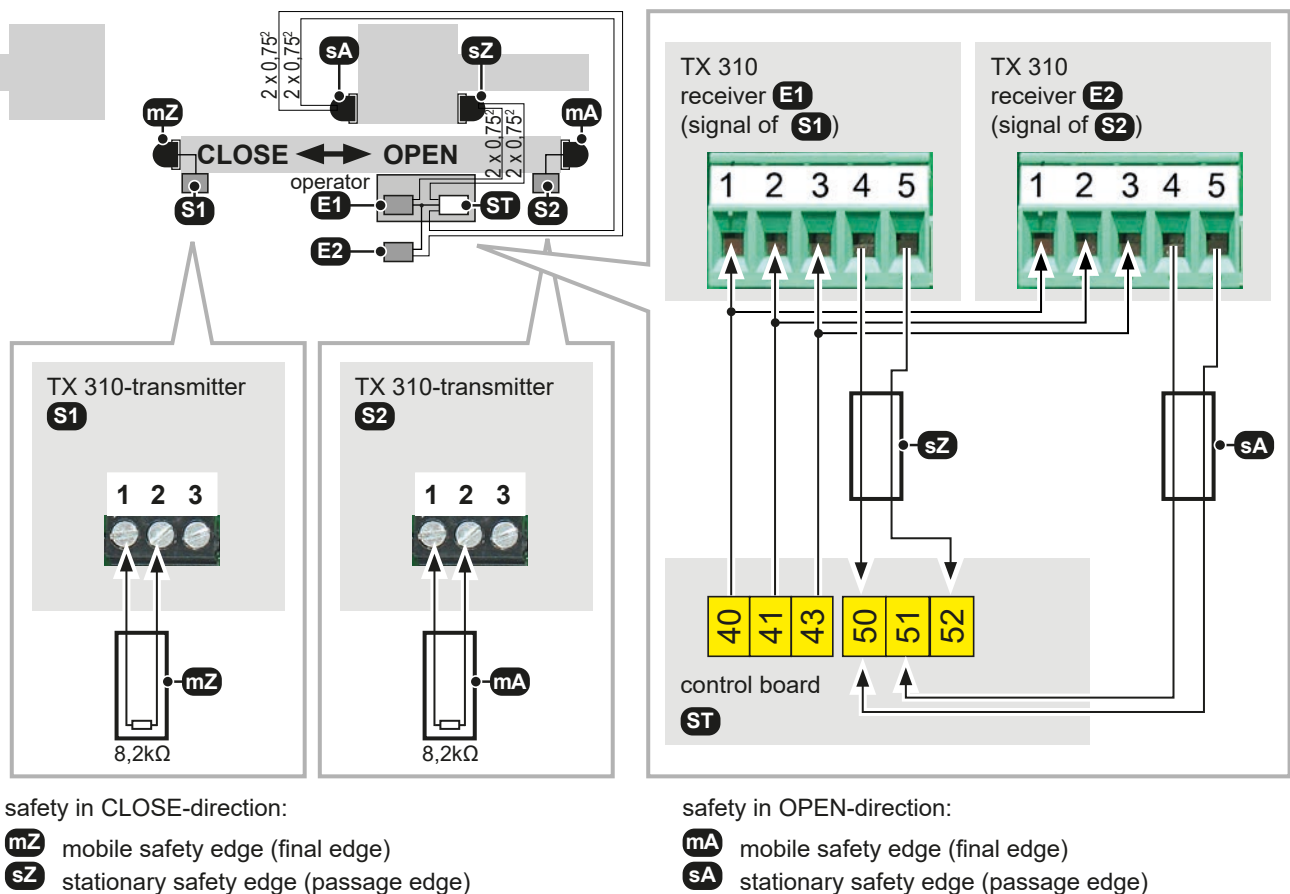
safety in OPEN-direction:

sA stationary safety edge (final edge)

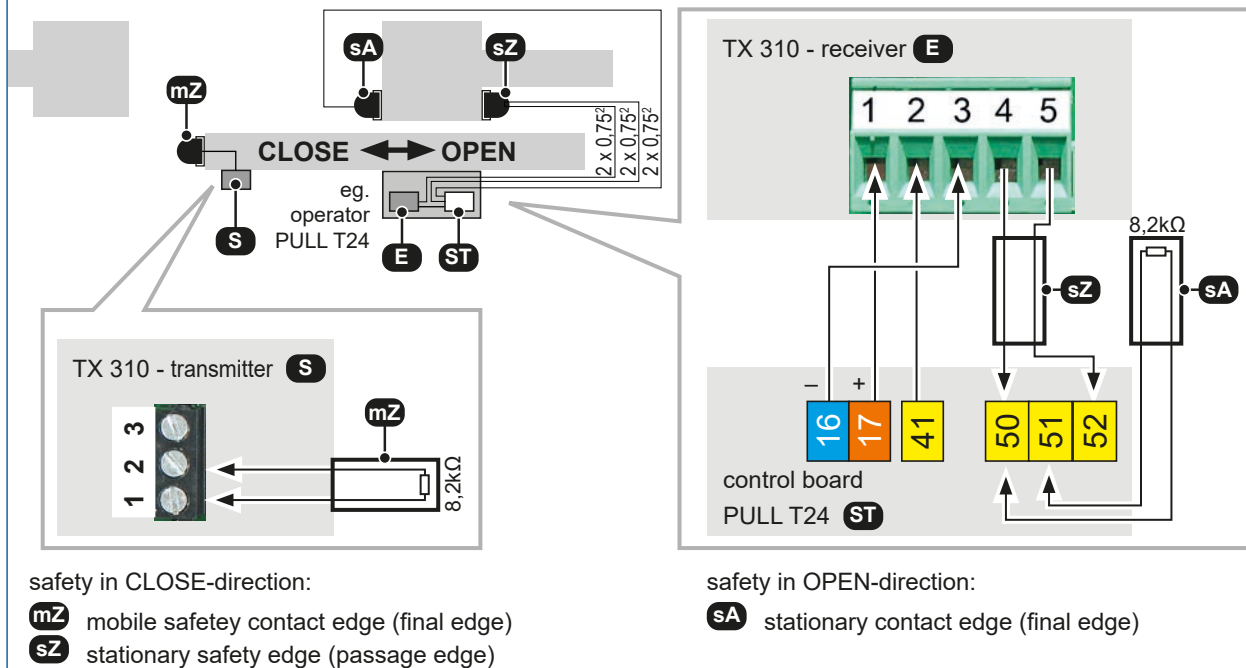
Application Example 1: Mobile contact strip at the gate for safety in the **CLOSE-direction and stationary contact strips on the column for safety in the **OPEN**-/**CLOSE**-direction**



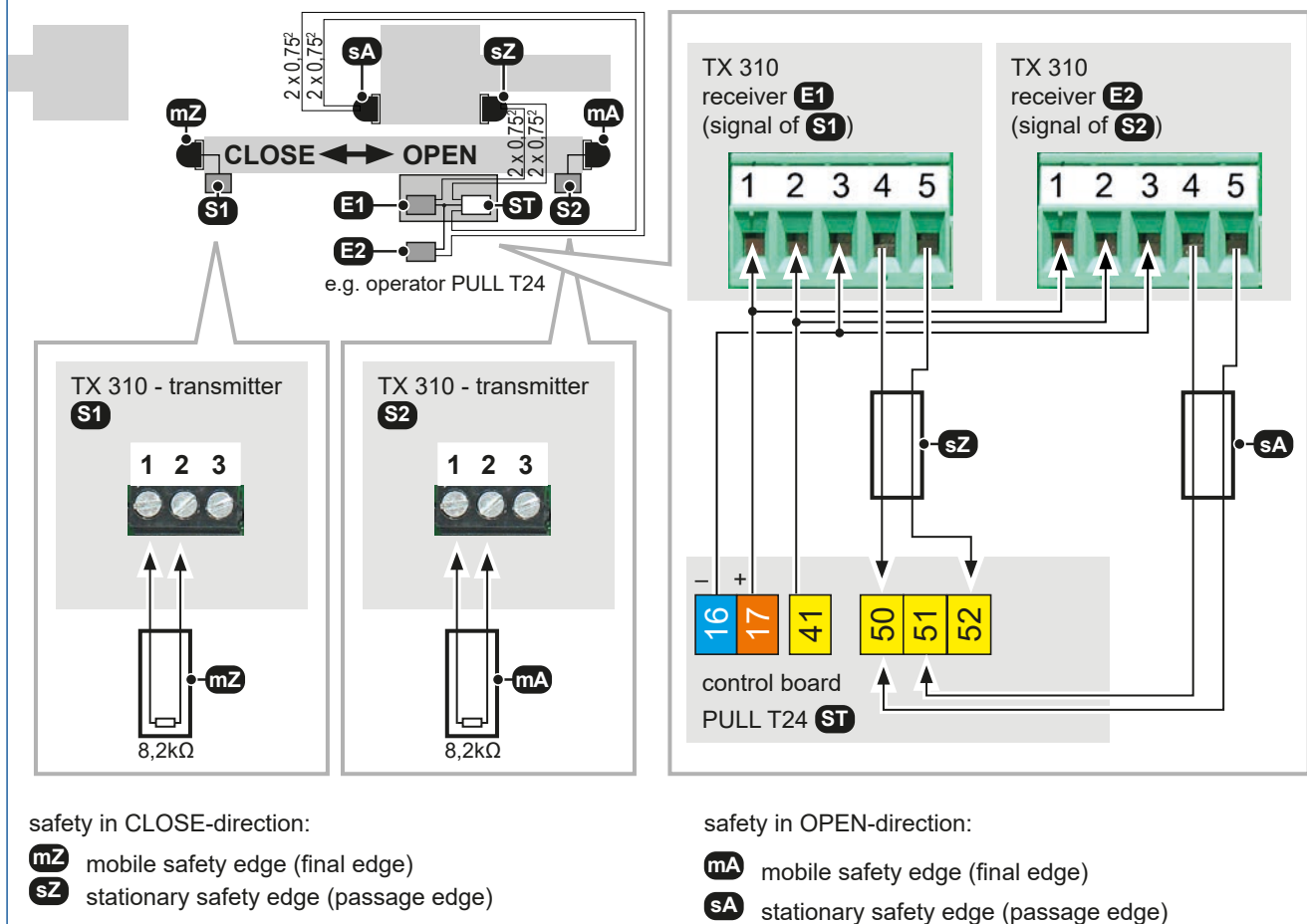
Connection example 2: Mobile contact edges on gate for safety in **OPEN-/**CLOSE**-direction and stationary contact edges on pillar for safety in **OPEN**-/**CLOSE**-direction**

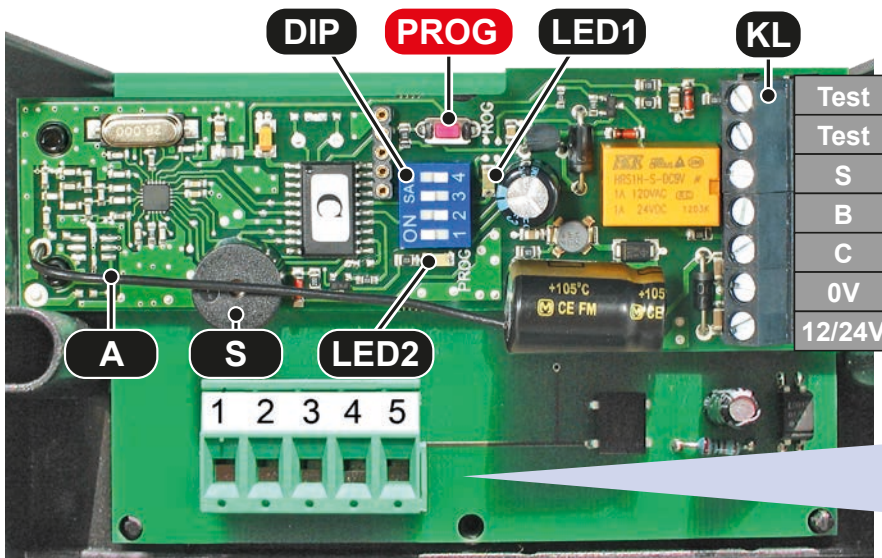


Application Example 1: Mobile contact strip at the gate for safety in the **CLOSE-direction and stationary contact strips on the column for safety in the **OPEN**-/**CLOSE**-direction**



Connection example 2: Mobile contact edges on gate for safety in **OPEN-/**CLOSE**-direction and stationary contact edges on pillar for safety in **OPEN**-/**CLOSE**-direction**





- (KL) Anschlussklemmen
 (LED1) LED 1 (Systembereitschaft)
 (LED2) LED 2 (Programmiermode)
 (DIP) DIP-Schalter
 (PROG) Programmierbutton des Empfängers
 (S) Summer
 (A) Antenne

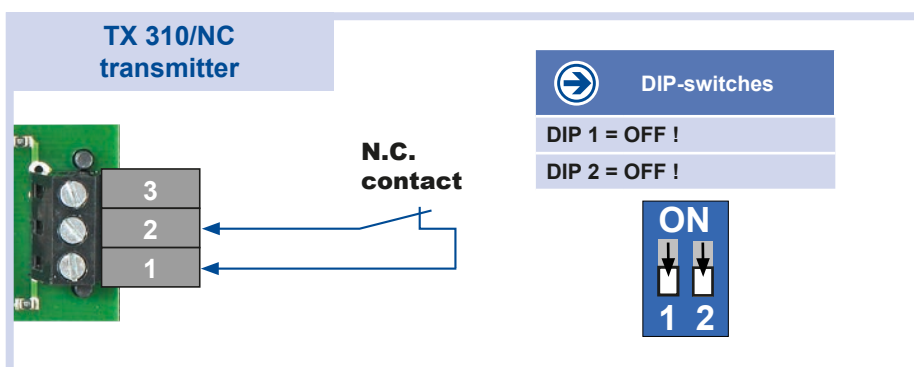
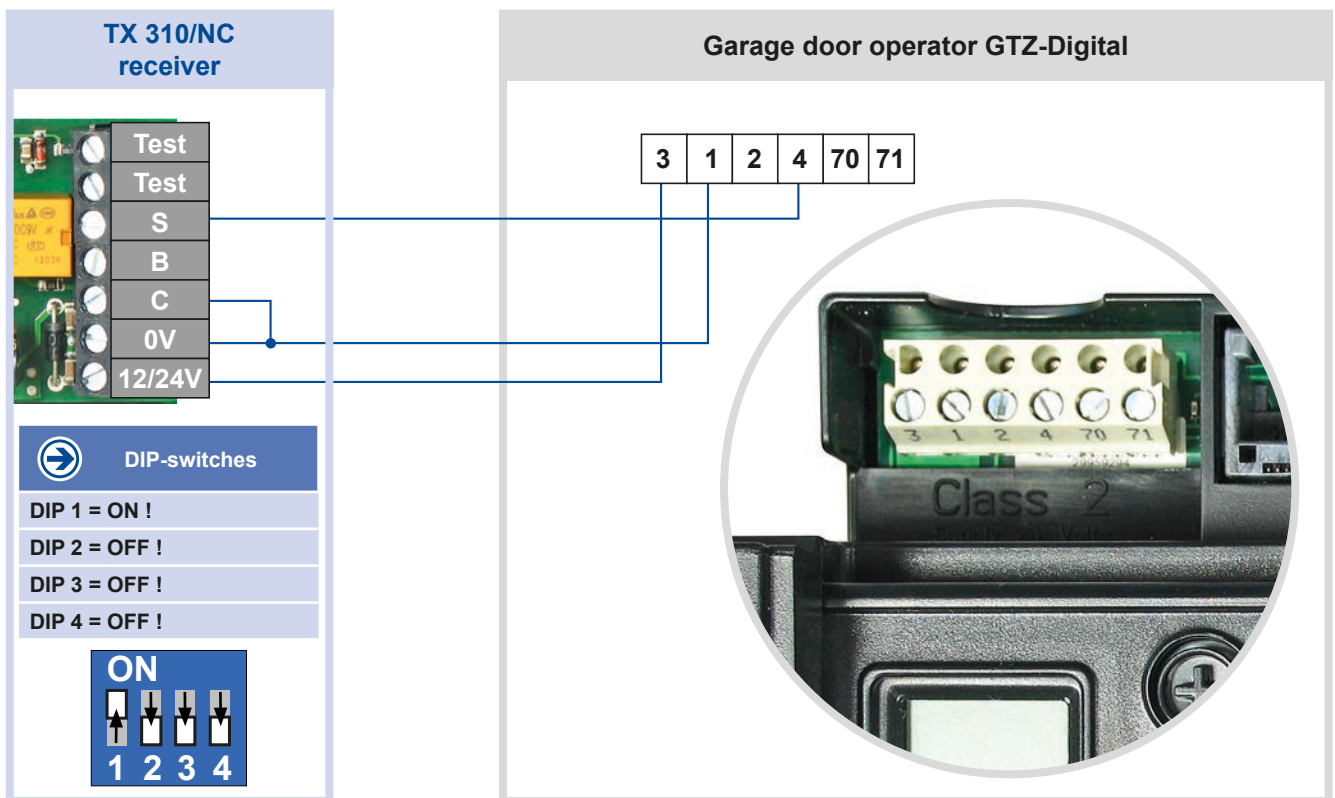


Important

- Do not connect anything to this terminal block.
- Everything has to be connected to the terminal block KL!

e.g. Connecting TX 310/NC with garage door operator GTZ-Digital

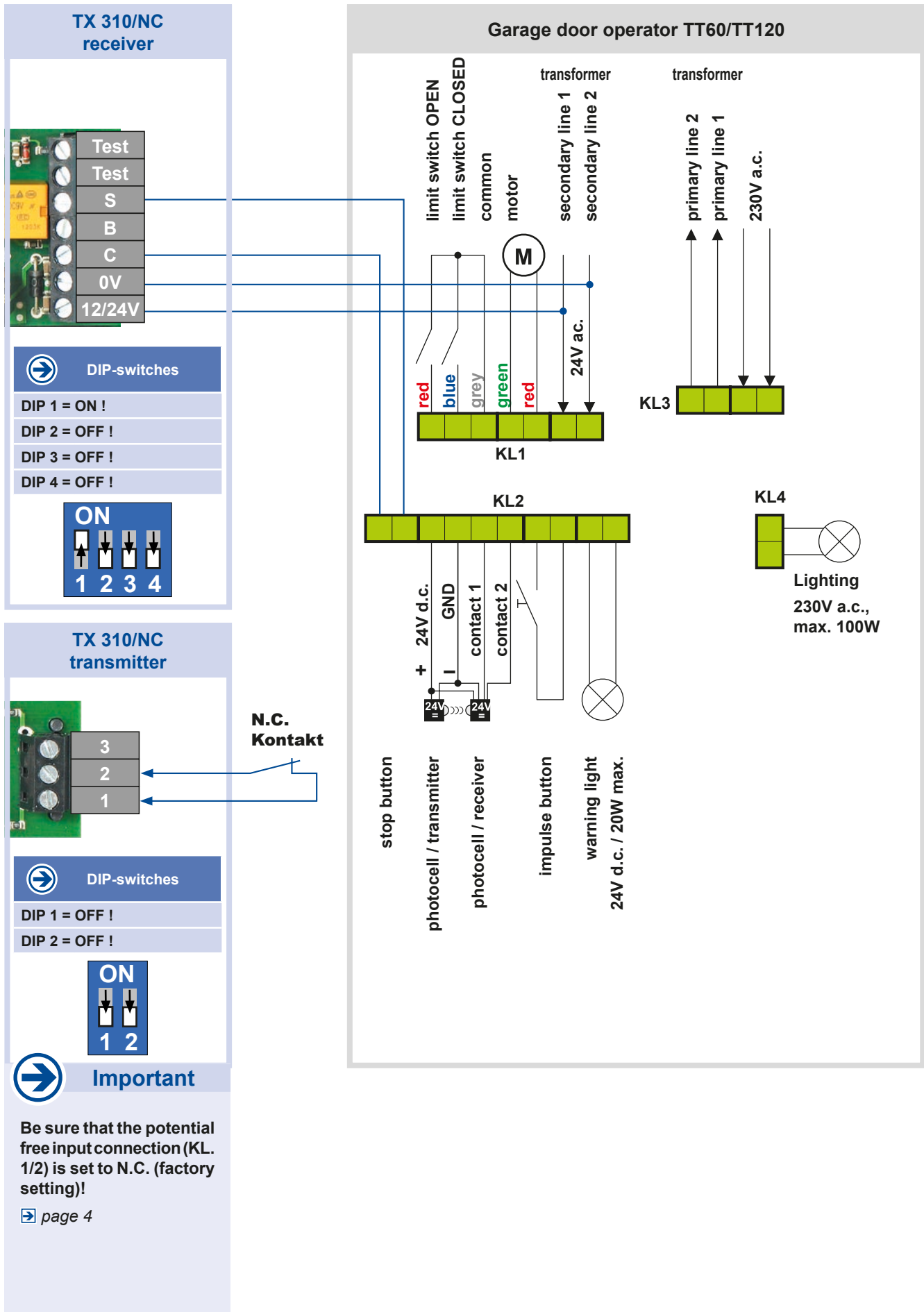
TX 310-Kit



Important

Be sure that the potential free input connection (KL. 1/2) is set to N.C.(factory setting)!

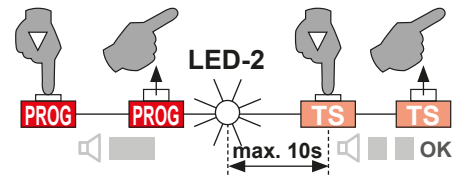
➔ page 4



Storing a transmitter

Programming

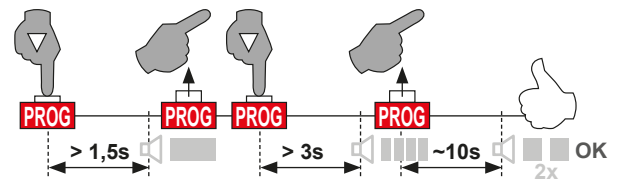
- **Access the memory function:** Press the button of the receiver (PROG) until you hear a beep.
The LED 2 lights red for a maximum of 10 seconds (display memory Standby Output 1).
- **Within these 10 seconds, the transmitter must be enabled:** Press transmitter button (TS), until you hear a sound on the receiver. Additional transmitters can now also be stored by pressing the button (TS).
- **Exit storing:** wait 10 seconds until two beeps can be heard.



Reset: delete receiver memory

Programming

- **Access the memory function:** Press the receiver button (PROG) until you hear a beep. Press the button (PROG) again, until you hear short beeps.
- The receiver memory is deleted now. After 10 seconds, you will hear two signals and the memory mode is automatically released.



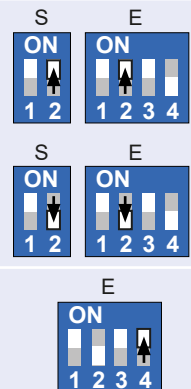
4. Function test



- Set the system under tension.
- Push all safety edges one after the other and check desired function of receiver hence of control board.

5. Error diagnosis

Event viewer		explanation	solution
to save on transmitter:	Signal will sound 10 seconds	Full preset memory. The maximum number of 10 channels per output has been exceeded	delete transmitter
	No signal after transmitter-Touch	No wireless connection. Frequency of transmitter and receiver must match	set DIP-Switch correctly: Frequency 1 (869.85 MHz) or Frequency 2 (868.95 MHz) (factory setting)
during operation:	malfunction (e.g. near a construction site/crane)	Very high levels of interference of radio link	automatic Switching frequency adjustment
during each command:	signal sounds 2-4 times	batteries almost empty	change batteries



tousek PRODUCTS

- sliding gate operators
- cantilever systems
- swing gate operators
- garage door operators
- folding door operators
- traffic barriers
- electronic controls
- radio remote controls
- key operated switches
- access control
- safety devices
- accessories

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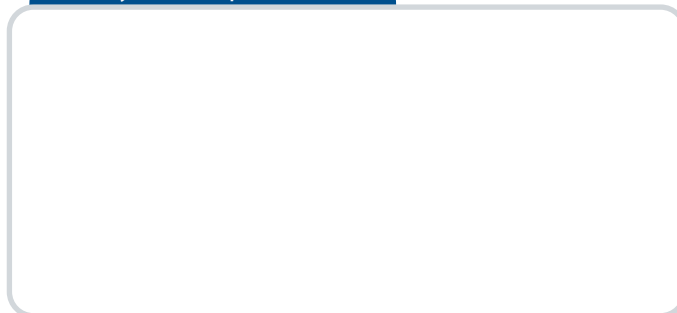
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