

Connection and installation manual

Swing gate control unit ST 61A

in combination with traffic light control STA 11



swing gate control ST 61A and traffic light control STA11
in steel cabinet IP 66 (380 x 300 x 150mm)

traffic light control STA11 in
enclosure IP 54 (210 x 310 x 125mm)



Dswing gate control ST 61A in
enclosure IP 54 (210 x 310 x 125mm)



tousek[®]
G A T E A U T O M A T I O N



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EU - Manufacturer's Declaration:

The company TOUSEK Ges.m.b.H., Zetschegasse 1, 1230 Vienna, hereby declares that the control unit ST 61A complies with the following directives:

Low Voltage Directive 2014/35/EU, incl. changes.

Electromagnetic Compatibility Directive 2014/30/EU, incl. changes.

The manufacturer reserves the right to change specifications and features without announcement.

January 2019



General warning and safety notes

- These installation and operating instructions form an integral part of the product “**control unit**”. 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. It concerns the control only, not of the overall device “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 on the gate system, the power supply has to be turned off.**
- Before taking off the housing cover, always turn off the mains switch!
- 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 TOUSEK Ges.m.b.H. can not be held liable for any claims resulting from disregards of the laws and standards in force during the installation and operation.
- 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..
- Before beginning with the installation the installer has to make sure that all mechanical components of the gate facility, like carrier profile/rail, gate frame and panels, guiding elements etc. are sufficiently supportive and resistant for the purpose of gate automation.
- All electrical installations have to be made in full conformity with the applying rules and laws (e.g. using a fault current circuit breaker, proper grounding etc.).
- **An all-pole disconnecting main switch with a contact opening-gap of minimum 3 mm has to be foreseen.**
- **After installation the proper function of the gate facility and the safety devices has to be checked!**
- 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 rules.
- Only original spare and replacement parts may be used for repair of the product.
- The installer has to inform the user about all aspects of the automatic operation of the complete gate facility, as well as about emergency operation. The installer further has to supply to the user all instructions relating to the safe operation of the gate facility. The installation and operating instructions also have to be handed over to the user.



Maintenance

- **Maintenance works may only be carried out by qualified personnel.**
- **Maintenance and servicing of the complete gate facility has to be carried out according to the gate builder's/ installer's instructions.**
- **Check the proper sensitivity setting of the ARS safety reverse system once a month.**

Control board features

Swing gate control ST 61A:

- suitable for swing gates with electromechanical operators SWING X and SPIN 250, 230V (1 or 2 gate leafs) with integrated sensor.
- easy programming by menu navigation
- leaf delay adjustable at opening and closing
- automatic closing with adjustable pause time
- travel time of both operators will be adjusted automatically
- separately adjustable softstop time of both operators (no loss of force even with reduced speed).
- safety system ARS (autom. reversal system)
- integrated evaluation of safety sensing edges

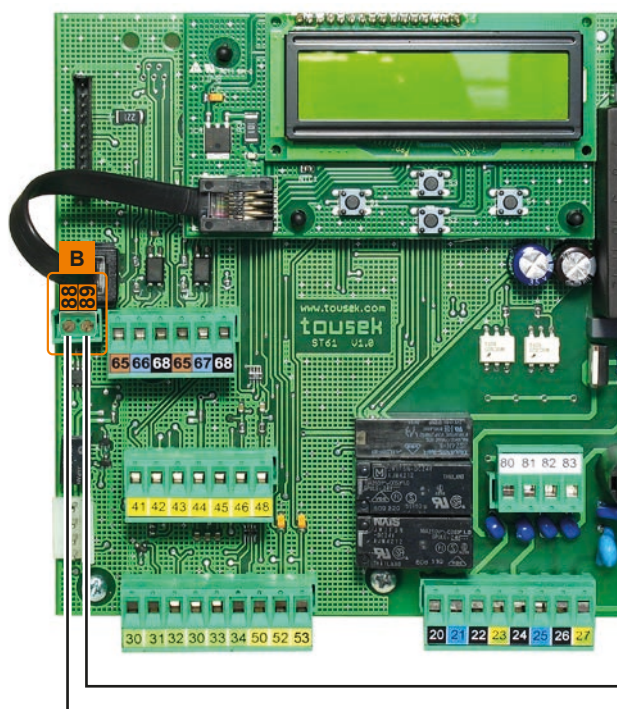
- self-monitoring of photocells
- self-diagnosis display
- optional module: “electric lock /magnetic clamp” or “drop bolt”
- slots for optional modul and radio receiver

Traffic light control STA 11:

- connection possibility of two impulse switches or induction loops for green request and two red/green traffic lights 230V, 60W (inside and outside)
- connection slots for optional radio receiver and induction loop detector



Control board ST 61A

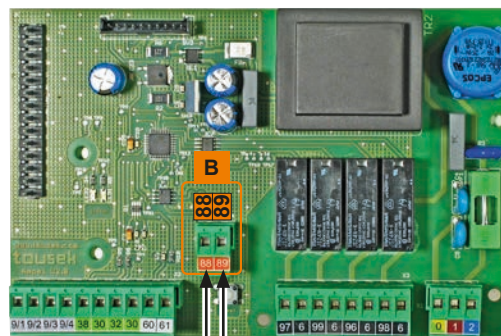


Bussystem Low
Bussystem High

General notes

- swing gate control ST 61A and traffic light control STA11 are available together in a steel cabinet or separate in plastic enclosures IP 54.
- for the implementation of the traffic light system, the traffic light control board STA 11 is connected via a bus system with the swing gate control board ST 61A (prewired in steel cabinet).

Traffic light control STA 11



Technical data

Swing gate control ST 61A in plastic enclosure IP 54 (210 x 310 x 125mm)			
power supply	230V a.c., +/-10% 50Hz	magnetic clamp output	optional 24Vd.c.
motor output	2 x 500W, 230V a.c.	ambient temperature	- 20°C bis + 70°C
flashing light output	230V AC, 40W	protection class	IP54
electric lock output	optional 12Vd.c. or 24V d.c.	speed sensor	■
photocell output	24V a.c.	article no.	12120340
optional equipment	pluggable radio receiver • additional module for courtyard/control lamp • Additional module for gate status evaluation • E-lock/magnet module • radio transmission system TX 310		
Traffic light control STA11 in plastic enclosure IP 54 (210 x 310 x 125mm)			
power supply	230Va.c., +6/-10%, 50Hz	protection class	IP54
relay load red/green traffic light	230V, max. 60W	article no.	12120370
optional equipment	induction loop detector ISD 6 (2-channels) • pluggable radio receiver		
Swing gate control ST 61A and traffic light control STA11 in steel cabinet IP 66 (380 x 300 x 150mm)			
power supply	230V a.c., +/-10% 50Hz	protection class	IP 66
other technical data	see above	article no.	12120340
integrated equipment	main switch		

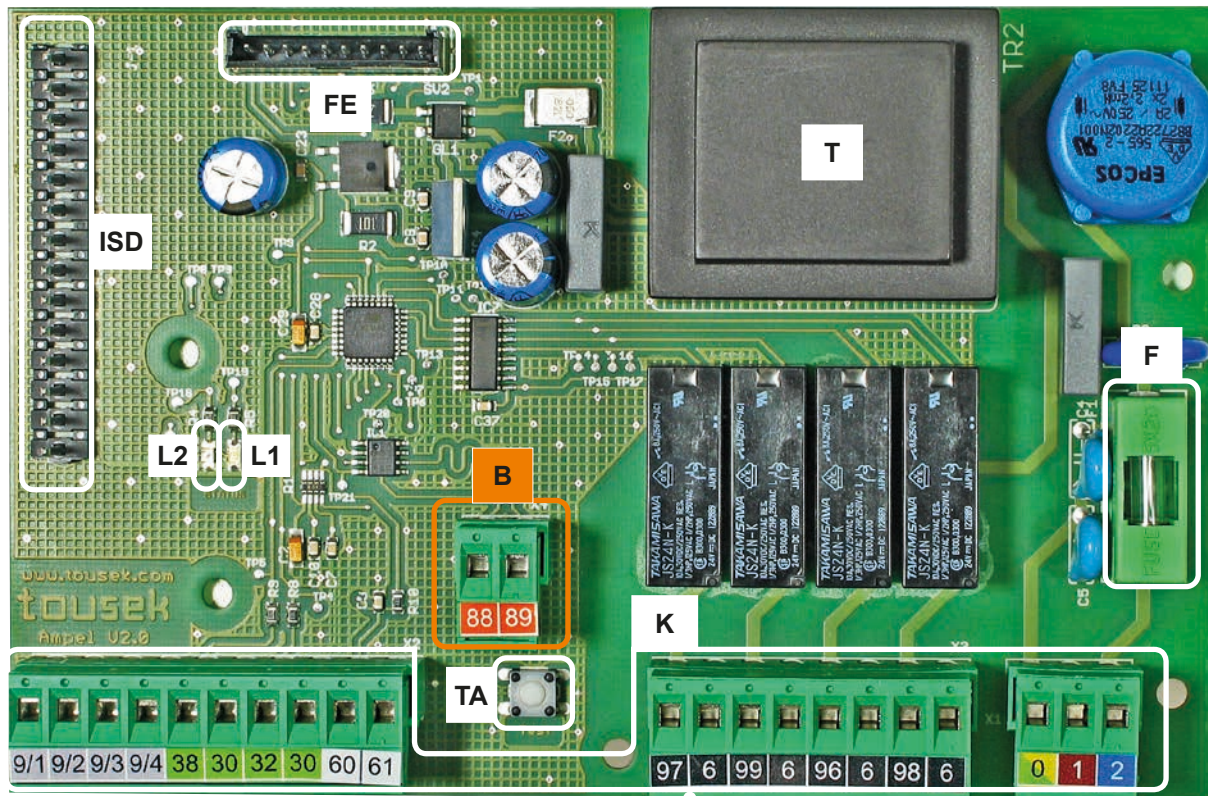
Function

The traffic light control enables in conjunction with a suitable operator control board (eg ST 61A) the automation and control of the gate entry and exit through a traffic light. At the terminals of the traffic light controller separate impulse generators can be connected for „inside“ and „outside“. The behavior of the traffic light control is determined by the settings of the connected operator control board. These relate to the function of the duration of the green phase and the clearance time, the traffic light at the door position „closed“ (whether or continuous red) and the traffic light system logic. Depending on how the „traffic light logic“ was adjusted, after completion of command processing and gate opening, either the side, which has given the order, or both sides receive the green light. Vehicles can therefore only drive in one direction or both directions entering the gate area. Furthermore, the traffic light controller has the capacity to store incoming transit needs and to work at the end of the current cycle.

Functional sequence				Traffic light (command giving side)	Traffic light (counter side)
1	Gate closed Continuous red function adjustable via operator control board	selectable	no continuous red	OFF	OFF
			continuous red	RED	RED
2	opening command (INSIDE or OUTSIDE)			RED	RED
	Prewarning OPEN is being started (= red traffic light warning and possibly signal light warning before opening the door), duration adjustable via gate automation control board				
	> Gate opens after the prewarning time.				
3	Gate open (limit position reached) traffic light logic, adjustable via operator control board	selectable	both sides Green	GREEN	GREEN
			one side Green	GREEN	RED
4	Green phase is started ⓘ Duration is adjustable through operator control board				
5	Clearance time is started (= time to exit the traffic light intermediary region) Duration of adjustable drive control			RED	RED
	> Gate closes after clearance time, cycle starts again (→ 1) • if during the closing procedure an impulse is generated, so the gate opens immediately, and the green phase begins when the opening is completed.				
ⓘ	<ul style="list-style-type: none">• If a further order from one side is given with traffic light logic „both sides Green“ during the green phase/clearance time is given, then the <u>green phase is restarted</u>.• If a further order from the <u>same side</u> is given with traffic light logic „one side Green“ during the green phase/clearance time, then a <u>restart of the green phase</u> for this side is effected.• If a further order from <u>the counter side</u> is given with traffic light logic „one side Green“ during the green phase/clearance time, then the gate remains after the green phase/clearance time open and the <u>Green display changes to the counter side</u>.				



When the stop button is triggered, the gate stops moving and only opens again with command by either side.



Components of traffic light control board

- (K) Terminals
- (B) Bus terminals (connection with operator control unit)
- (TA) Test button (switches all traffic lights on)
- (L 1) green LED: Status OK
- (L 2) red LED: error (message on the display of the drive control)
- (T) Transformer
- (ISD) Slot for optional induction loop detector (→ p. 9) (command)
- (FE) Slot for optional radio receiver (→ p. 8)
- (F) fuse 3,15A T



For connection, adjustment and maintenance works ensure that the electronics are not damaged by moisture (rain).

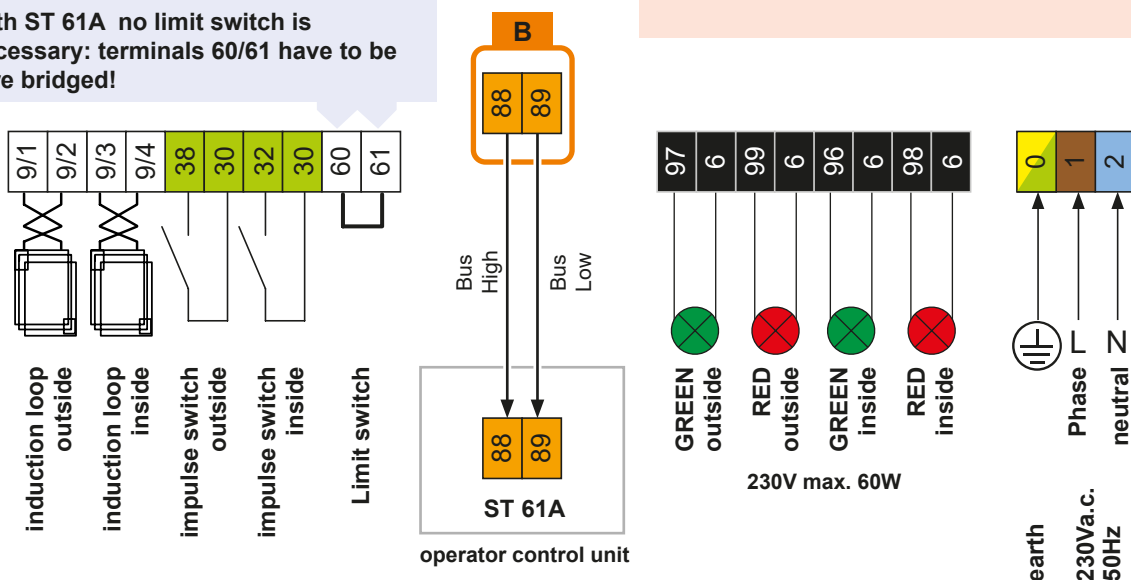


Warning



- Before opening the control housing please switch off necessarily the main switch!
- In-supplied control inside the unit is powered.
- the safety regulations to prevent electrical shock have to be respected.
- The unit is designed to be connected by qualified personnel.
- The device must not be used in hazardous areas!
- A pole disconnecting main switch with a min. contact gap of 3mm has to be provided. The system must be protected in each case in accordance with applicable safety regulations!
- IMPORTANT: The control lines (sensor, buttons, radio remote control, light barriers, etc.) have to be laid separately from the 230V lines (supply, motor, signal light).

With ST 61A no limit switch is necessary: terminals 60/61 have to be wire bridged!





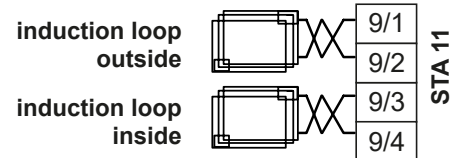
Induction loops

- For the use of induction loops (for Green/Opening command) the I-loop slot (ISD) of the traffic light board STA 11 has to be equipped with an optional available I-loop detector ISD 6 (2-channels). ([page 9](#))

Induction loop input (outside: term. 9/1+9/2, inside: term.9/3+9/4)

Connections

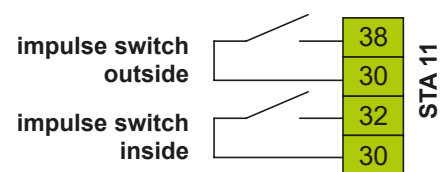
- For the connection of induction loops to give an impulse to the green request.
- With the 2-channel I-loop detector ISD 6 both loops (inside/outside) can be evaluated.



Impulse switch (outside: term. 38/30, inside: term. 32/30)

Connections

- For the connection of impulse switches on the inside and outside to give an impulse for the green request. **The impulse is also possible via an optional, plug-in radio receiver.**
- The green switching for one or both sides is dependent on the adjustment of the traffic light logic of the operator control board.



Limit switch input (term. 60/61)

Connections



Important

With the control unit ST 61A no limit switch connection at the traffic control unit STA 11 is necessary, **instead the terminals 60/61 must be wire bridged!**



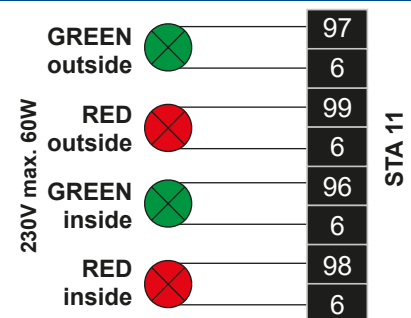
Traffic light outputs

outside: GREEN: term. 97/6, RED: term. 99/6

inside: GREEN: term. 96/6, RED: term. 98/6

Connections

- on the described terminals Red/Green traffic lights (**230V max. 60W**) can be connected for inside and outside location.



Connection traffic light board with operator control board (term. 88/89)

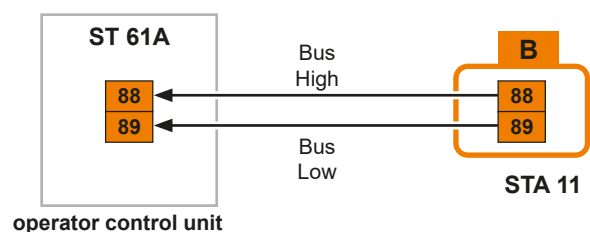
Connections

- Via the bus system (see *pic.*) the traffic light control board is connected with the operator control board.



Important

- Max. cable length between automation and traffic light control is 25m.
- Cable type e.g.: shielded control cable YSLY 2 x 1mm² oder gleichwertig.




Adjustments

- The functions of the traffic light control is determined by the settings of the connected operator control board. These relate to the duration of the green phase and the clearance time, the traffic light at the closed door position (whether or continuous red) and the traffic light logic (both sides / one side green).



Important

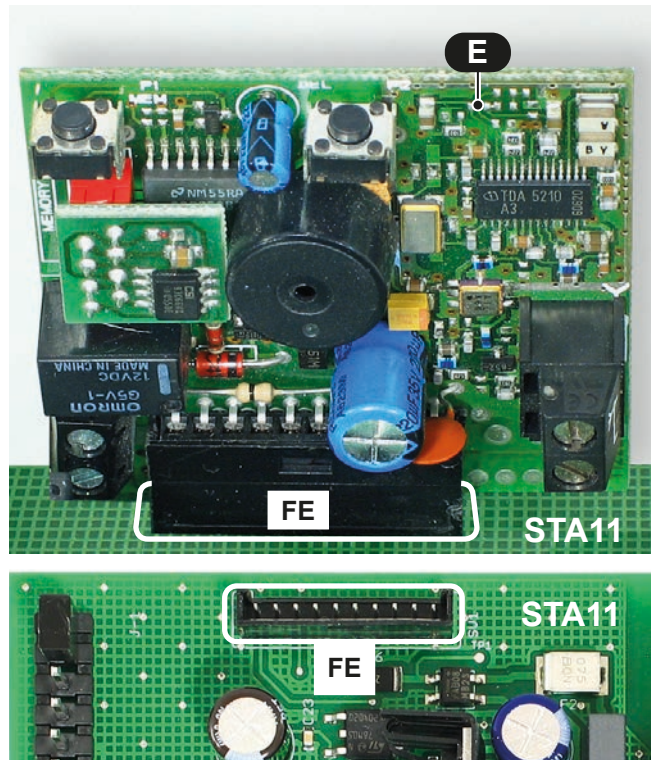
- When using a radio receiver in traffic light mode, the receiver is not to be plugged into the slot of the ST 61A, but into the slot of the traffic light control STA 11 !

- Disconnect the power supply. 
- Open traffic light control housing
- Plug-in the receiver printed circuit board (E) RS433/868-STN1 (1 channel) or RS433/868-STN2 (2 channels) into the corresponding slot (FE) as shown in the picture.
- For range extension an external antenna FK433 or FK868 can be connected.



Important

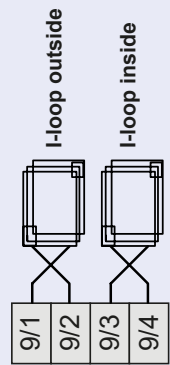
- With the use of the 2-channel-receiver the first channel takes over the function of the impulse button outside and the second the function of the impulse button inside.
- For programming of receiver please *see manual for radio receiver*.





Important

- The device is for plugging onto a compact control board. The compact control board has to be built into a separate housing with IP54-insulation.
- After each device setting a readjustment is carried out automatically. After a change in the frequency (DIP switch 1: OFF / ON) the Reset-button (RES) has to be pressed.
- Special notes for loop:** The safe function of the device depends essentially on the correct technical installation and of the laying of the loop wire, as these are the sensors of the device. The loop should not be mechanically loaded or moved. The loop feed line has to be twisted for **approx. 20 to 50 times per meter** and separated from any voltage carrying lines.
- With the 2 channel induction loop detector ISD 6 both loops can be evaluated (the green / open request inside and outside can be realised).
- The loop connection has to be made to **terminals 9/1-9/2 (= outside) and 9/3-9/4 (= inside)**.
- Detailed informations can be found in the corresponding manual.



STA 11

Mounting and installation



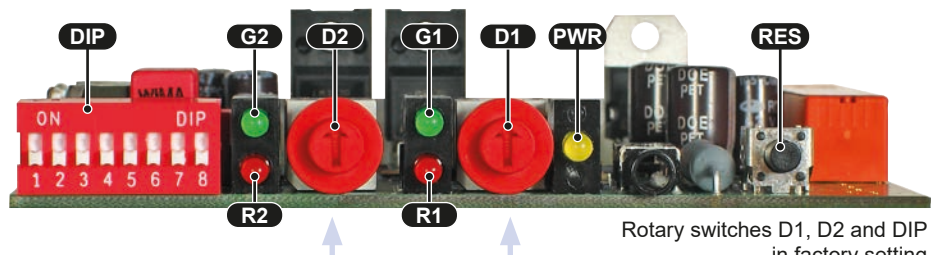
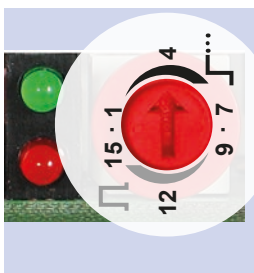
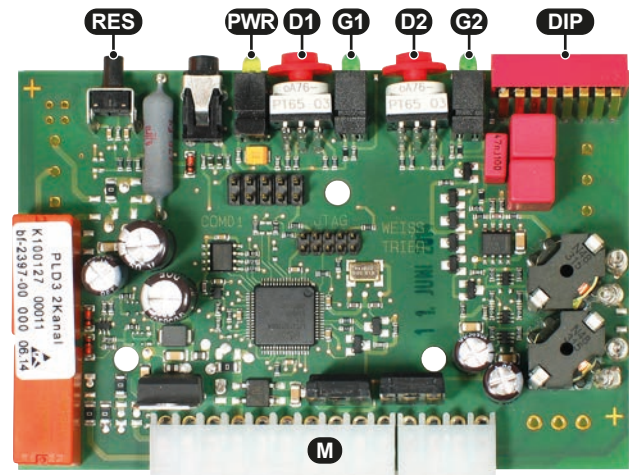
Switch off the power supply. open the control board housing and plug the I-loop detector onto the connection slot as shown on picture.

- All detector settings can be made easily with the rotary switches (**D1**) for channel 1 and (**D2**) for channel 2 as well as the DIP-switches (**DIP**). [see corresponding manual](#).

Factory settings (DIP1–DIP8 = OFF, D1 and D2 = 4).

LED's	for channel	display
G1 (green)	1	detection
G2 (green)	2	
R1 (red)	1	defective
R2 (red)	2	
PWR (yel- low)	blinking when adju- sting / power	

DIP DIP-switch
RES Reset-button
M Molex bar
D1 rotary switch channel 1
D2 rotary switch channel 2



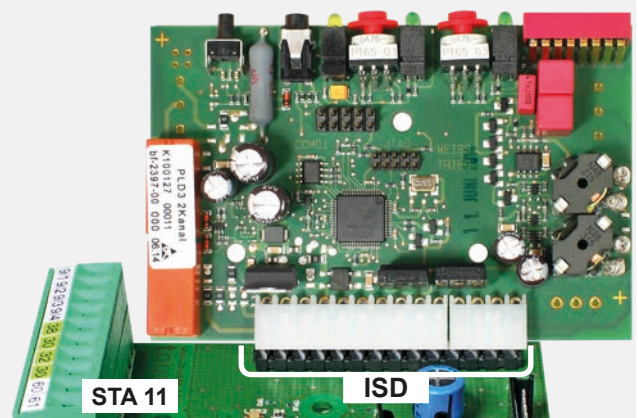
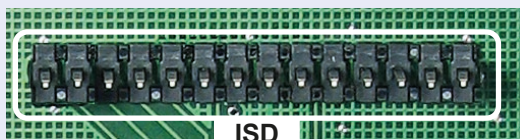
Rotary switches D1, D2 and DIP in factory setting

The Reset button (**RES**) has 2 functions which can be activated via the different duration of the key pressure:

- Adjustment:** short key pressure (< 2s), Initialization of all activated loop channels.
- Reset:** average duration of the key press (> 2s), reset the detector, subsequent initialization of all channels.



Insert the board of the induction loop detector on the slot (**ISD**) of the traffic light control unit **STA 11**.



Control board overview



Attention

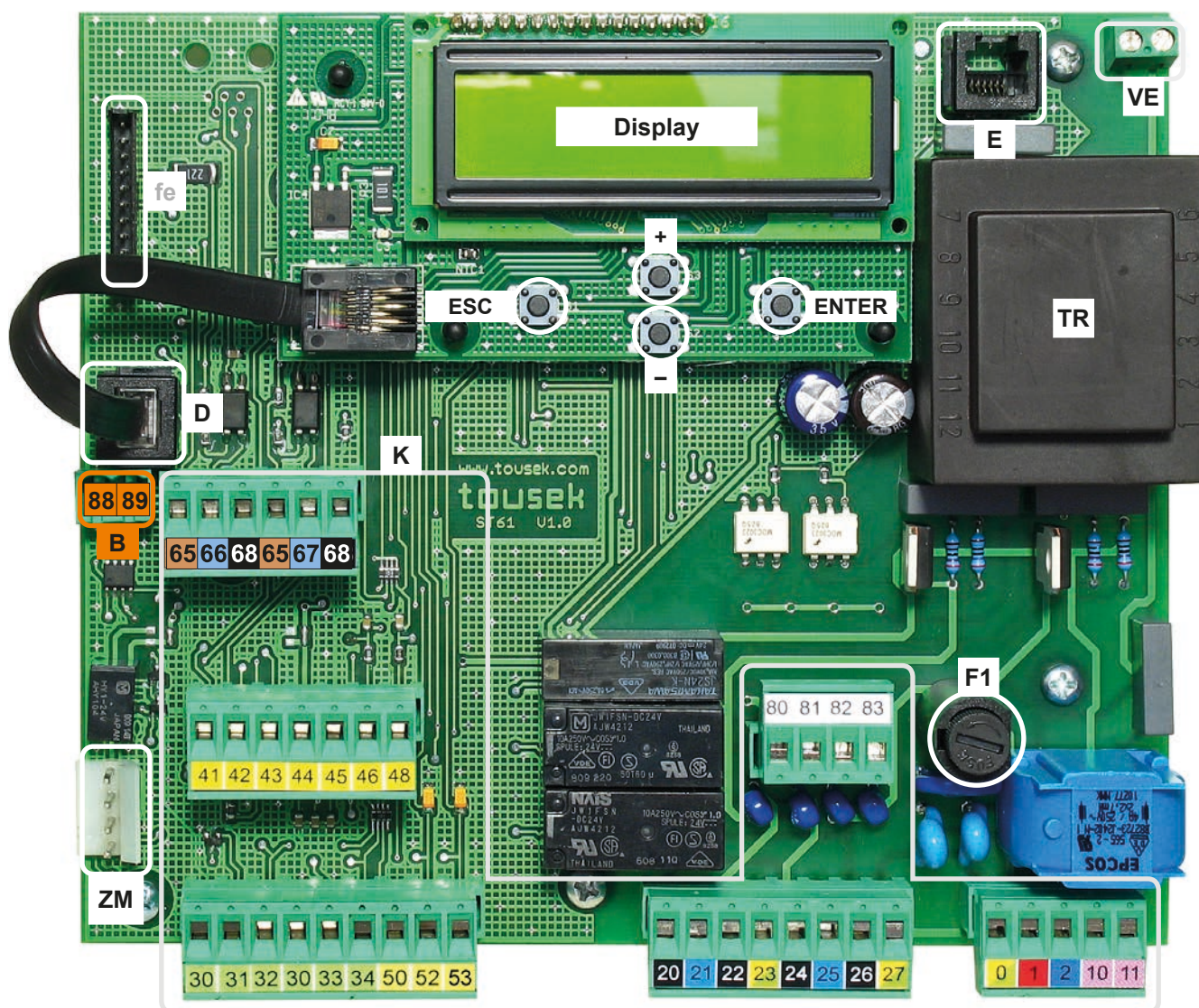
During connection, adjustment and maintenance works please take care, that the electronic circuit board won't be damaged by moisture (rain).



Important

The optional „tousek-connect“ or the „tousek-service interface“ must be connected with socket (D)!

Not with (E) !




components of the control board

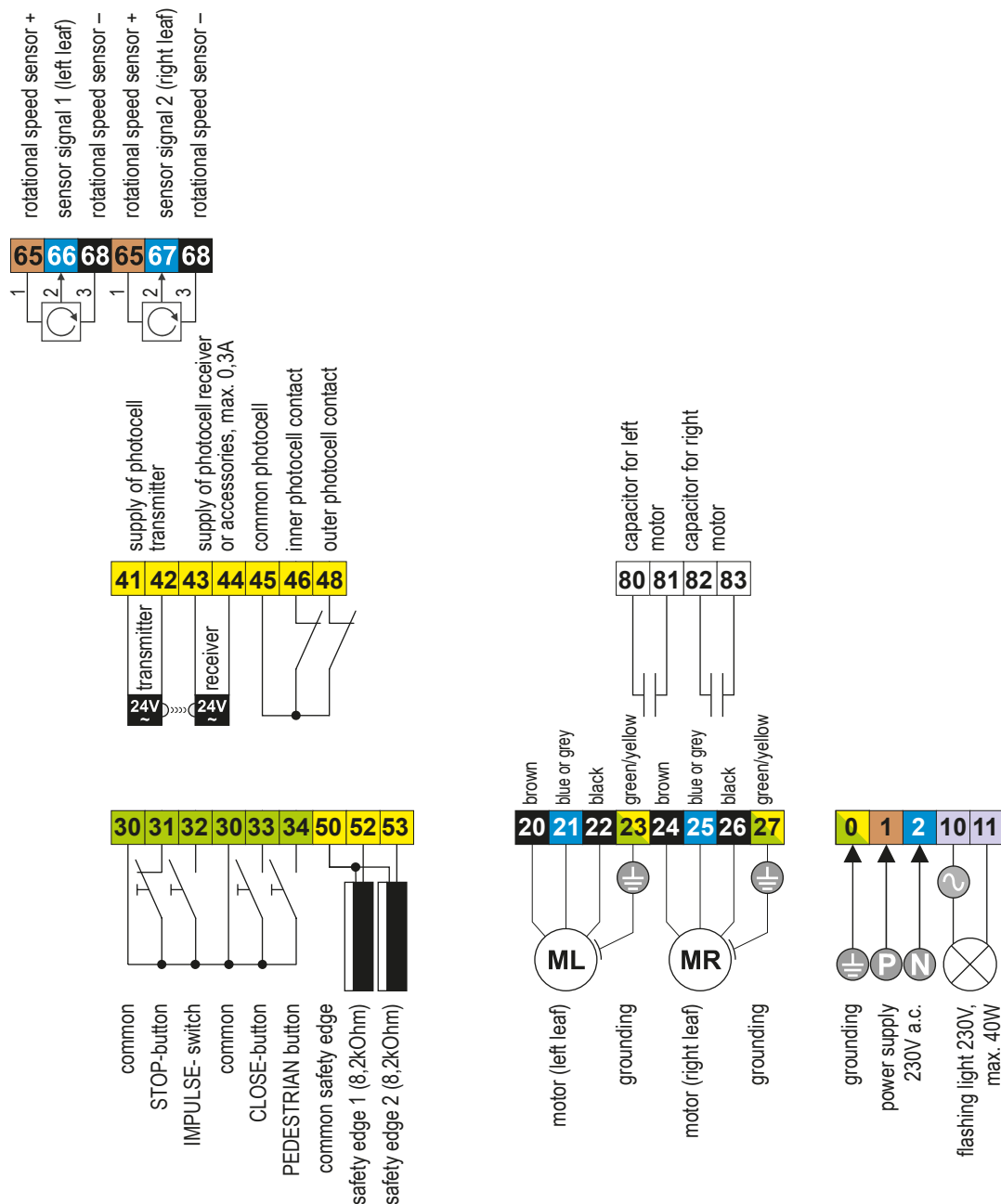
- (K) connection terminals
- (D) Display connection (with buttons +, -, ESC, ENTER) or TC-/TSI-connection (optional „tousek-connect“ / „tousek-service-interface“)
- (E) System plug for optional module drop bolt or electric lock / magnet (page 26)
- (VE) 230V a.c. for electric lock/magnet module
- (B) term. 88/89: for traffic light control connection STA11

- (ZM) slot for optional module „status display“ (page 25)
- (T) transformer
- (F1) fuse 6,3A F



Warning

- Before taking off the control cover, the main switch must be turned off ! 
- The inside of the control unit is under tension when power supplied.
- In order to avoid electrical strokes, the safety regulations have to be respected.
- The device may only be connected by qualified personnel (specialised staff).
- The product is not suitable for installation in explosion-hazardous/explosive areas.
- An all-pole disconnecting main switch with a contact opening gap of min. 3 mm has to be foreseen. The gate facility has to be secured according to the valid safety regulations!
- **IMPORTANT:** The control lines (sensor, buttons, radio, photocells, etc.) have to be laid separately from the 230V lines (supply line, motors, signal lamp).



The stop input has no emergency stop function! - In order to ensure the emergency stop function, provide the supply line with an all-pole disconnecting emergency stop switch, that locks after actuation!

Programming buttons

Adjustments - Overview

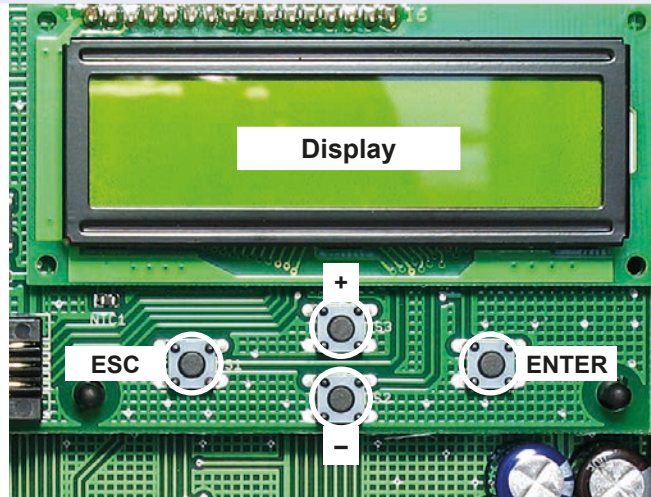


- The adjustment (programming) of the operating parameters is carried out via four programming buttons and the text display.
- Before you can start programming, select the language of the display. You can do this by pressing the **+** or **-** and choose the language for the menus and press **ENTER**.
- Note: The language setting can be changed any time by pressing the **ESC button for 5s**.
- Before you can start programming, you have to select the operator (**SWING X or SPIN 250**).

- The text display informs you on the operating modes, selected menus and adjustment of several parameters.
- The programming of the control is done through four buttons (**+**, **-**, **ENTER** and **ESC**).
- Scrolling through the different menu points (up/down) and changing a parameter (increase/decrease) is done with **buttons + and -**.

AUTO-COUNT: When a button is pressed and held, an automatic scrolling of the menu (or change of the parameter) is carried out.

- By pressing the **ENTER-button** you enter the displayed menu point or memorise the shown value of a parameter.
- By pressing the **ESC-button** you return to the superior menu point. Changed adjustments of a parameter are rejected with this button (the original value is kept).
- **AUTO-EXIT:** If during programming no button is actuated for 1 minute or longer, the programming mode is left automatically. The control is set „ready“ **without storage** of possibly changed values.



Programming menu

Adjustments - Overview



- The programming menu is divided into „BASIC SETTINGS“ and the „MENU CONTROL“.

BASIC SETTINGS

- When programming the control the **first time**, you enter the „**BASIC SETTINGS**“.
- Here the necessary adjustments for operation of the gate facility are made.
- Entering the menu control (for extended programming) is possible by selecting „**MENU CONTROL**“
















MAIN MENU CONTROL

- The next time you will directly enter „**MENU CONTROL**“. (The BASIC SETTINGS are skipped.)
- The menu control contains all possible adjustments.



In the folloleaf the single menu points are marked as shown below:

○ = possible adjustment (or value assignment) ⊙ = factory setting ⊞ = status display
 [G] marks the menu points which are contained in the BASIC SETTINGS


Main layer	Sub layer	Adjustments
buttons/switches page 15	 impulse button	<input type="radio"/> OPEN
safety page 16	 inner photocell	<input type="radio"/> active <input type="radio"/> not active
	 outer photocell	<input type="radio"/> active <input type="radio"/> not active
	 main safety edge 1	<input type="radio"/> active <input type="radio"/> not active <input type="radio"/> radio edge TX310
	 main safety edge 2	<input type="radio"/> active <input type="radio"/> not active <input type="radio"/> radio edge TX310
	photocell function inside	<input type="radio"/> during closing reverse <input type="radio"/> stop - after release open <input type="radio"/> during opening stop - then open
	photocell function outside	<input type="radio"/> during closing reverse <input type="radio"/> stop - after release open
	PHC-pause time	<input type="radio"/> no influence of photocell <input type="radio"/> immediate close after opening
	PHC-self test	<input type="radio"/> active <input type="radio"/> not active
left leaf page 22	 motor (left)	<input type="radio"/> motor ON <input type="radio"/> motor OFF
	 delay left leaf	<input type="radio"/> opening delay <input type="radio"/> closing delay
	 delay time left	<input type="radio"/> 0...25s <input type="radio"/> = 2s
	ARS response time	<input type="radio"/> 0,15...0,95s [increment 0,05] <input type="radio"/> = 0,50s
	max. force	<input type="radio"/> 20...100% <input type="radio"/> = 70%
	soft stop time	<input type="radio"/> 0...25s <input type="radio"/> = 5s
	soft start	<input type="radio"/> not active <input type="radio"/> active only with SWING X !
right leaf page 22	 motor (right)	<input type="radio"/> motor ON <input type="radio"/> motor OFF
	 delay right leaf	<input type="radio"/> opening delay <input type="radio"/> closing delay
	 delay time right	<input type="radio"/> 0...25s <input type="radio"/> = 2s
	ARS response time	<input type="radio"/> 0,15...0,95s [increment 0,05] <input type="radio"/> = 0,50s
	max. force	<input type="radio"/> 20...100% <input type="radio"/> = 70%
	soft stop time	<input type="radio"/> 0...25s <input type="radio"/> = 5s
	soft start	<input type="radio"/> not active <input type="radio"/> active only with SWING X !
operating mode page 23	closing edges	<input type="radio"/> left/right <input type="radio"/> inside/outside
	limit tolerance	<input type="radio"/> 3...20 <input type="radio"/> = 20
lights/lamps page 24	prewarning OPEN	<input type="radio"/> OFF, 1...30s <input type="radio"/> = OFF
	 green phase	<input type="radio"/> 5...120s [increment 1] <input type="radio"/> = 20s
	 clearance time	<input type="radio"/> 1...60s [increment 1] <input type="radio"/> = 5s
	 traffic light gate CLOSED	<input type="radio"/> red light OFF <input type="radio"/> permanent RED
	 traffic light logic	<input type="radio"/> green on both sides <input type="radio"/> green on one side
	courtyard lamp ¹	<input type="radio"/> OFF, 5...950 <input type="radio"/> = OFF
	control lamp ¹	<input type="radio"/> illuminates during open and close <input type="radio"/> blinks slowly / illuminates / blinks <input type="radio"/> illuminates in open position
peripherals page 25	electric lock	<input type="radio"/> switched off <input type="radio"/> 1...10s visible only if activated under „locking“
	reverse stroke reverse stroke only with active locking!	<input type="radio"/> switched off <input type="radio"/> 0,5...8s
	additional module	<input type="radio"/> courtyard/control lamp <input type="radio"/> status display 1 <input type="radio"/> status display 2
	locking	<input type="radio"/> e-lock/magnetic clamp <input type="radio"/> motor lock
	motor lock	<input type="radio"/> OPEN and CLOSE <input type="radio"/> only OPEN <input type="radio"/> only CLOSE visible only if activated under „locking“
diagnosis page 28	status display	<input checked="" type="radio"/> status display
	delete position	<input type="radio"/> NO <input type="radio"/> YES
	factory setting	<input type="radio"/> NO <input type="radio"/> YES
	software version	<input checked="" type="radio"/> show software version
	serial number	<input checked="" type="radio"/> show serial number

Note: some adjustments regarding function or operating logic can only be executed if gate is closed and if the display shows „ready“.

¹⁾ The menu points courtyard lamp and control lamp will only appear on display if in menu „Additional module“ ☐ courtyard lamp/control lamp is selected.



Warning

- Before taking off the control cover, the main switch must be turned off ! 
- The inside of the control unit is under tension when power supplied.
- In order to avoid electrical strokes, the safety regulations have to be respected.
- The device may only be connected by qualified personnel (specialised staff).

- The product is not suitable for installation in explosion-hazardous/explosive areas.
- An all-pole disconnecting main switch with a contact opening gap of min. 3 mm has to be foreseen. The gate facility has to be secured according to the valid safety regulations!
- **IMPORTANT:** The control lines (sensor, buttons, radio, photocells, etc.) have to be laid separately from the 230V lines (supply line, motors, signal lamp).



The single menu points are marked as shown below:

○ = possible adjustment (or value assignment) ⊙ = factory setting ⇌ = status display

 marks the menu points which are contained in the BASIC SETTINGS



- A general status display of all inputs is available in menu DIAGNOSIS/STATUS DISPLAY.

Power supply connection

Connections and adjustments



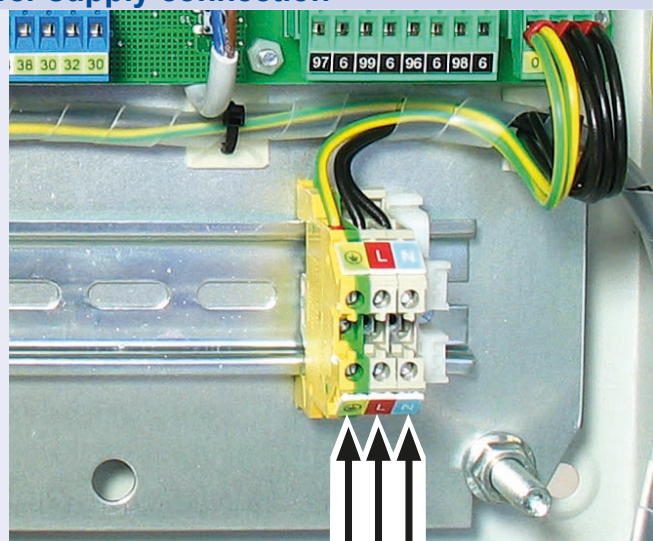
Power supply may not be connected until all the connections to the control board are finished!

- If the control boards are in separated plastic enclosures then the power supply cables must be connected according to the connection plan:
 - swing gate control board ST 61A  page 11
 - traffic light control board STA 11  page 6
- If both control boards are built into the steel cabinet then the power supply cables must be connected according to the below illustration.



Steel cabinet: power supply connection

- If both control boards are built into the steel cabinet then the power supply cables must be connected according to this illustration.

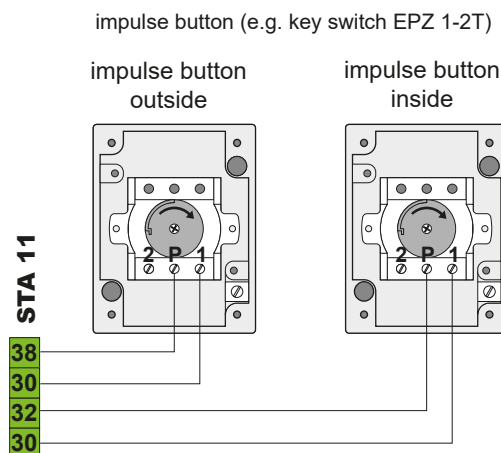


 L N
230V a.c.

impulse button (STA 11: outside: term. 38/30, inside: term. 32/30)

Taster / Schalter

- ⊙ **OPEN:** Via the impulse button terminals of the STA 11 only opening commands possible. It means that closing the gate by giving an impulse on the terminals 38/30 or 32/30 is not possible. (→ *Ampelsteuerung, Seite 7*)

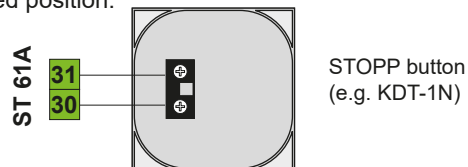


Push buttons, key switches or external radio receivers with potential-free contacts can be used as impulse switches.

STOP-switch (terminals 30/31)

Buttons / switches

- when pressing the stop switch the gate stops in any desired position.



As stop switch a break contact has to be used.
If no stop switch is connected, terminals 30/31 have to be wire-bridged.



The stop input has no emergency stop function! - In order to ensure the emergency stop function, provide the supply line with an all-pole disconnecting emergency stop switch, that locks after actuation!



Important: notes for photocells

Photocell connection:

- The control unit has a power supply connection for a **24V a.c.** photocell (PHC)

Versorgung: **PHC-transmitter: terminals 41/42**

PHC-receiver: terminals 43/44

Note: in „gate closed“ position the terminals 41/42 are being switched into energy saving mode (no current) (only if the radio transmission system TX 310 is not used) !

- At supplied and positioned photocells the contact has to be closed (make contact).

PHC contacts: **inside = term. 45/46, outside = term. 45/48, back area =** With additional inner photocells the back area of the gate can be monitored. (All inner photocells are then set in series at control terminals 45/46 (terminals for inner photocells).

Mounting notes (SYNC function):

IMPORTANT: When using two pairs of photocells please do not install both photocell transmitters/receivers on the same side (to eliminate interference between both) !

Exception: photocells with SYNC function allow the installation of both photocell transmitters/receivers on the same side without causing interference to each other.

Self-monitoring of photocells:

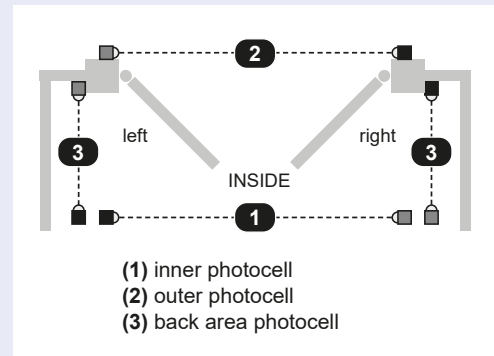
The control unit has a monitoring function for the connected photocells. A test will be triggered by each impulse and will be checked if the receiver of the photocell responds to the signal from the photocell transmitter. If there is no communication between the photocell receiver and transmitter the control unit responds with an error.

➡ **The deactivation of the self-test function is only permitted if the safety installations correspond to the category 3 !**

Photocell functions:

The exact function of the photocells depends on the programming of the control unit:
see menu point **SAFETY/inner (outer) photocell function**, resp. **photocell with pause time** (➡ page 19).

Detailed information you will find in the corresponding photocell manual.



Standard	transmitter 1	receiver 1
	receiver 2	transmitter 2
mit SYNC	ransmitter 1	receiver 1
	ransmitter 2	receiver 2

G inner photocell (contact: terminals 45/46)

Safety

- ⊙ **active:** to be selected, if inner photocell should be triggered.
- **not active:** to be selected, if inner photocell should not be triggered.

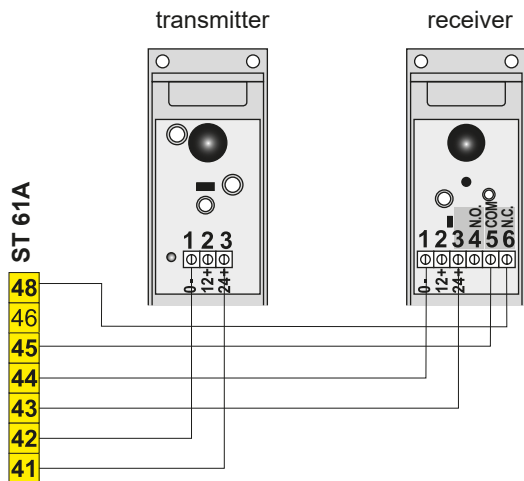
G outer photocell (contact: terminals 45/48)

Safety

- ⊙ **active:** to be selected, if outer photocell should be triggered.
- **not active:** to be selected, if outer photocell should not be triggered.

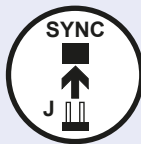
Photocells - connection examples

Outer photocell Tousek LS 180 as safety device



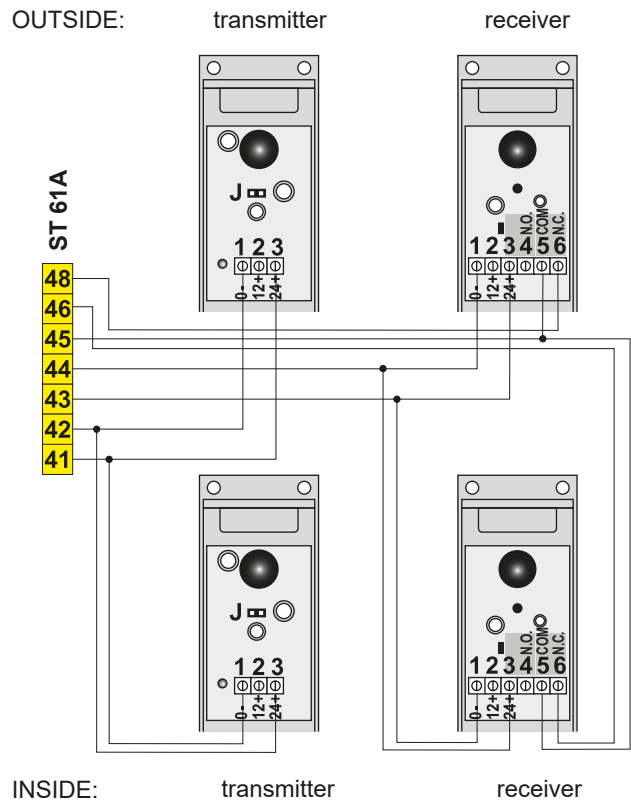
Important

- To activate the SYNC-function, the plug-in bridges (J) in both photocell transmitters **have to be removed**. (see manual LS 180).

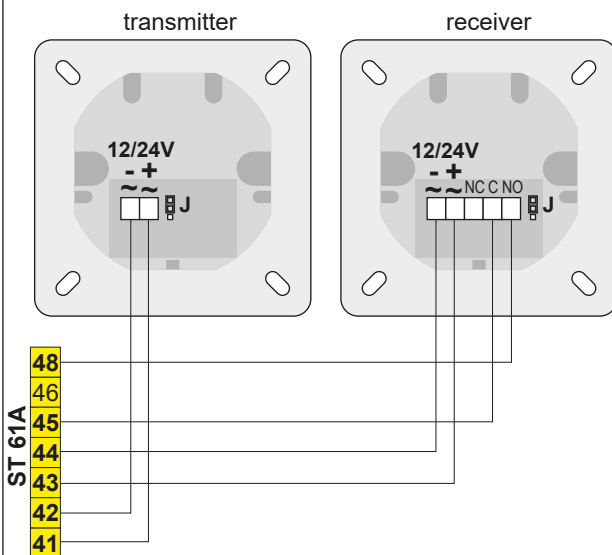


Outer and inner photocell Tousek LS 180 as safety device

with active SYNC-function



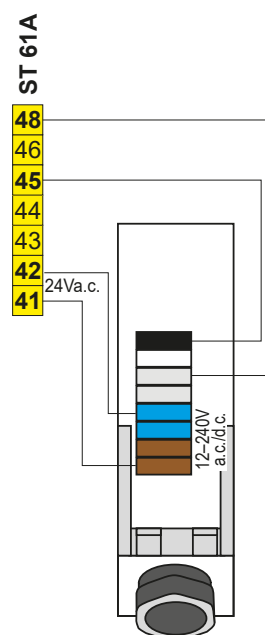
Outer photocell Tousek LS 26 as safety device



Important

- Jumper J of transmitter and receiver has to be adjusted in the same way.

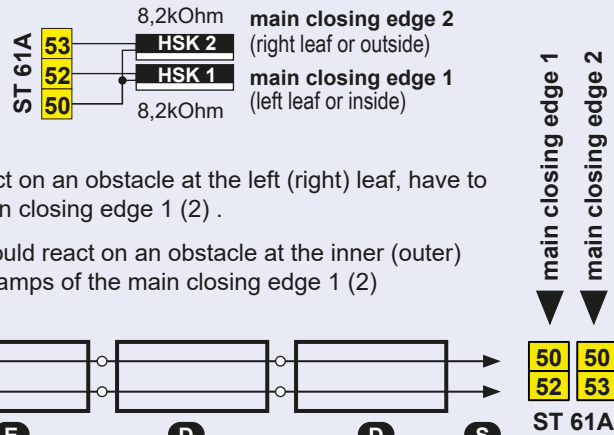
Outer reflective photocell Tousek RLS 620 as safety device





Safety sensing edges (main closing edge 1 + 2)

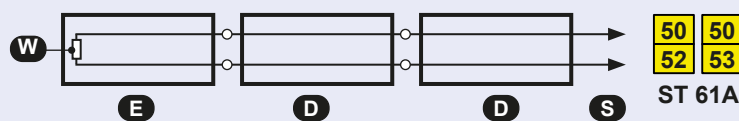
- **OBSTACLE DETECTION:** when a contact strip/safety edge is triggered/activated then a change of direction is effected for 1 second. Then the gate stops.
- The activation of the safety sensing edges is made in menu „**Safety / main closing edge 1**“ (term. 50/52) and „**Safety / main closing edge 2**“ (term. 50/53)
- If in the menu item „**operating logic / closing edge**“ (→ page 23) one of the modes „**left / right**“ or „**inside / outside**“ is selected - this results in the wiring of the safety contact edges to make with each other and the connection to the control terminals.



Safety sensing edges in mode „**left/right**“, that should react on an obstacle at the left (right) leaf, have to be connected (serially) to the connection clamps of the main closing edge 1 (2) .

Safety sensing edges in mode „**inside/outside**“, which should react on an obstacle at the inner (outer) side of the leaf, be connected (serially) to the connection clamps of the main closing edge 1 (2)

Example: W 8,2kΩ final resistance
E final edge
D passage edge
S to the control board



When connecting one safety edge a final edge (E) has to be used.



Important

- After giving the impulse to program the end positions, no other impulse must be given. Also the safety devices mustn't be triggered. This would lead to an interruption of the programming process.
- Therefore, the mechanical stops must be set so that the existing contact strips cannot be triggered.

main safety edge 1 (terminals 50/52)

Safety

- ⊙ **active:** to be selected if the contact strip (8,2kOhm) of main safety sensing edge 1 should be evaluated.
- **not active:** to be selected if the contact strip of main safety sensing edge 1 should not be evaluated
- **radio edge TX310:** to be selected if safety sensing edge (8,2kΩ) of main entrance edge 1 should be evaluated **with the radio transmission system TX 310.**

main safety edge 2 (terminals 50/53)

Safety

- ⊙ **active:** to be selected if the contact strip (8,2kOhm) of main safety sensing edge 2 should be evaluated.
- **not active:** to be selected if the contact strip of main safety sensing edge 2 should not be evaluated
- **radio edge TX310:** to be selected if safety sensing edge (8,2kΩ) of main entrance edge 2 should be evaluated **with the radio transmission system TX 310.**



- Connection and detailed information of radio transmission system TX 310 see according manual.

Photocell function inside

Safety

- ⊙ **during closing reverse:** an interruption of the photocell during closing makes the gate reverse (open). In automatic mode the gate closes as soon as the pause time has run out. In impulse operation another closing command has to be given.
- **stop - after release open:** an interruption of the photocell beam during opening or closing makes the motor stop as long as the photocell stays interrupted. After release of the photocell, the gate opens. In automatic mode the gate closes as soon as the pause time has run out, in impulse operation another closing command has to be given.
- **during opening stop - then open:** an interruption of the photocell during opening makes the motor stop as long as the photocell stays interrupted. After release of the photocell, the gate opens (back area monitoring). In automatic mode the gate closes as soon as the pause time has run out, in impulse operation another closing command has to be given.

Photocell function outside

Safety

- ⊙ **during closing reverse:** an interruption of the photocell during closing makes the gate reverse (open). In automatic mode the gate closes as soon as the pause time has run out. In impulse operation another closing command has to be given.
- **stop - after release open:** an interruption of the photocell beam during opening or closing makes the motor stop as long as the photocell stays interrupted. After release of the photocell, the gate opens. In automatic mode the gate closes as soon as the pause time has run out, in impulse operation another closing command has to be given.

PHC-pause time

Safety

- ⊙ **no influence of photocell:** the photocell doesn't have any influence on the pause time in automatic mode.
- **abort pause time:** in automatic mode an interruption of the outer photocell during pause time shortens the pause time. After release of the photocell the gate starts closing.
- **re-start of pause time:** in automatic mode an interruption of the outer photocell during pause time, restarts the pause time. As soon as the pause time has run out, the gate closes.
- **immediate close after opening:** If the outer or inner photocell is interrupted during the opening movement or if the outer photocell is interrupted in open position, then the gate begins to close after the release of the photocell.

PHC-self test

Safety

- ⊙ **active:** photocell self-test is executed with an opening impulse (switch, button) in gate position „closed“.
- **not active:** photocell self-test is not executed

**Attention**

- The photocell self-test can only be deactivated by selecting „not active“.
- The deactivation of the self-test function is only permitted if the safety installations correspond to the category 3 !



Danger



- Before connection work or taking off the housing cover, the power supply has to be turned off !
- All electrical installations (control panels, safety devices, impulse switches and buttons) and force adjustments (see menu: left left / right leaf) have to be made in full conformity with the applying rules and laws! !
- ☑ also follow safety instructions on page 11 !



Important: notes for connection and adjustment of operators

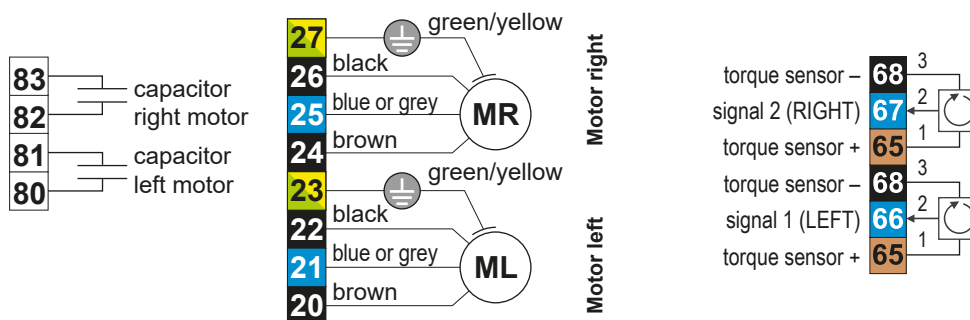
- It is possible to connect 2 motors 230V (max. 500W/motor) with control ST61A.
- **Attention: Before carrying out any connection works, the power supply of the gate facility has to be turned off.**
- Operators' power supply and sensor cables as well as the capacitors must be connected to the ST 61A control unit according to the installation manual. The sensor signal defines the performance/response when hitting an obstacle or when reaching a gate end position (adjustment of sensor sensibility please see menu "left (right) wing".
- Note that after turning on the power supply and giving an impulse the gate leaves open.
If this is not the case then the terminals 20/22 of the left motor or the terminals 24/26 of the right motor have to be interchanged.
- **Important: for operation with one motor/operator please deactivate the other one by choosing "MOTOR OFF" !**
The adjustments in the menu LEFT (RIGHT) LEAF/OPERATOR „Motor ON or OFF“ must match the actual motor connection on the control unit terminals.



Motor and sensor wires

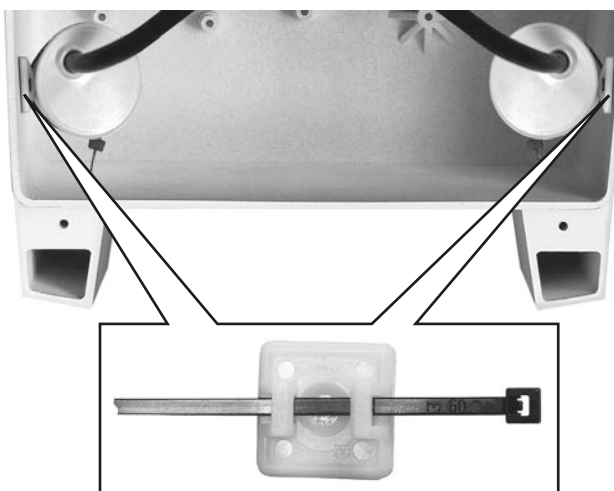


- The motor and sensor wires must be supplied to the control unit in 2 separate tubes or a cable channel with partition.
- The sensor wire must not exceed the max. length of 50m ! - For lengths of more than 20m shielded control lines must always be used. The shield must be clamped together with the cable number 3 (terminal 68)
- If sensor wires with more than 3 cables are used the remaining cables must be clamped together with the cable number 3 (terminal 68) - do not clamp to a ground wire (earth lead)!
- When connecting the sensors to the control unit please note the labeling/markings of the cables (number 1-3).
Bad connection leads to destruction !

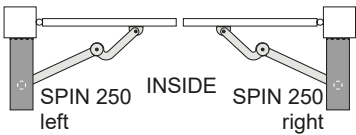


Motor capacitors connection and attachment

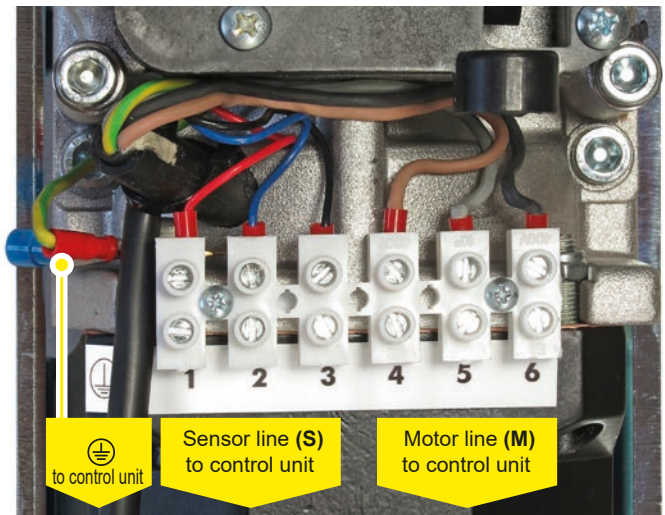
- **ATTENTION: switch off the control unit before connecting the capacitors !**
- 2 capacitors have to be connected to the ST61A as follows: **left operator: clamps 80/81, right operator: clamps 82/83** (see connecting diagram above)
- To fix the 2 capacitors inside the operator housing please use the sockets. After having mounted the capacitors with the lace to the sockets they should be fixed on the inside of the operator's control housing.
- The placement of the capacitors can be chosen freely, but we recommend the lower area of the operator control housing, as shown on picture. (see right picture)



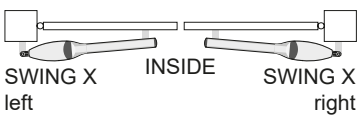
Connection SPIN 250



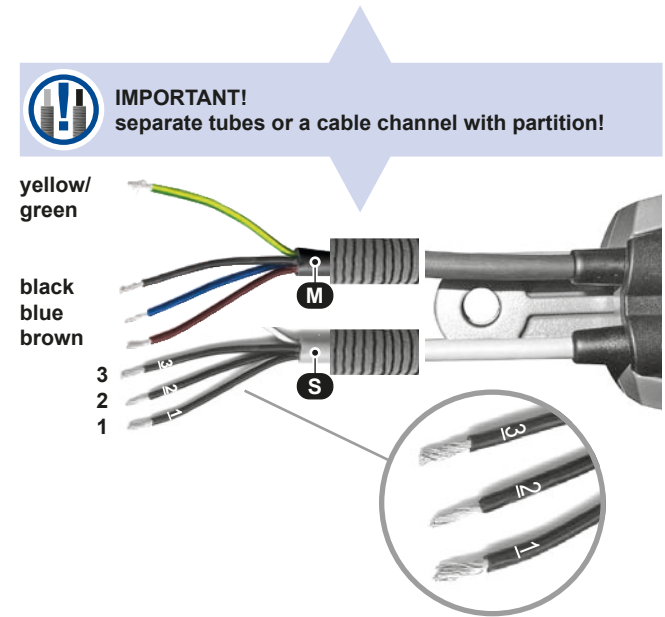
SPIN 250 terminals		Steuerungsklemmen	
number / colour		left operator to terminal	right operator to terminal
(M) power supply	4 brown	20	24
	5 blue or grey	21	25
	6 black	22	26
	⊕ green/yellow	23	27
(S) Sensor	1 red	65	65
	2 blue	66	67
	3 black	68	68



Connection SWING X



CONNECTION of operators to control unit			
Connection cable with colour or number		left operator to terminal	right operator to terminal
(M) power supply	brown	20	24
	blue or grey	21	25
	black	22	26
	green/yellow	23	27
(S) sensor	1	65	65
	2	66	67
	3	68	68



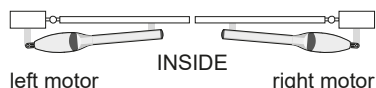
Left leaf

Connections and adjustments

G Motor (Supply: terminals 20/21/22, grounding: 23 - Sensor: terminals 65, 66, 68)

Left leaf

- ☒ MOTOR ON
- ☐ MOTOR OFF.



If a left operator is not available then set here to „MOTOR OFF“!

G Delay left leaf

Left leaf

- ☒ **OPENING DELAY:** the left leaf opens after the adjusted delay time.
- ☐ **CLOSING DELAY:** the left leaf closes after the adjusted delay time.

G Delay time left ☒ 2s (factory setting)

Left leaf

- ☐ **0–25s time delay adjustable:** indicates the delay time at opening or closing.

ARS response time ☒ 0,50 (factory setting)

Left leaf

- ☐ **0,15–0,95 adjustable:** indicates the response of the Automatic Rerversal System.

Max. force ☒ 70% (factory setting)

Left leaf

- ☐ **20–100% adjustable:** indicates the motor force in opening/closing movement.

Soft stop time ☒ 5s (factory setting)

Left leaf

- ☐ **0–25s adjustable:** indicates the duration of the soft stop time.

Soft start

Left leaf

- ☒ not active
- ☐ active: soft start with SWING X.



The option „soft start“ is only inserted for SWING X. With SPIN operator soft start is always active!

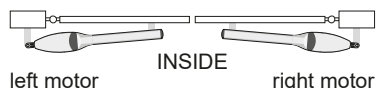
Right leaf

Connections and adjustments

G Motor (Supply: terminals 24/25/26, grounding: 27 - Sensor: terminals 65, 67, 68)

Right leaf

- ☒ MOTOR ON
- ☐ MOTOR OFF.



If a right operator is not available then set here to „MOTOR OFF“!

G Delay right leaf

Right leaf

- ☐ **OPENING DELAY:** the right leaf opens after the adjusted delay time.
- ☒ **CLOSING DELAY:** the right leaf closes after the adjusted delay time.

G Delay time right ☒ 2s (factory setting)

Right leaf

- ☐ **0–25s time delay adjustable:** indicates the delay time at opening or closing.

ARS response time ☒ 0,50 (factory setting)

Right leaf

- ☐ **0,15–0,95 adjustable:** indicates the response of the Automatic Rerversal System.

Max. force ☒ 70% (factory setting)

Right leaf

- ☐ **20–100% adjustable:** indicates the motor force in opening/closing movement.

Soft stop time ☒ 5s (factory setting)

Right leaf

- ☐ **0–25s adjustable:** indicates the duration of the soft stop time.

Soft start

Right leaf

- ☒ not active
- ☐ active: soft start with SWING X.

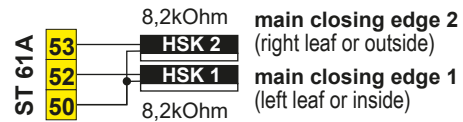


The option „soft start“ is only inserted for SWING X. With SPIN operator soft start is always active!

Closing edges (HSK 1: terminals 50/52, HSK 2: terminals 50/53)

Operating logic

- ⊙ **left/right:** the safety sensing edges (contact strips) can actuate in every gate movement (OPEN/CLOSE) . The safety sensing edge 1 (terminal 50/52) is mounted on the left gate wing and the safety sensing edge 2 (terminal 50/53) on the right wing.

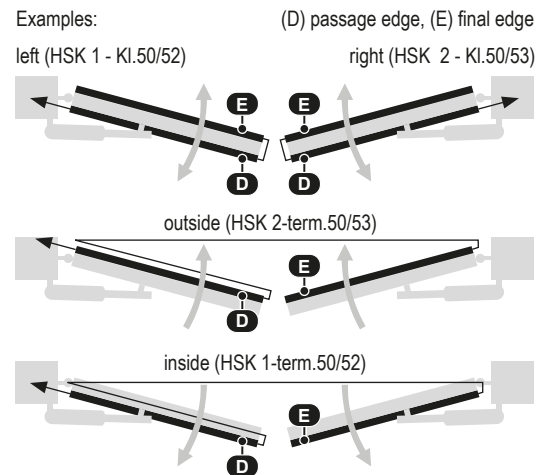


- **inside/outside:** sensing edges at the interior of the gate (terminal 50/52) can only actuate during opening movement and sensing edges on the outside of the gate (terminal 50/53) only during closing movement.

IMPORTANT !

ASSIGNMENT AND RESPONSE OF SAFETY EDGES

Assignment		Movement	Open	Close
HSK 1	Mode left/right	left	active	active
HSK 2		right	active	active
HSK 1	Mode inside/outside	inside	active	
HSK 2		outside		active



Limit tolerance ⊙ 20 (factory setting)

Operating logic

- **3–20 adjustable:** indicates the tolerance in the end positions (low value = sensitive behaviour).

Prewarning OPEN (terminals 10/11)

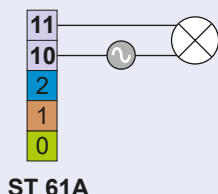
Light / Lamps

- ⊙ **OFF**
- **1–30s adjustable:** before each opening movement the flashing light is activated for the adjusted time.



Important: Notes regarding connection of a flashing light

- **Attention:** Before carrying out connection works, the power supply of the facility has to be turned off.
- A flashing light with 230V, max. 40W can be connected at the terminals 10/11.



Warning

- Before taking off the housing cover the main switch has to be turned off !
- Follow safety instructions (→ page 11) !

**green phase** ⊙ 20s (factory setting)

Light / lamps

- **5–120s adjustable [increment 1]:** duration of green phase.

clearance time ⊙ 5s (factory setting)

Light / lamps

- **1–60s adjustable [increment 1]:** time to leave the traffic light intermediate area.

traffic light gate CLOSE

Light / lamps

- ⊙ **red light OFF:** red traffic light does not illuminate in closed position.
- **permanent RED:** red traffic light illuminates also in closed position.

traffic light logic

Light / lamps

- ⊙ **green on both sides:** both traffic lights illuminate GREEN in open position, regardless of which side has been given the green request.
- **green on one side:** only the traffic light illuminates GREEN in open position, from the side from where the green request has been requested.

The following two menu points can only be selected if the menu point additional menu is adjusted to „Courtyard-/Control lamp“ (hence shown on display).

Courtyard lamp (Description add. modules → page 25)

Light / Lamps

- ⊙ **OFF**
- **5–950 adjustable:** at the courtyard lamp output an external lamp can be connected (e.g. garden lamp), which can be turned on for each opening command for the duration of adjusted time.

Control lamp (Description add. modules → page 25)

Light / Lamps

- ⊙ **illuminates during open and close:** The pilot lamp output is activated during opening- and closing movement.
- **blinks slowly/illuminates/blinks:** The pilot lamp output is activated as follows: During opening the pilot lamp flashes slowly. During pause time, in opened position or when the gate stops it is illuminated. During the closing movement it flashes rapidly. If the gate is closed, the pilot lamp expires
- **illuminates in open position:** Pilot lamp is illuminated as soon as the gate has reached end position open.

Electric lock ➔ *Electric lock module, page 26*

Peripherals

⊙ **switched off**

- **1–10s adjustable:** The electric lock is activated by push button impulse or impulse from pedestrian button for a period of time set here to ensure the release depending on the gate situation

Reverse stroke (only with activated locking!)

Peripherals

⊙ **switched off**

- **0,5–8s adjustable:** Only with activated lock (electric lock or motorized locking bar): After an impulse is given, a short closing movement for unlocking (for example, the E-lock) is initiated first, the unlocking is performed and the door is opening. With an electric lock, the reversal stroke is only carried out in the opening direction. With a motor bolt, depending on the setting, it is possible to set the reversal stroke also in the closing movement.

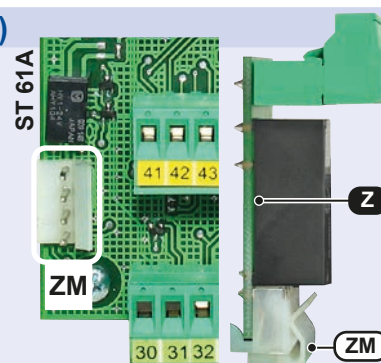
Additional module

Peripherals

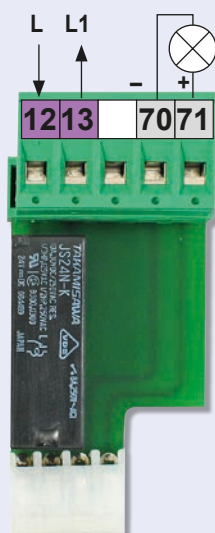
- ⊙ **courtyard/control lamp:** the menu points courtyard lamp and control lamp are ready for adjustment (that means if not selected, these menu points will not be shown on the display)
- **status display 1:** with the two potential-free signal contacts K1 and K2, the gate end positions (limits) can be evaluated.
- **status display 2:** with the two potential-free signal contacts K1 and K2, the gate end positions (limits), the gate movement as well as a gate stop outside of the end positions can be evaluated.

**Additional module (optional)**

- **turn off power supply before installing the additional module!**
- Depending on which device, e.g. a **courtyard-/Control lamp** is chosen or **evaluation of gate status** should be effected, the corresponding module (**Z**) has to be plugged to the according slot/plug (**ZM**) of control board.
- Additionally the corresponding value has to be selected in menu point „Additional module“.

**Additional module
Courtyard lamp/
Control lamp**

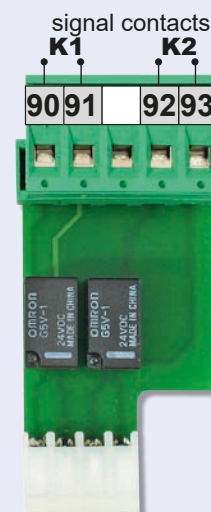
- On the terminals 12/13 a courtyard lamp can be connected: **230V, max. 100W**
- On the terminals 70/71 a control lamp can be connected: **24Vd.c., max. 2W**

**Additional module
Gate status display**

- with potential free signal contacts K1 (Kl. 90/91) and K2 (Kl. 92/93) the gate status can be evaluated in two ways (see menu point „Additional module“).
- Contact load: **24Va.c./d.c., max. 10W**

		Function		K1	K2
Gate status display	1	Gate in CLOSE-Position		1	0
		Gate in OPEN-Position		0	1
	2	Gate in CLOSE-Position		0	0
		Gate opens or closes		0	1
		Gate stopped or fault (Gate not in end position)		1	0
		Gate in OPEN-position		1	1

signal contacts: 0 = open, 1 = closed

**Locking**

Peripherals

- ⊙ **e-lock/magnetic clamp:** with additional module electric lock/magnetic clamp.
- **motor lock:** with additional module motorized locking bar.

Motor lock ➔ *Motor lock module page, 26*

Peripherals

- ⊙ **OPEN and CLOSE:** locking via motorized locking bar in both end positions of the gate.
- **only OPEN:** locking via motorized locking bar only in open position.
- **only CLOSE:** locking via motorized locking bar only in closed position.

**WARNING:**

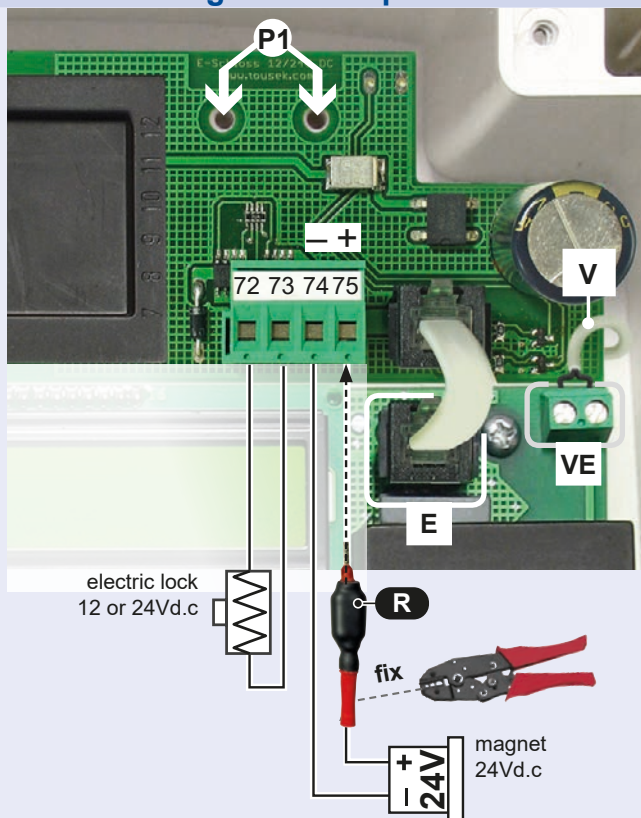
- Before taking off the housing cover the main switch has to be turned off !
- Follow safety instructions! (→ page 14)

**Optional module for electric lock/magnetic clamp**

- The control unit needs an optional module for connection of an electric lock/magnet (12V or 24Vd.c. version depending on electric lock).

Connection of module

- **ATTENTION: turn off power supply!**
- Fix the module as illustrated in the control with screws at position **(P1)**.
- Connect electric lock module via RJ-plug **(E)** with the control unit.
- Connect the electric lock (12/24Vd.c.) to the removable terminals **72/73** of the module.
- The magnet (24Vd.c.) must be connected via a resistor **(R)** for the connection to the module.
- To do this, push the connecting cable of the magnetic clamp as shown into the opening of the series resistor and fix by means of crimping pliers.
- Connect the connection cable and resistor **(R)**, as shown, to the removable terminals **74 (-) / 75 (+)** of the module.
- **Pay attention to polarity.**
- The supply is connected to the 2-pin connector cable **(V)** to the control terminals **(VE)**.
- After wiring, the E-lock-mode has still to be activated in the menu of the control under LIGHT PERIPHERAL / ELECTRIC LOCK
- Magnets are driven into the open and closed position of the gate, the electric lock only in closed position.



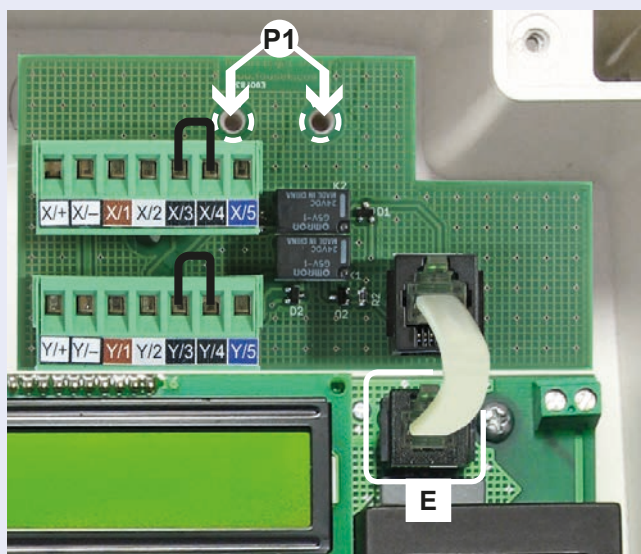
The series resistor (R) is for tousek magnets GD 50 and GD 70.

**optional dropbolt module**

- In order to connect the dropbolt SAFELOCK to the control unit it needs an optional modul and a dropbolt control unit. If needed then for double leaf swing gate also two dropbolts can be connected. Thereby the terminal block is labelled with „X“ for the first bolt and with „Y“ for the second bolt.

Modul connection

- **ATTENTION: Turn off the power supply!**
- Fix the module inside the control unit's housing as shown on the picture. Fix the module on the positions (P1) by spacers and screws (included).
- Connect the modul to the control unit with RJ-plug connection **(E)**.
- Carry out the connections on the modul clamps „X“, „Y“ and on the motor control unit clamps as shown on the picture.
- After succesful connection the dropbolt operation need to be activated in the control unit menu („peripherals/locking“ and „peripherals/dropbolt“)



ST 61 with integrated dropbolt modul



IMPORTANT: When using only one drop bolt, the wire jumper must remain in the unused terminal block!

Dropbolt control unit

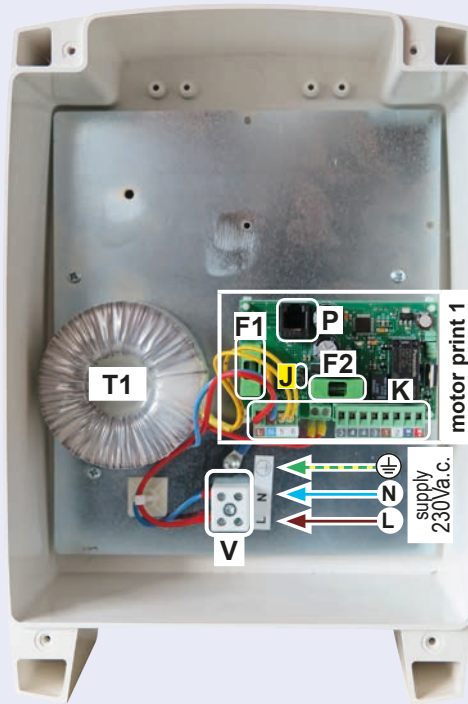
Wire the terminal block (K) of the dropbolt's printed circuit board as shown on the picture::

- on one hand wire it with the module, which is connected to the operator's control unit:
- for 1 dropbolt: wire only with the terminal block „X“ - for 2 dropbolts wire with terminal blocks „X“+„Y“
- on the other hand wire it with the dropbolt via connection cable 4 x 0,75² (motor connection and limit switch) . Strictly note the numbering **1 – 4** of the connection cable's wires for a proper connection.
- Carry out the 230V a.c. power supply connection on terminal block (V) and the earthing connection on the earthing screw.



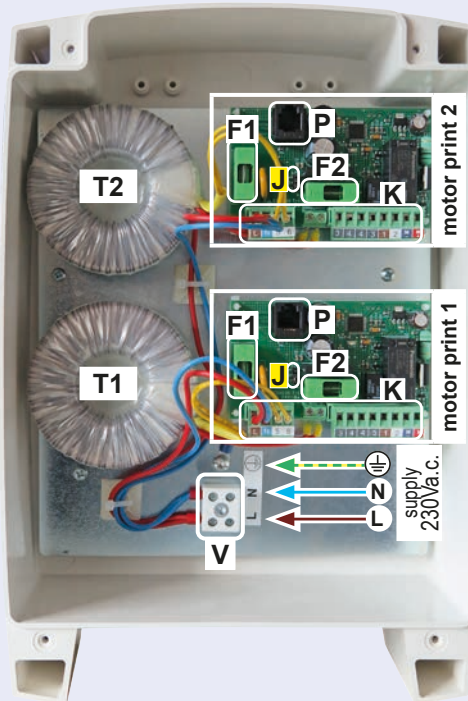
SAFELOCK-control unit with 1 motor print:

- suitable for 1 dropbolt
- connection motor print: with „X“-terminal block

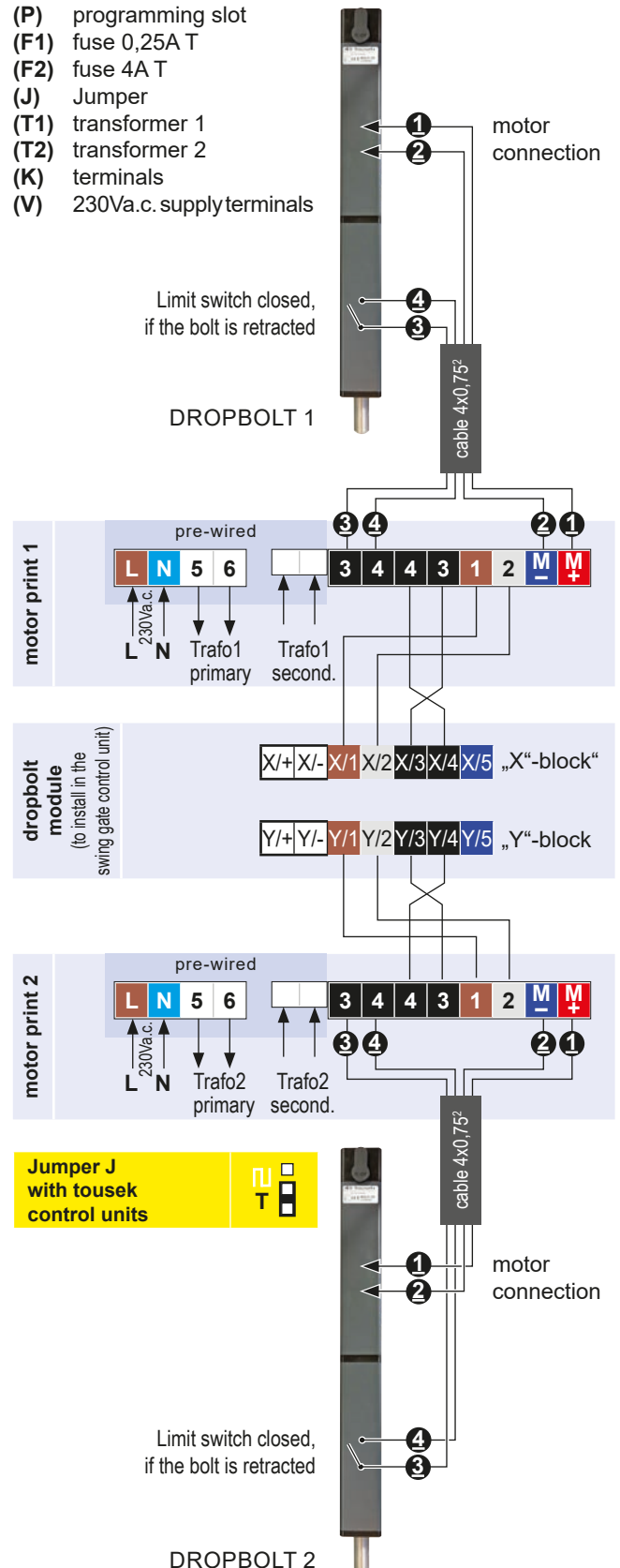


SAFELOCK-control unit with 2 motor prints:

- suitable for 2 dropbolts
- connection motor print 1: with „X“-terminal block
- connection motor print 2: with „Y“-terminal block



- (P) programming slot
- (F1) fuse 0,25A T
- (F2) fuse 4A T
- (J) Jumper
- (T1) transformer 1
- (T2) transformer 2
- (K) terminals
- (V) 230Va.c. supply terminals







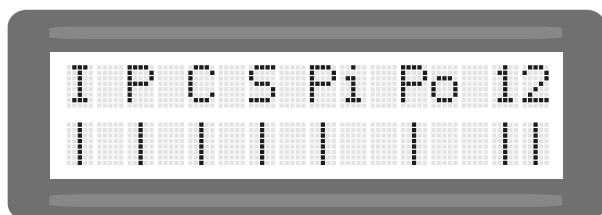
Status display

Diagnosis

➤ **status display** for inputs as photocell, safety sensing edges, stop button, impulse switch

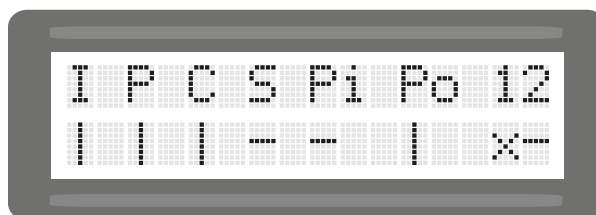
- I** impulse switch
- P** partial opening switch
- C** CLOSE-switch
- S** STOP-switch
- Pi** photocell inside
- Po** photocell outside
- 1** safety edge main closing edge 1
- 2** safety edge main closing edge 2

-  Status: not triggered
-  Status: triggered
-  Status: contact strip not connected or defect
-  Status: contact strip or photocell deactivated in menu



All inputs OK.

e.g.



Impulse-, pedestrian - and close button not triggered.
STOP-button and photocell inside are triggered.
Photocell outside not triggered.
Contact strip 1 not connected or defect.
contact strip 2 triggered.

Delete position

Diagnosis

- ⊙ **NO**: no deleting of end positions "gate closed" and "gate open"
- **YES**: the determined end positions are being deleted.
Note: the end positions are being newly determined after impulse.



The mechanical stops have to be placed so that possibly existing safety contact edges can not be triggered, as this would lead to an error message.

Factory setting

Diagnosis

- ⊙ **NO**: no reset to factory setting
- **YES**: reset to factory setting



Note: The factory settings of the single menu points are marked with ⊙ in this manual.

Software version

Diagnosis

➤ shows the software version and the operator type on the text display

Serial number

Diagnosis

➤ shows the serial number on the text display

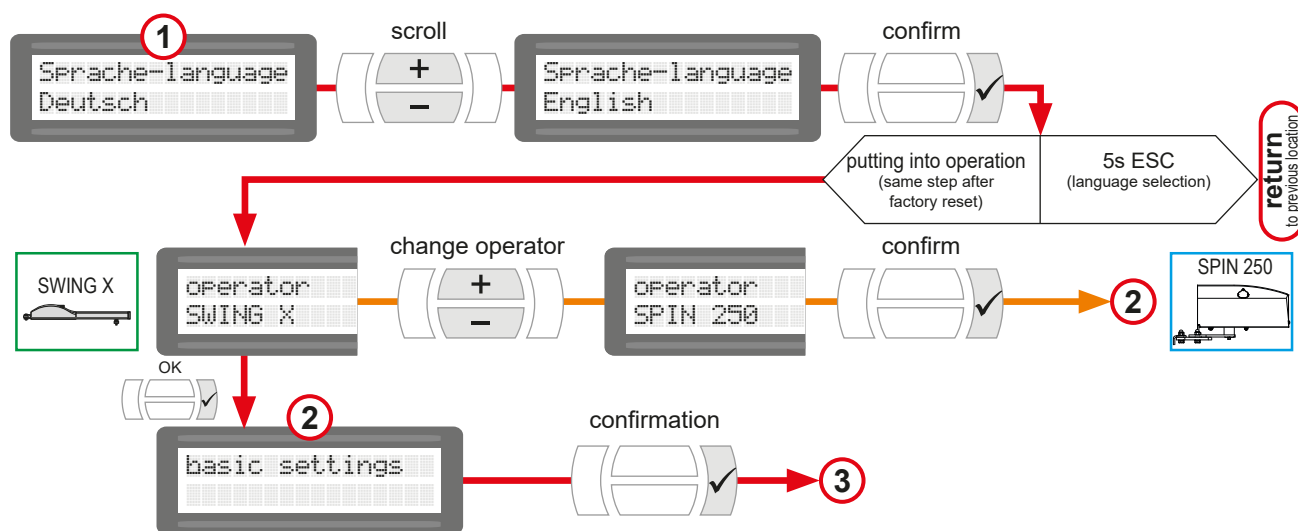


Important: preparation works

- Connect control panels, safety devices to the motor under the safety regulations in .
- **Attention: if no stop switch is connected then the terminals 30/31 have to be bridged.**
- **The mechanical limits have to be placed so that contact edges are not triggered, as this would lead to an error message**
- Unlock emergency release of operator and set gate to half-opened position. Then lock the operator again
- Then turn on the operator (correct connection necessary).
- **Important:** Putting into operation in Impulse mode (standard setting) and not in dead man mode.
- During initial operation the choice of language and operator (SWING X or SPIN 250) is made first, then in the "Basic settings" the adjustment of most important operator settings and after the system test, the automatic detection of limit positions of gate is made.

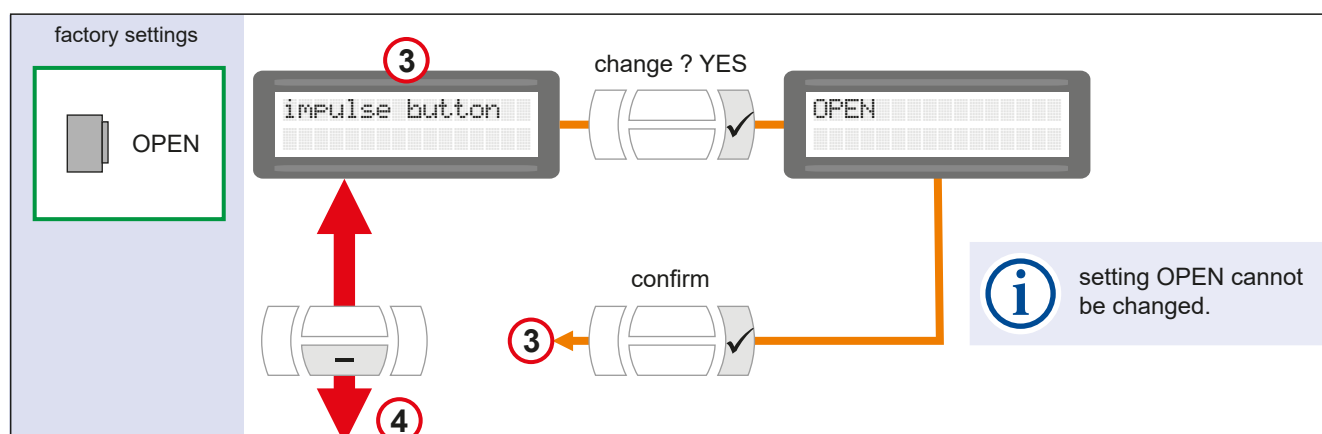
LANGUAGE SELECTION

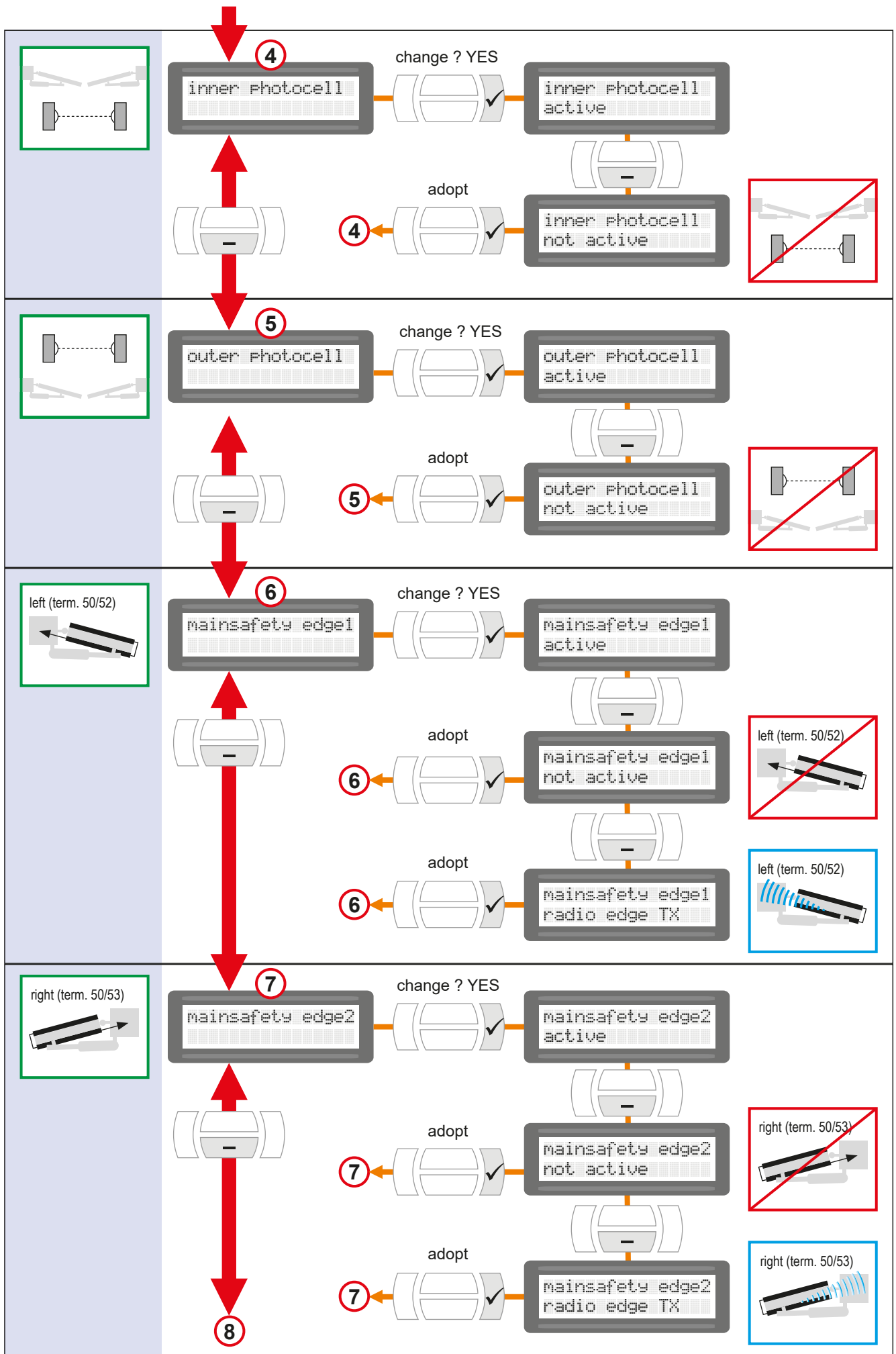
- Can be selected during initial operation (hence after reset to factory settings).
- Can be also chosen by pressing the ESC button (↵) for 5s, from any position in menu.

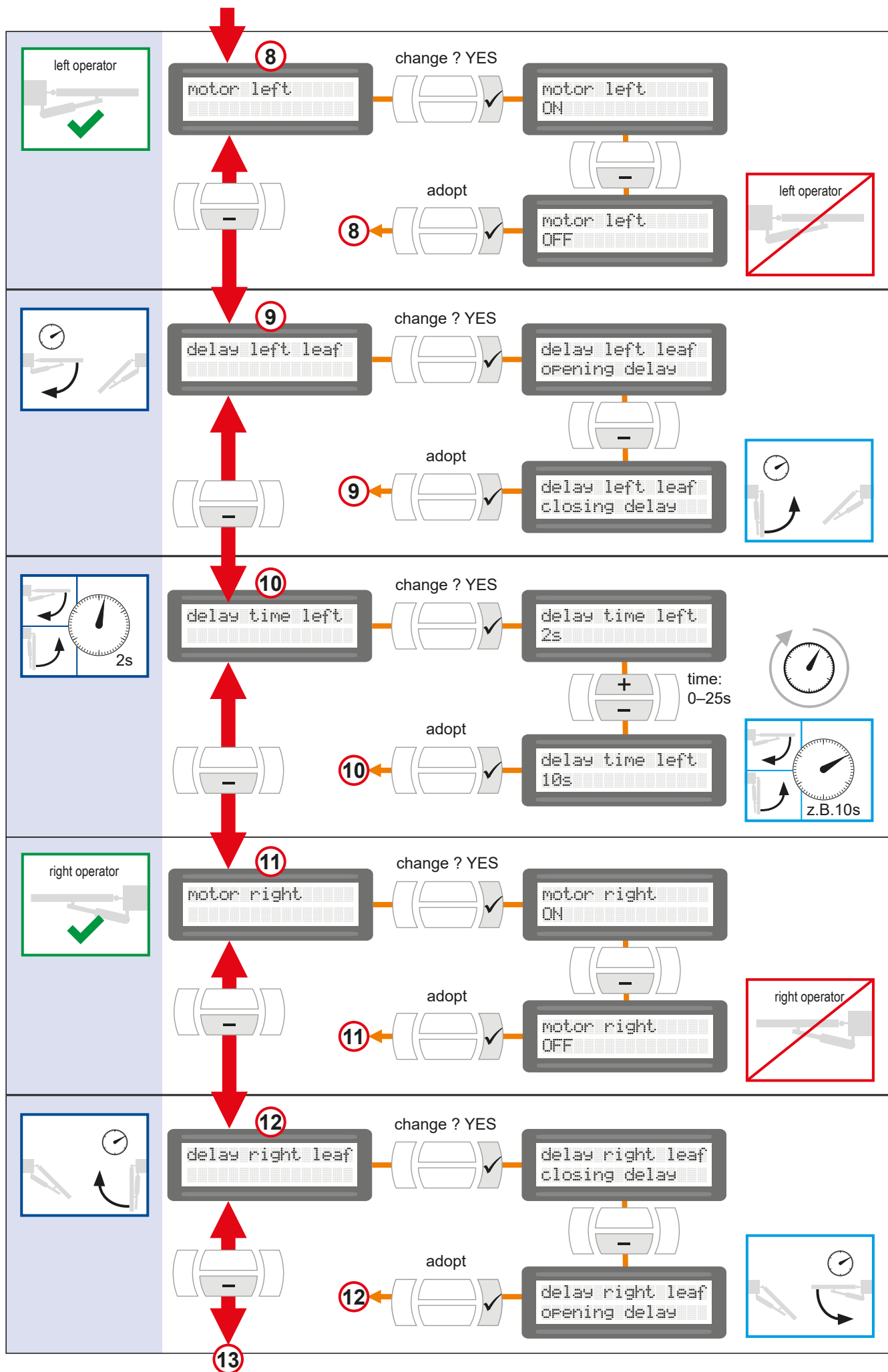


BASIC SETTING

- For setting the most important adjustments for initial operation of motor.
- Can be selected during initial operation (hence when restoring the factory setting).
- All safety devices are activated when leaving factory (menu → page 13).
- The next programming adjustments are made in the main settings menu (see → 12–13).





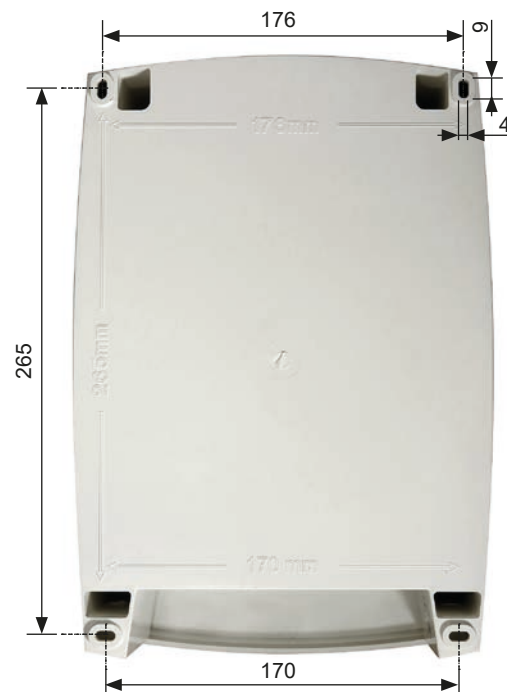


Error	possible reason	solution
no reaction after emitting a command	mains voltage missing or fuse F1 defective	control of mains voltage as well as of fuse F1
	Display: error stop button	check if stop button is properly connected or bridged
control relays switch but motor does not run	connection between motor and control defective	check supply lines
gate opens but does not close	photocell interrupted	check positioning and functions of photocells
	AR system actuated	check force and sensor adjustment
safety sensing edge 1 or 2 actuated	adjustment of safety sensing edges wrong	remove obstacle or function control via status display
no reaction of radio receiver	radio receiver plugged into wrong connector	check proper installation <i>see „connection of radio receiver“</i>
	no / wrong connected antenna	check antenna connection
	radio transmitter not programmed	program handheld transmitter
error message „no learned way“	sensors/motors not correctly connected or capacitor not connected	check correct connection

- dimensions in mm



- Mounting dimensions (back side)



We reserve the right to change dimensions and technical specifications without prior notice !

tousek PRODUKTE

- Schiebetorantriebe
- Laufwerke
- Drehtorantriebe
- Garagentorantriebe
- Falttorantriebe
- Schranken
- Torsteuerungen
- Funkfernsteuerungen
- Schlüsselschalter
- Zutrittskontrolle
- Sicherheitseinrichtungen
- Zubehör

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