Connection and installation manual

Swing gate control unit ST 64, ST 64A

to connect 4 SWING X operators

tousek GATE AUTOMATION

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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 64, ST 64A 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.

March 2019

General warning and safety notes

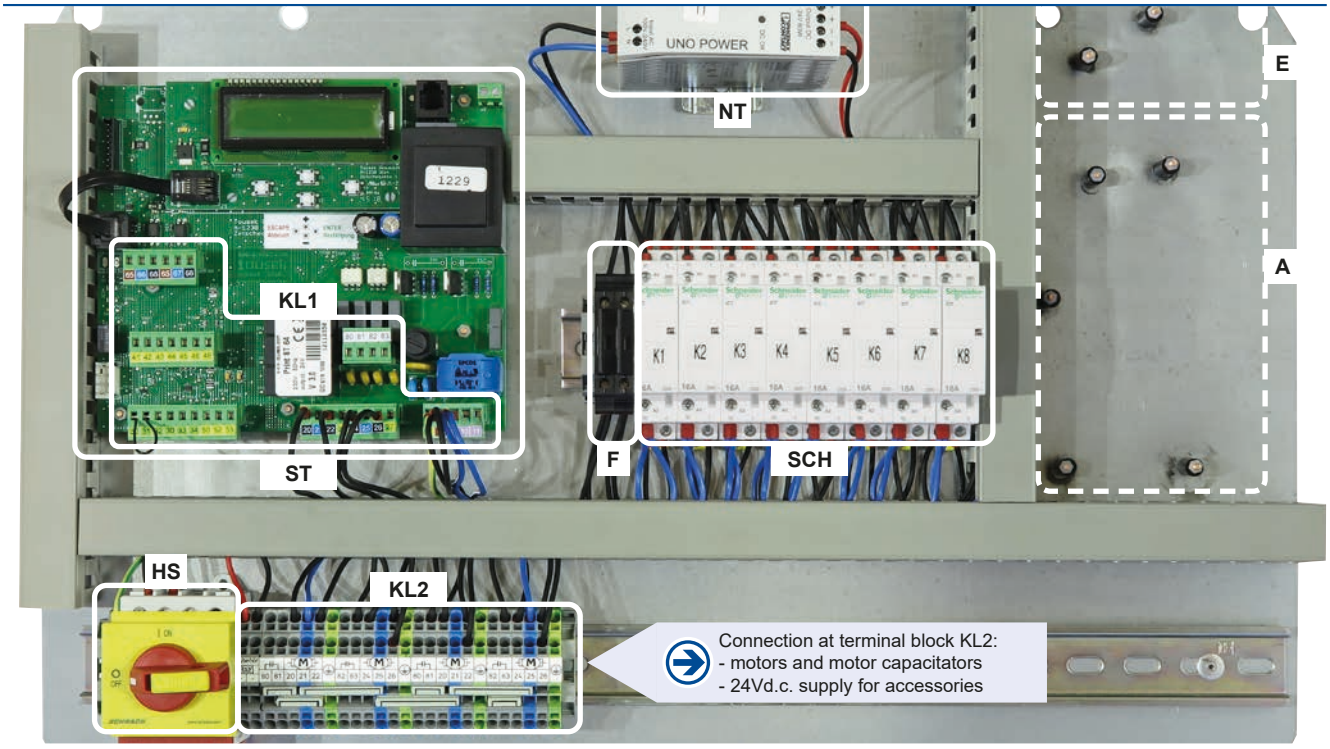
- These installation and operating instructions form an integral part of the product **"control unit".** They have been specifically written for professional installers trained and skilled in the trade and should be carefully read in their full length before carrying out the installation. It concerns 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.**

- suitable for swing gates with electromechanical operators SWING X, 230V (single or double leaf) with integrated sensor
- ST64A: traffic light operation (STA 11 required additionally)
- leaf delay adjustable at opening and closing
- automatic closure with adjustable pause time
- travel time of both operators will be adjusted automatically
- safety system ARS (automatic reversal system)
- operating mode: impulse, automatic or dead man mode
- integrated evaluation of safety sensing edge
- self-monitoring of photocell
- self-diagnosis display
- optional: drop bolt module and control unit
- slots for optional module and radio receiver
- simple programming via menu navigation

Control box



components of the control box

ST control board selectable:
ST 64: without traffic light operation
ST 64A: equipped for traffic light operation with STA 11

KL1 terminal block of control unit board **ST**

NT power supply (pre-wired)

F fuses 2 x 6,3A F (pre-wired)

SCH contactor 1–8 (pre-wired)

HS main switch (pre-wired)

KL2 terminal block on DIN rail (pre-wired)

positions of the optional components:

A traffic light control unit STA 11

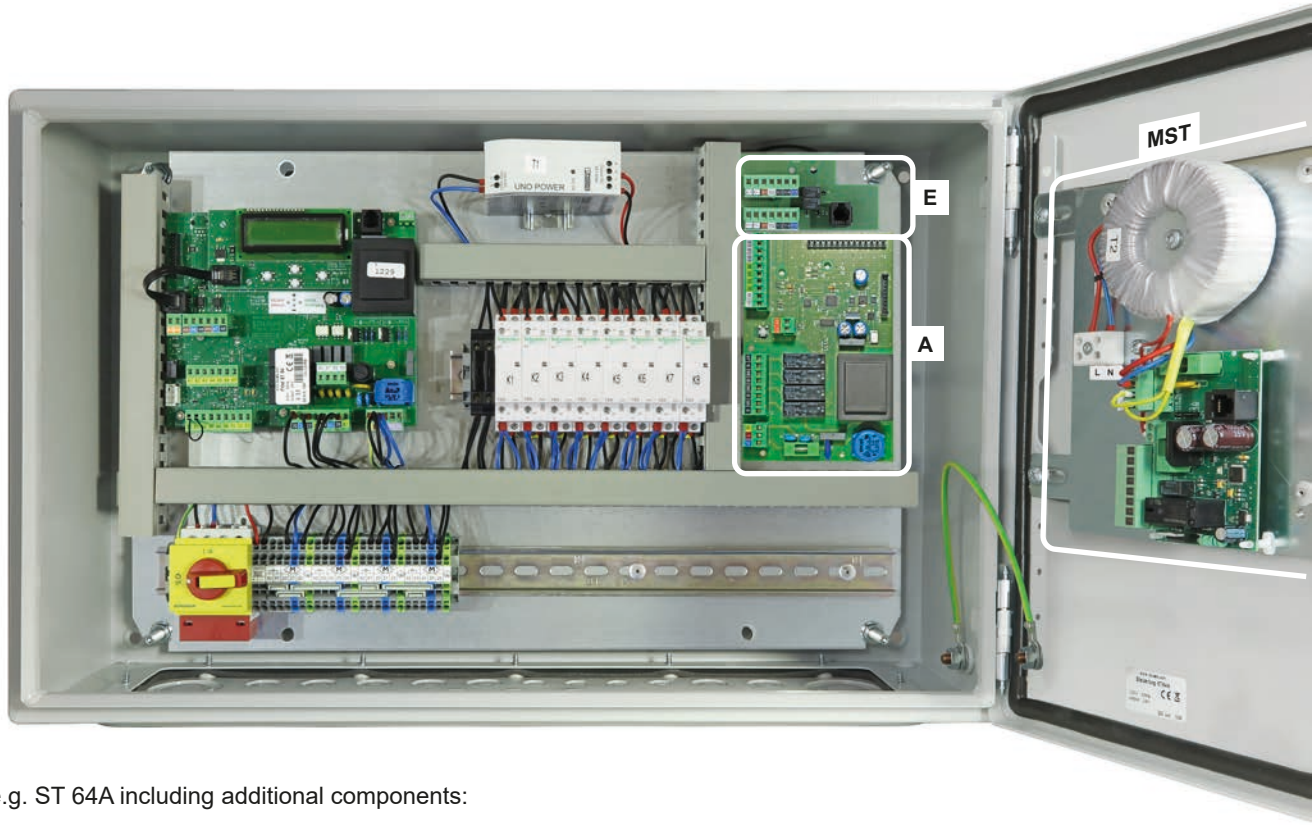
E drop bolt module

MST drop bolt control unit (on housing door) with 1 or 2 motor control boards to control 1 or 2 drop bolts SAFELOCK

Technical data

Swing gate control unit ST 64, ST 64A					
power supply	230V a.c., +/-10% 50Hz		protection class		IP54
motor output	4 x 500W, 230V a.c.		speed sensor		■
flashing light output	230V AC, 40W				
photocell output	24V a.c.		art. no.	ST 64	12112340
ambient temperature	- 20°C bis + 70°C			ST 64A	12112430
traffic light control board STA 11	for traffic light operation already built into ST64A				
optional:					
I-loop detector ISD 6	2-channels, pluggable in traffic light control board STA 11				art. no. 13430140
drop bolt control unit	for 1 dropbolt:	art. no. 12112410	for 2 dropbolts:		art. no. 12112420
drop bolt SAFELOCK	anthracite grey:	art. no. 11260670	grey aluminium:		art. no. 11260680
further optional components	pluggable radio receiver • additional module for courtyard/control lamp • additional module for gate status evaluation • radio transmission system TX 310				

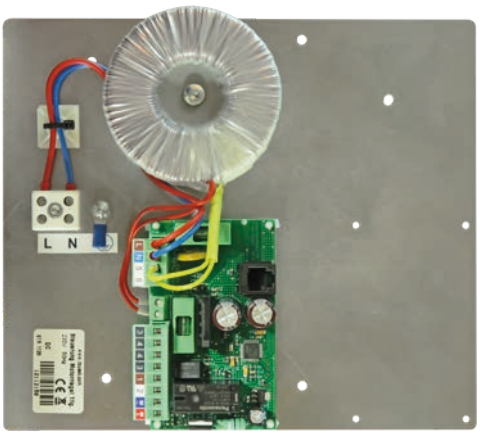
Additional components:
traffic light control unit (A) for ST64A, optional: dropbolt module (E) and dropbolt control unit (MST)



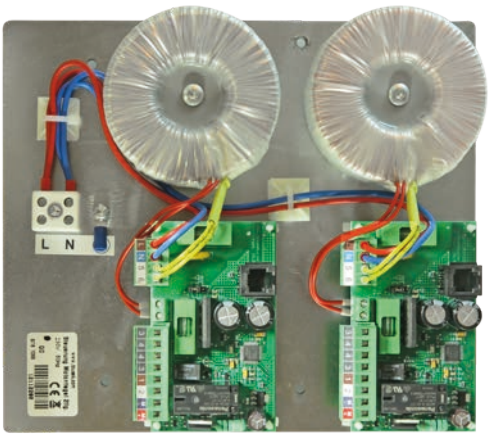
e.g. ST 64A including additional components:

A	traffic light control unit STA 11	*page 29–34*
optional:		
E	dropbolt module	*page 21–22*
MST	dropbolt control unit	*page 21–22*

For wiring the additional components, please follow the descriptions on the pages listed



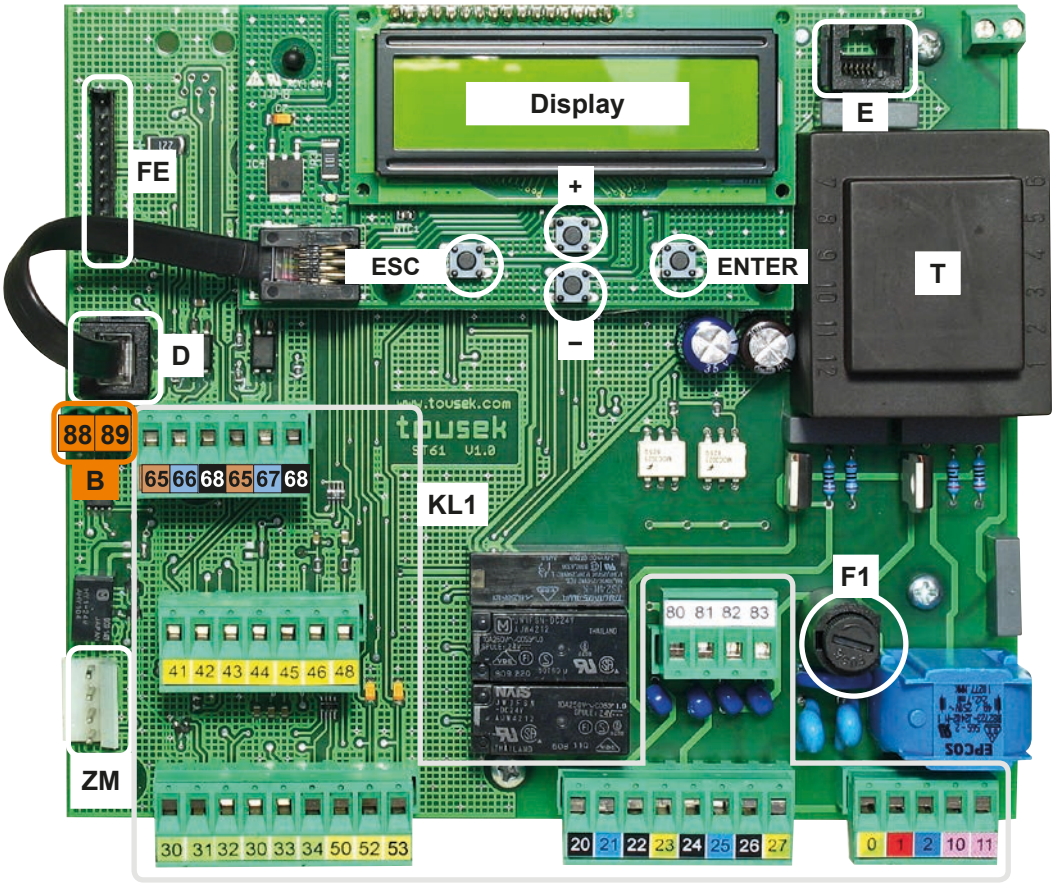
dropbolt control unit for one dropbolt



dropbolt control unit for two dropbolts

Danger

- **Before connection work or taking off the control cover, the main switch must be turned off !**
- **If the control unit is power supplied, the parts are under voltage.**
- **In order to avoid electrical strokes, the safety regula-tions have to be kept.**
- **The device may only be connected by trained professionals.**
- **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).**



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

(KL1) terminal blocks of th control board **(ST)**
(D) display connector (with programming buttons +, -, ESC, ENTER) or TC/TSI-connection (optional „tousek-connect“/ „tousek service Interface“)
(E) System connector for optional drop bolt module *(page 21)*
(B) **system connector** (t. 88/89) only on the **ST 64A** (connection with traffic light control board STA 11)
(FE) slot for optional radio receiver (*page 24)*
(ZM) slot for optional module „courtyard/control lamp“ or „gate status display“*(page 20)*
(T) transformer
(F1) fuse 6,3A F

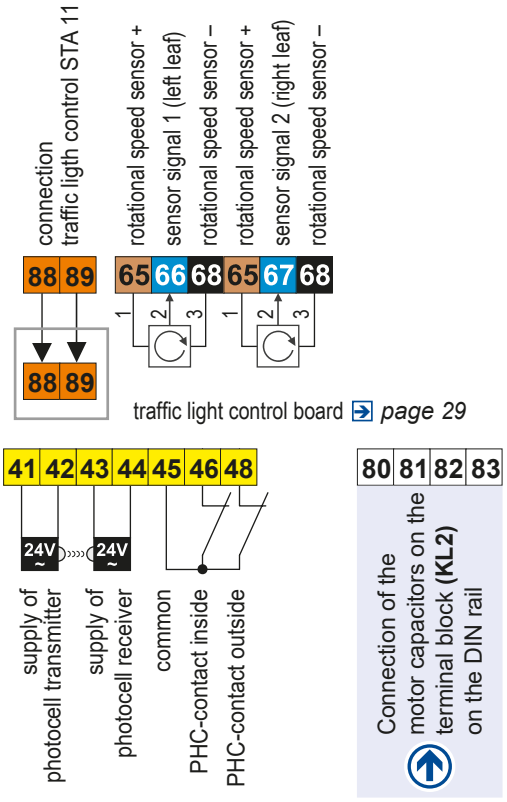
Connections

- The wiring to the standard components (switching power supply, contactor 1–8, main switch and the connection to the terminals on the DIN rail **(KL2)** are carried out at the factory.
- Connection work to be carried out is essentially limited to the terminal strips **(KL1)** of the control print, the terminal strip **(KL2)** on DIN rail for drive connections and the 24V d.c. supply of accessories (*page 7, 8*) and finally the connection of the 230Va.c. supply line at the main switch **(HS).**

exception: For the wiring of **additional components,** please follow the descriptions on the listed pages.

- *Connections to motor bolt module and motor bolt control (optional) page 21–22*
- *Connections to traffic light control STA 11 (built into the ST64A) page 29–34*

Terminal blocks (KL1) on the control board (ST)

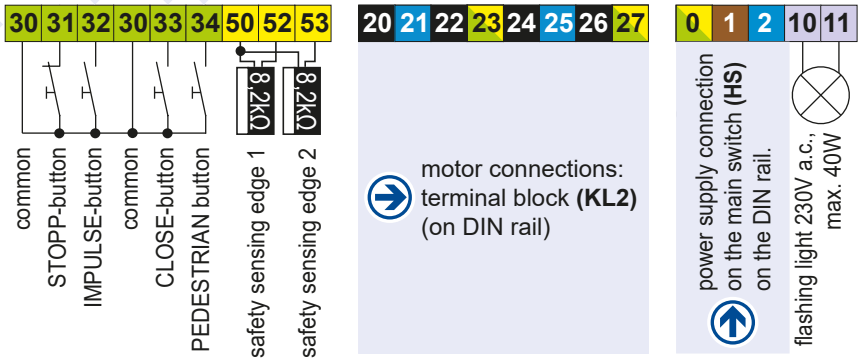


STOPP button

If no stop switch is connected, terminals **30/31** have to be wire-bridged. (set at factory).

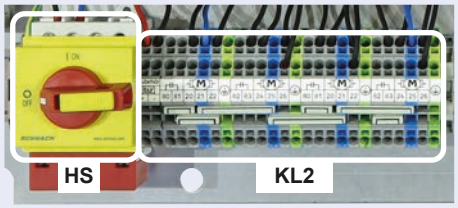
The stop input has no emergency stop function! - In order to ensure the emergency stop function, provide the supply line with an all-pole disconnecting emergency stop switch, that locks after actuation!

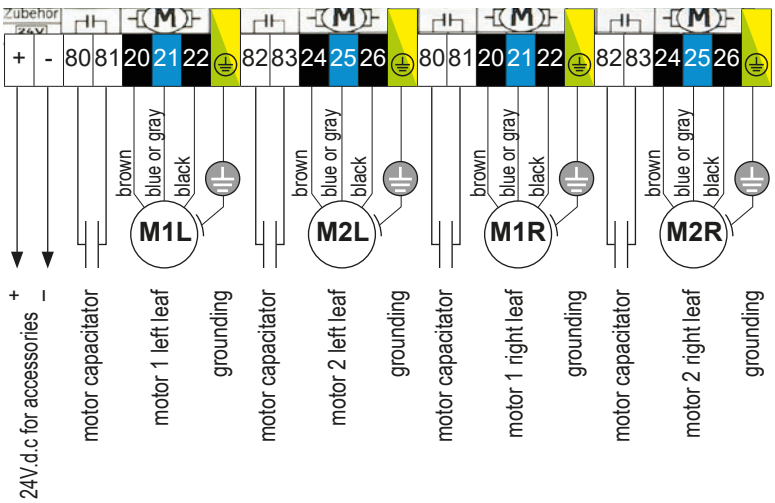
the impulse inputs (impulse, pedestrian, CLOSE **are not active** in traffic light operating mode when using **ST 64A!**



terminal block (KL2) on DIN rail

230V a.c. power supply and grounding connection on the main switch **(HS)** on the DIN rail.





Danger

- **Before connection work or taking off the housing cover, the power supply has to be turned off !**
- **Set force adjustments (menu: left left and right leaf) according to your effective safety rules and regulations**

also follow safety instructions on page 6 !

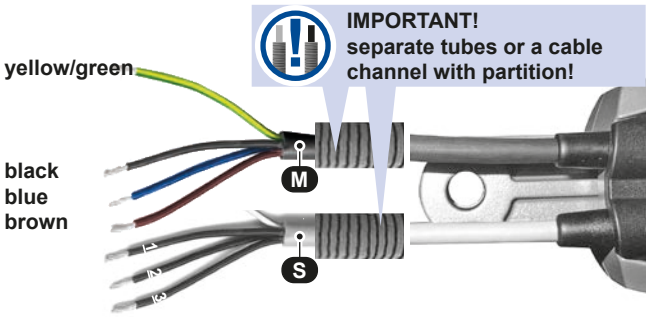
Important: notes for connection and adjustment of operators

- Four motors 230V (each motor max 500W) can be connected to the ST 64(A). Max. two motors can be installed by stacking them parallely on each leaf (*dimensions see installation manual of SWING X*).
- The operator SWING X has a connection cable for the power supply (marked with colour) and for the integrated torque sensor (marked with numbers 1–3). 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) leaf”
- Note that after turning on the power supply and giving an impulse the gate leaves are opening.
  If this is not the case then the terminals 20/22 for motor 1 and the terminals 24/26 for motor 2 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.

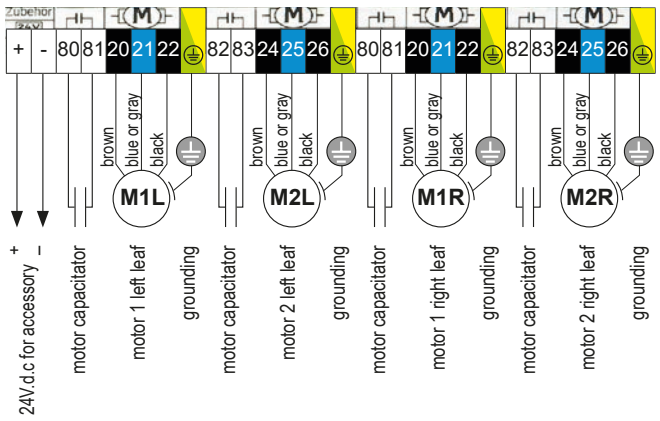
Motor and sensor wires

- **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/marking of the cables (number 1–3). Bad connection leads to destruction !**

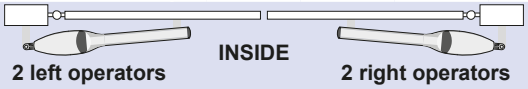
IMPORTANT: Connect only one sensor cable to the control unit per leaf!!



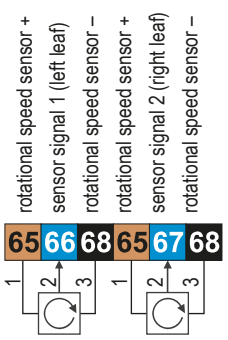
terminal block KL2 (on DIN rail):



CONNECTION of operators to control unit



Connection cable with colour or number		left operators to terminal		right operators to terminal	
		1.	2.	1.	2.
(M) motor cable	brown →	20	24	20	24
	blue or gray →	21	25	21	25
	black →	22	26	22	26
	green/yellow →	ground terminal		ground terminal	
(S) sensor cable	1 →	65		65	
	2 →	66		67	
	3 →	68		68	
	if shield →				



terminal block KL1
(on control unit board)

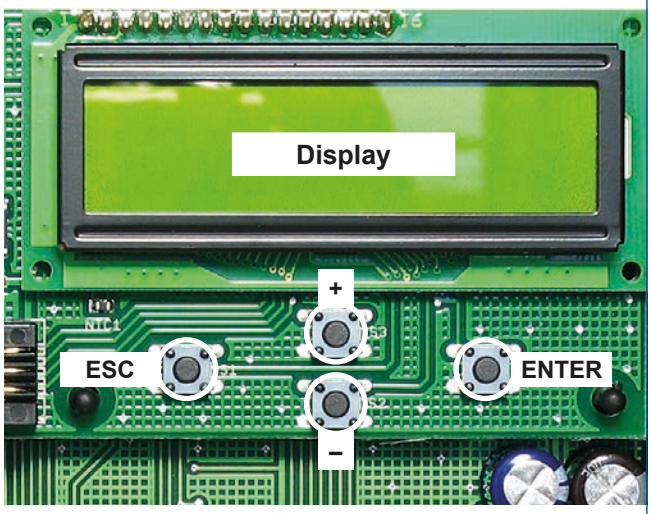
IMPORTANT: Connect only one sensor cable to the control unit per leaf!

Programming buttons

Einstellungen-Übersicht

- 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 menuas and press **ENTER.**
- Note: The language setting can be changed any time by pressing the **ESC button for 5s.**

- 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 following pages 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 11, 12	G impulse button	⊙ OPEN/STOP/CLOSE ○ OPEN/CLOSE/OPEN ○ OPEN ○ DEAD MAN	*) if impulse button is set to DEADMAN, then the pedestrian and close button are also set automatically to DEADMAN mode. (not selectable under „pedest.- button“)
	pedestrian button	⊙ OPEN/STOP/CLOSE ○ OPEN/CLOSE/OPEN ○ OPEN ○ Impulse OPEN ○ DEAD MAN *)	
safety → page 13–16	G inner photocell	⊙ active ○ not active	
	G outer photocell	⊙ active ○ not active	
	G main safety edge 1	⊙ active ○ not active ○ radio edge TX310	
	G main safety edge 2	⊙ active ○ not active ○ radio edge TX310	
	photocell function inside	⊙ during closing reverse ○ stop - after release open ○ during opening stop - then open	
	photocell function outside	⊙ during closing reverse ○ stop - after release open	
	PHC-pause time	⊙ no influence of photocell ○ abort pause time ○ re-start of pause time ○ immediate close after opening	
	PHC-self test	⊙ active ○ not active	
left leaf → page 17	G motor	⊙ motor ON ○ motor OFF	no left operator: > Motor OFF !
	G delay left leaf	⊙ opening delay ○ closing delay	
	G delay time left	○ 0...25s	⊙ = 2s
	ARS response time	○ 0,15...0,95s [increment 0,05]	⊙ = 0,50s
right leaf → page 17	G motor	⊙ motor ON ○ motor OFF	no right operator: > Motor OFF !
	G delay right leaf	○ opening delay ⊙ closing delay	
	G delay time right	○ 0...25s	⊙ = 2s
	ARS response time	○ 0,15...0,95s [increment: 0,05]	⊙ = 0,50s
operating mode → page 17, 18	impulse logic	⊙ stop, start of pause time ○ impulse suppression when opening ○ pause time extension	
	G operating mode	⊙ impulse mode ○ automatic 1...255s [increment: 1]	
	partial opening	○ 25...100%	⊙ = 100%
	automatic mode	⊙ complete/partial opening ○ only complete opening ○ only partial opening	
	pause time logic	⊙ no influence ○ permanent open in automatic mode	
	closing edges	⊙ left/right ○ inside/outside	
	limit tolerance	○ 3...20	⊙ = 20
lights/lamps → page 19	prewarning OPEN	○ OFF, 1...30s	⊙ = OFF
	prewarning CLOSE	○ OFF, 1...30s	⊙ = OFF
	Green phase (only with ST64A (+ STA11))	○ 5...120s [increment 1]	⊙ = 20s
	Clearance time (only with ST64A (+ STA11))	○ 1...60s [increment 1]	⊙ = 5s
	Traffic light gate CLOSED (only with ST64A (+ STA11))	⊙ OFF ○ constant red	
	Traffic light logic (only with ST64A (+ STA11))	⊙ both side green ○ one side green	
	courtyard lamp [1]	○ OFF, 5...950	⊙ = OFF
	control lamp [1]	⊙ illuminates during open and close ○ blinks slowly / illuminates / blinks ○ illuminates in open position	
peripherals → page 20–22	electric lock	⊙ switched off ○ 1...10s	visible only if activated under „locking“
	reverse stroke reverse stroke only with active locking!	⊙ nicht aktiv ○ 0,5...8s	
	additional module	⊙ courtyard/control lamp ○ status display 1 ○ status display 2	
	locking	⊙ e-lock/magnetic clamp ○ motor lock	
	motor lock	⊙ OPEN and CLOSE ○ only OPEN ○ only CLOSE	visible only if activated under „locking“
diagnosis → page 23	status display	➲ status display	
	delete position	⊙ NO ○ YES	
	factory setting	⊙ NO ○ YES	
	software version	➲ show software version	
	serial number	➲ show serial number	

Note: some adjustments regarding function or operating logic can only be executed if barrier 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.

Danger

- **Before connection works or taking off the housing cover the power supply has to be turned off !**
- **Follow safety instructions!** *(page 6)*

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

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

buttons/switches

Push buttons, key switches or external radio receivers with potential-free normally open contacts can be used as impulse, pedestrian and CLOSE switches. The STOP terminals require a normally closed contacts switch!
In traffic light mode the impulse-, pedestrian-, close buttons are without any function.

G Impulse button (terminals KL1 30/32)

⊙ **OPEN/STOP/CLOSE successive impulses** (factory setting): an impulse of the impulse switch makes the motor start opening/closing. If the impulse switch is actuated again during this opening-/closing movement, the motor stops. With the next command of the impulse switch the motor moves in the opposite direction of the last gate movement

○ **OPEN/CLOSE/OPEN successive impulses:** an impulse of the impulse switch makes the motor start opening/closing. If the impulse switch is actuated again during this opening/closing movement, the travel direction is reversed.

- **In this operation mode it is not possible to stop the motor with the impulse switch – it always moves until reaching an end position. (Opened or closed position).**
- **for the function OPEN/CLOSE/OPEN we strongly suggest the installation of a photocell!**

○ **OPEN:** Only opening commands are accepted by the impulse switch – closing the gate with the impulse switch is not possible..

○ **DEAD MAN:** The motor opens as long as the impulse switch is pressed (hold) – closing the gate with the impulse switch is not possible. As soon as the switch is released, the motor stops. **If hold to run operating mode is selected, the radio receiver slot (FE) is set out of order for reasons of safety.**

- If the impulse switch is set to DEAD MAN operation, then also all other buttons are in DEAD MAN mode. With the impulse-, or the pedestrian button the gate is opened, with the CLOSE-button it is closed.
- **IMPORTANT: Do not put into operation in dead man mode.**
  Select only after putting into operation (*page 25*)**, if desired.**

Pedestrian button (terminals KL1 30/34)

⊙ **OPEN/STOP/CLOSE successive impulses:**
An impulse of the pedestrian button makes the according gate leaf open/close. If the pedestrian button is actuated again during this movement, the motor stops. With the next impulse the motor moves in opposite direction of the last gate movement.

○ **OPEN/CLOSE/OPEN successive impulses:**
A command of the pedestrian button makes the according gate wing open/close. If the button is actuated again during this movement, the travel direction is reversed.

- **In this operation mode it is not possible to stop the motor with the pedestrian button – it always moves until reaching an end position. (Opened or closed position).**
- **for the function OPEN/CLOSE/OPEN we strongly suggest the installation of a photocell!**

○ **OPEN:** Only opening commands are accepted by the pedestrian button – closing the gate with the pedestrian button is not possible.

○ **Impulse OPEN:** The terminals 30/34 have the fix function of an additional impulse switch, which can only open the gate.

A command with the pedestrian button effects a complete opening of both leaves when the adjustment "Impulse OPEN" is selected.

○ DEADMAN: The motor opens as long as the pedestrian button is pressed (hold) – closing the gate with the pedestrian button is not possible. As soon as the button is released, the motor stops. **If hold to run operating mode is selected, the radio receiver slot (FE) is set out of order for reasons of safety.**

The DEADMAN function can not be chosen actively but is set automatically as soon as the impulse button is set to DEADMAN mode.

CLOSE-button (N.O. contact, terminals KL1 30/33)

- A command with the CLOSE-switch engages closing of gate. In deadman mode the gate closes as long as the CLOSE-switch is pressed/switched. As soon as switch is released the gate movement stops.

STOPP-switch (N.C. contact, terminals KL1 30/31)

- 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!

INNER AND OUTER PHOTOCELL

Important: notes for photocells

Photocell connection:

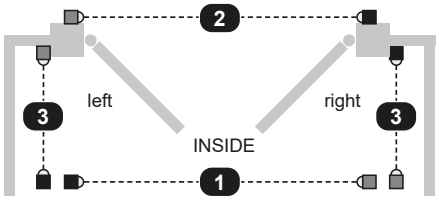
- The control unit has a power supply connection for a **24V a.c.** photocell (PHC)

  power supply: **PHC-transmitter: terminals KL1 41/42**
  PHC-receiver: terminals KL1 43/44

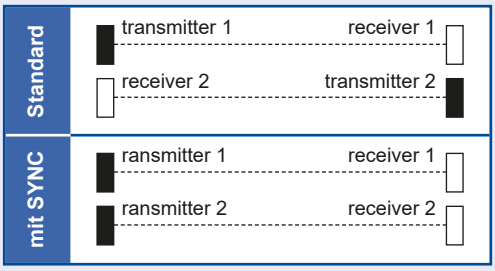
  Note: in „gate closed“ position the terminals 41/42 are being switched into energy saving mode (no current) (only if the radio transmission system TX 310 is not used) !

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

  PHC contacts: **inside = term. KL1 45/46, outside = term. KL1 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).



(1) inner photocell
(2) outer photocell
(3) back area photocell



Mounting notes (SYNC function):

IMPORTANT: When using two pairs of photocells please do not install both photocell transmitters/receivers on the same side (to eleminate 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 16).

Detailed information you will find in the corresponding photocell manual.

G inner photocell (contact: terminals KL1 45/46) — Safety

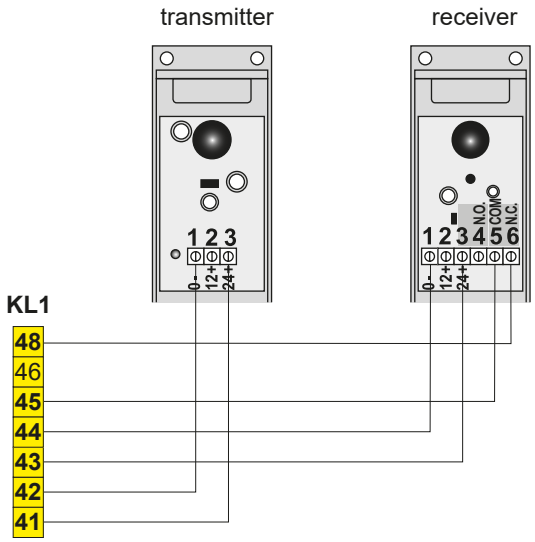
- ⊙ **active:** to be selected, if inner photocell should be triggered.
- ○ **not active:** to be selected, if inner photocell should not be triggered.

G outer photocell (contact: terminals KL1 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.

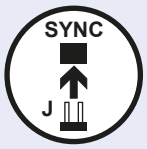
Photocells - connection examples

Outer photocell
Tousek LS 180 as safety device



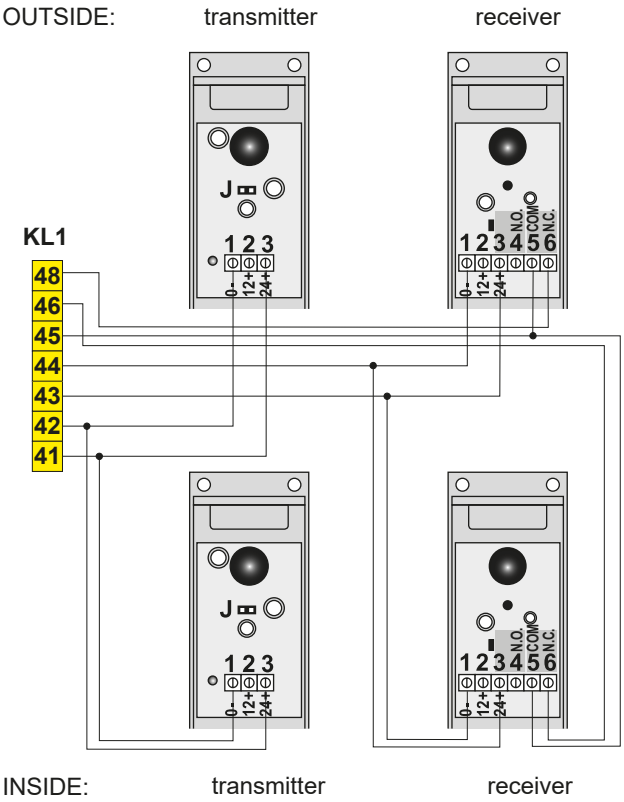
Important

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

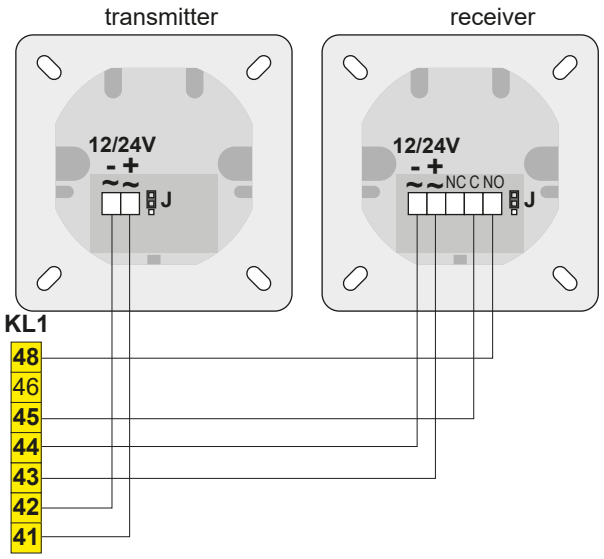


Outer and inner photocell
Tousek LS 180 as safety device

with active SYNC-function



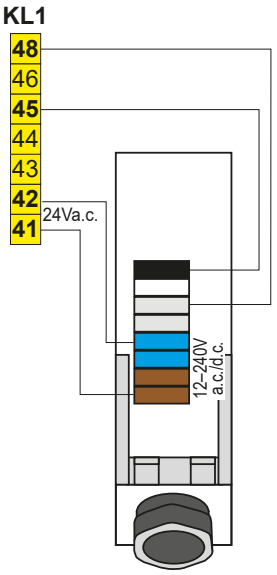
Outer photocell
Tousek LS 26 as safety device



Important

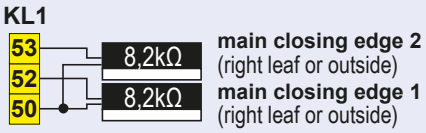
- **Jumper J of transmitter and receiver has to be adjusted in the same way.**

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* 18) 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.

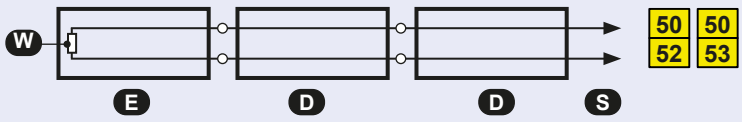


Safety sensing edges in mode **„left/right“**, that should react on an obstacle at the left (right) leaf, have to be connected (serially) to the connection clamps of the main closing edge 1 (2) .

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.**

G main safety edge 1 (terminals KL1 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**.

G main safety edge 2 (terminals KL1 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 !**

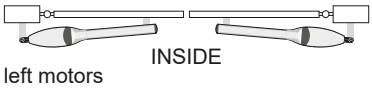
Important

- Four SWING X operators can be connected to the control unit ST 64(A) (max. two operators per leaf installed by stacking them parallely, ➔ *dimensions see installation manual SWING X*).

Left leaf

G Motor (Supply: term. **KL2** 20/21/22, grounding: 23 - Sensor: term. **KL1** 65, 66, 68)

⊙ **MOTOR ON**
○ **MOTOR OFF**



left motors

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

G Delay 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)

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

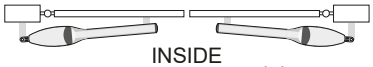
ARS response time ⊙ 0,50 (factory setting)

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

Right leaf

G Motor (Supply: term. **KL2** 24/25/26, grounding: 27 - Sensor: term. **KL1** 65, 67, 68)

⊙ **MOTOR ON**
○ **MOTOR OFF**



right motors

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

G Delay 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)

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

ARS response time ⊙ 0,50 (factory setting)

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

Operating mode

Impulse logic

⊙ **stop, start of pause time:** a command of the impulse switch during the opening movement stops the gate and starts the pause time in automatic operation – as soon as the pause time has run out, the gate closes automatically.
○ **impulse suppression when opening:** commands which are emitted during the opening movement are suppressed. Commands during closing are accepted.
○ **pause time extension:** an impulse in automatic operation restarts the pause time. If this menu point is chosen, the impulse suppression during opening is active at the same time.

G Operating mode

⊙ **impulse mode:** for initiating the closing movement, an impulse is necessary.
○ **automatic closing, pause time adjustable from 1-255s:** gate closes as soon as the adjusted pause time has run out.

Partial opening ⊙ 100% (factory setting)

○ **25–100% adjustable:** indicates the partial opening of the gate leaf with closing delay in relation to complete opening width.

This adjustment is ONLY adopted in CLOSED Postion.

Automatic mode

⊙ **complete/partial opening:** either with complete as well as partial opening, the gate closes automatically after the adjusted pause time.

○ **only complete opening:** only after complete opening, the gate closes automatically after the adjusted pause time.

○ **only partial opening:** only after partial opening the gate closes automatically after the the adjusted pause time.

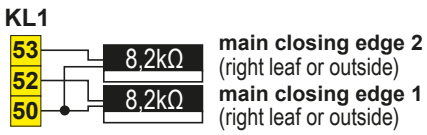
Pause time logic

⊙ **no influence**

○ **permanent open in automatic mode:** if this function is activated, the control unit goes from automatic mode into impulse mode **with activated pause time through impulse in open gate position** for this cycle , hence if gate is open then an impulse will end the automatic mode - the gate remains open. Only the next impulse will close the gate and the control unit goes back to automatic mode. With this function e.g. the entrance to a company site can remain open during the day (1st impulse in gate open position) and closed in the evening (2nd impulse). The control board switches back to automatic mode (autom. opening and closing of gate).
If the gate is in partial open position and „permanent open in automatic mode“ is selected, so it is possible to adjust permanent partial open for this cycle by giving an impulse via **pedestrian button.** Permanent partial open can be finished analogous to the above described method.

Closing edges (HSK 1: terminals KL1 50/52, HSK 2: terminals KL1 50/53)

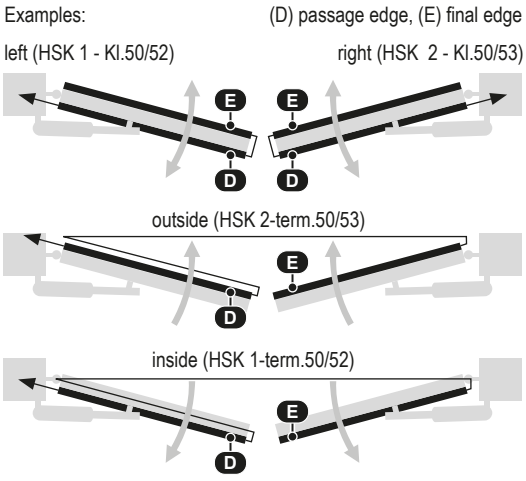
⊙ **left/right:** the safety sensing edges (contact strips) can actuate in every gate movement (OPEN/CLOSE).
The safety sensing edges for the left gate leaf need to be connected (in series) to the **terminals 50/52.**
The safety sensing edges for the right gate leaf need to be connected (in series) to the **terminals 50/53.**



○ **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)

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

Prewarning OPEN (terminals KL1 10/11)

⊙ **OFF**

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

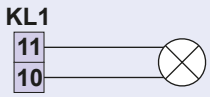
Prewarning CLOSE (terminals KL1 10/11)

⊙ **OFF**

○ **1–30s adjustable:** before each closing 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 6)* **!**

The following options, marked with 🚦 **in the menu are only valid for ST 64A** in combination with the traffic light control unit STA 11.

Green phase ⊙ 20s (factory setting) 🚦

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

Clearance time ⊙ 5s (factory setting) 🚦

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

Traffic light gate CLOSED 🚦

⊙ **OFF:** red traffic light does not illuminate in closed position.

○ **Constant red:** red traffic light illuminates also in closed position.

Traffic light logic 🚦

⊙ **both sides green:** both traffic lights illuminate in open position GREEN, regardless of which side has been given the green request.

○ **one side green:** only the traffic light illuminates in open position GREEN, 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 20)*

⊙ **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 20)*

⊙ **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

⊙ **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!)

⊙ **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

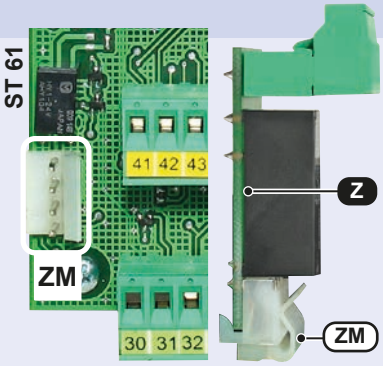
⊙ **courtyard/control lamp:** the menu points courtyard lamp and control lamp are ready for adjustment (that means if not selected, these menu points will not be shown on the display)

○ **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

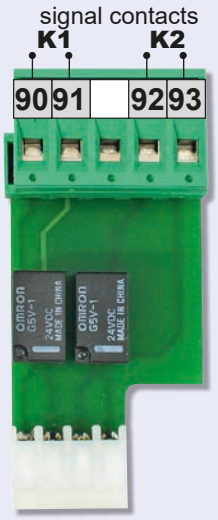
- On the terminals 12/13 a courtyard lamp can be connected: **230V, max. 100W**
- On the terminals 70/71 a control lamp can be connected: **24Vd.c., max. 2W**

Additional module Gate status display

- with potential free signal contacts K1 (Kl. 90/91) and K2 (Kl. 92/93) the gate staturs 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

⊙ **e-lock/magnetic clamp:** with additional module electric lock/magnetic clamp.

○ **motor lock:** with additional module motorized locking bar.

Motor lock

⊙ **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.

Danger

- **Before connection works or taking off the housing cover the power supply has to be turned off !**
- **Follow safety instructions!** *(➔ page 6)*

Note for locking system

The ST64(A) is designed to use the locking system droptbolt SAFELOCK.
We advise against using the electric lock / magnetic clamp as a locking system.!

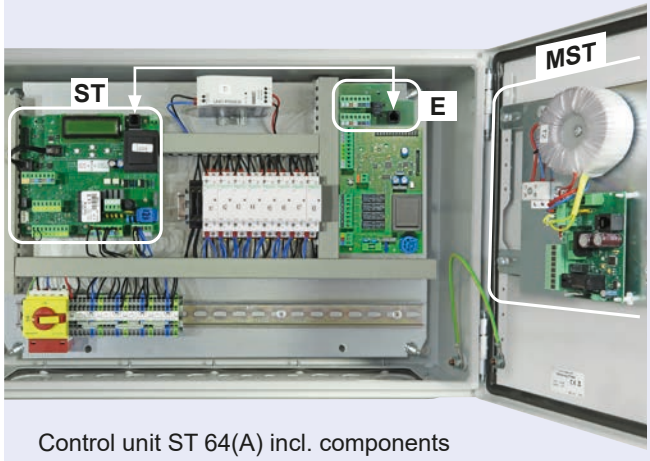
The components dropbolt module, dropbolt control unit and the dropbolt are optional.

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.

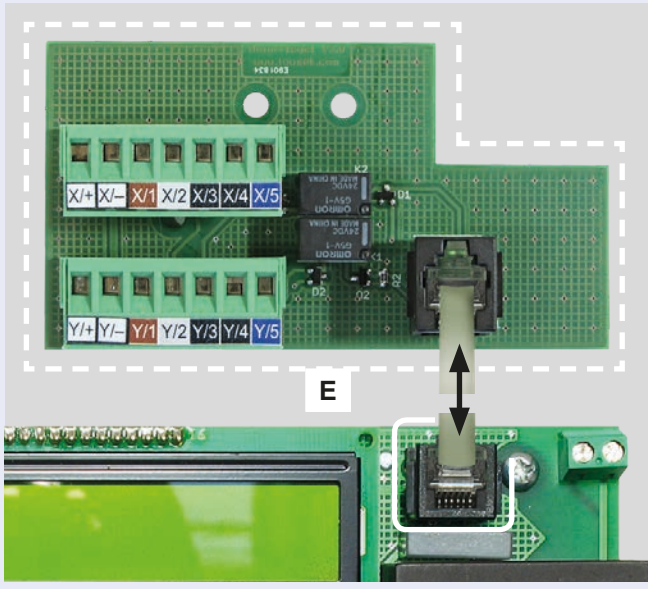
Module connection

- **ATTENTION: Turn off the power supply!**
- The module **(E)** is connected with a RJ-plug-in connector to the control unit **(ST)** in the housing of the ST64(A).
- The removable terminals **„X“ and „Y“** on the module are wired to the dropbolt control unit **(MST)** according to the sketch *(➔ page 22)*.
- After successful connection the dropbolt operation need to be activated in the control unit menu („peripherials/locking“ and „peripherials/dropbolt“)



Control unit ST 64(A) incl. components to actuate the dropbolts:

(E) dropbolt module
(MST) dropbolt control unit available for 1 or 2 dropbolts



RJ-connection ST 64(A) with optional dropbolt module

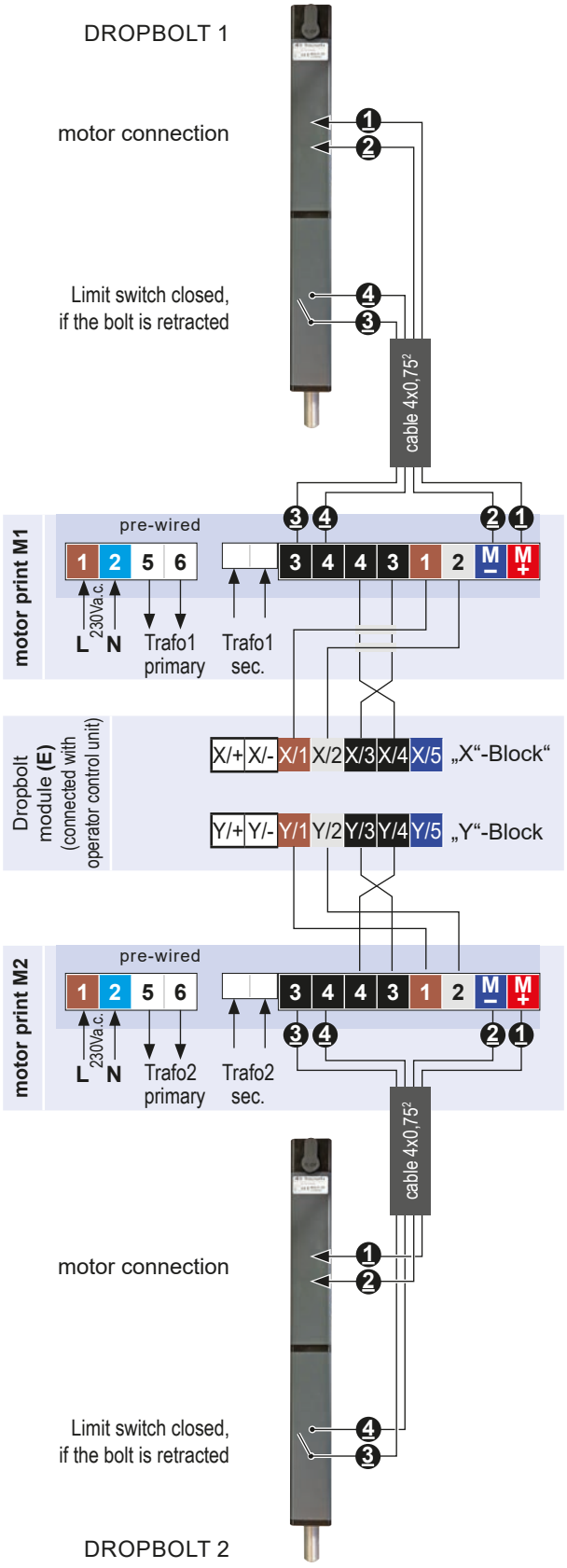
Connection of dropbolt SAFELOCK (optional)

The SAFELOCK control unit is available to actuate one or two dropbolts.
Generally the components to use one or two dropbolts, such as dropbolt module **(E),** motor print boards **(M1,M2)** and transformers **(TR1, TR2)** are already prewired as shown in the illustration below:

- motor print boards **(M1, M2)** are wired to the dropbolt module **(E),** which is then connected to the ST 64(A):
  - for one dropbolt: only terminal block „X“ - for two dropbolts: terminal blocks „X“ + “Y“
- Terminal block **(K)** of the motor control board **(M1, M2)** are prewired to the terminal block **(KL)** on the DIN rail of the control unit housing.
- 230Va.c. power supply and grounding **(V)** of the dropbolt control unit.

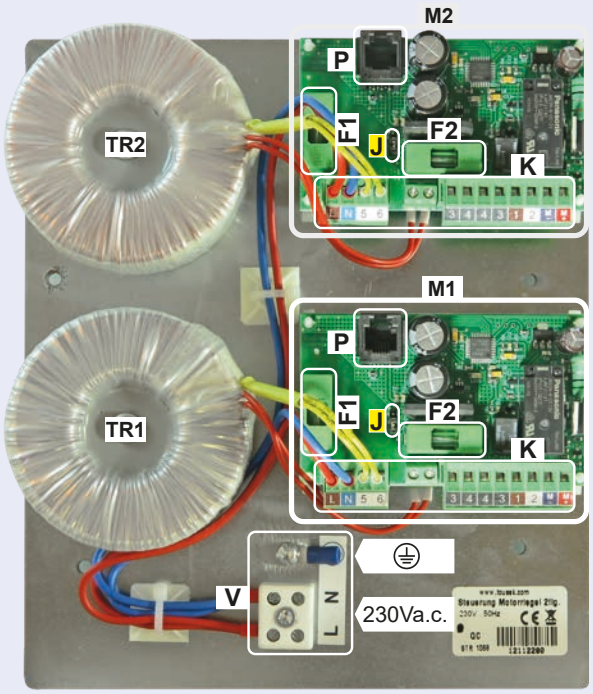
Dropbolt connection

- Dropbolts must be connected directly to the terminal blocks **(K)** of the motor print boards via connection cable 4 x 0,75² (motor connection and limit switch).
- Strictly note the numbering **1 – 4** of the connection cable.



Dropbolt control unit SAFELOCK (optional)

The SAFELOCK control unit is available for one or two dropbolts and is installed on the inside of the door of the control unit housing ST 64(A).



(V) supply terminals, grounding screw
(TR1, 2) transformer 1, 2
(M1, 2) motor print 1, 2

Motor print components:

(P) programming slot
(F1) fuse 0,25A T
(F2) fuse 4A T
(J) Jumper
(K) terminals

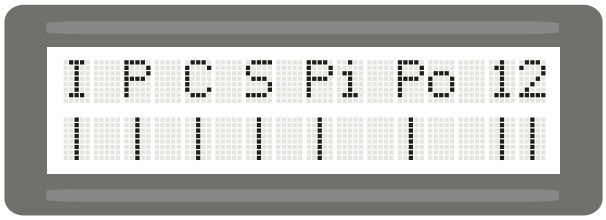
Jumper J with tousek control units

Status display

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

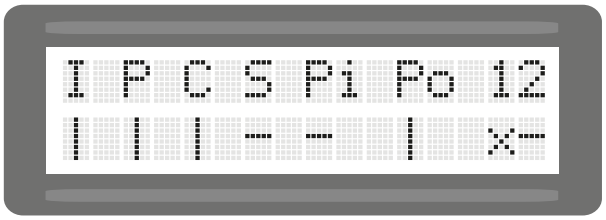
I	impulse switch
P	partial opening switch
C	CLOSE-switch
S	STOP-switch
Pi	photocell inside
Po	photocell outside
1	safety edge main closing edge 1
2	safety edge main closing edge 2

┃	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.
Safety sensing edge 1 not connected or defect.
Safety sensing edge 2 triggered.

Delete position

⊙ **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

⊙ **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

➲ **shows the software version and the operator type on the text display**

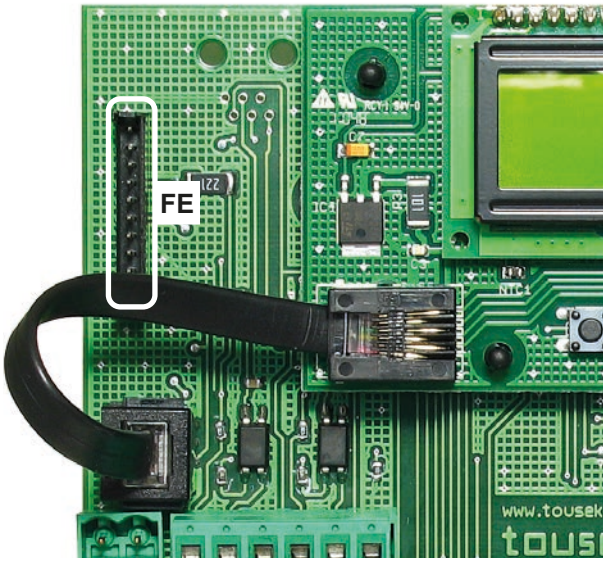
Serial number

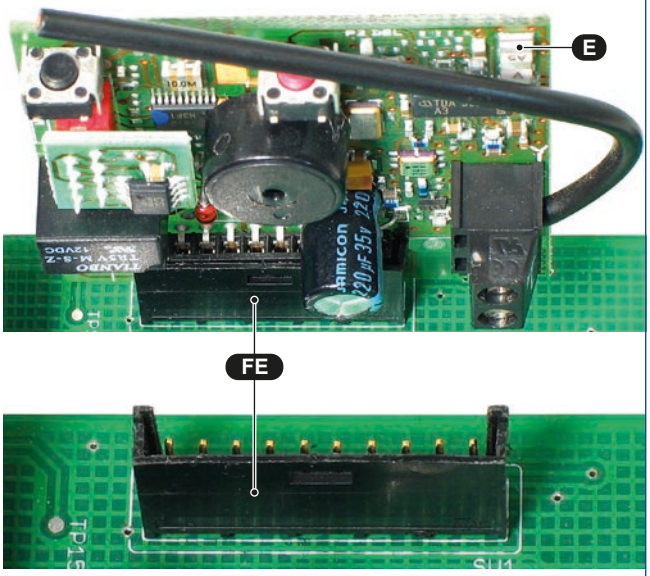
➲ **shows the serial number on the text display**

- **Turn off power supply.**
- 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 second channel takes over the function of the pedestrian entry mode switch.**
- For programming of receiver please ***see manual for radio receiver.***





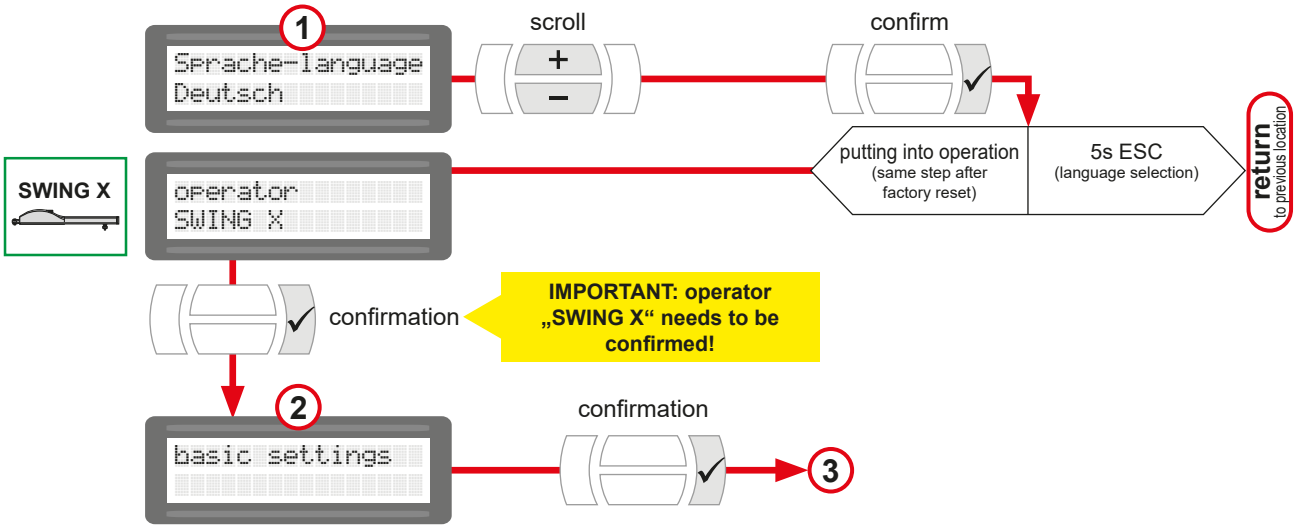
IMPORTANT: When operating in traffic light mode with the ST 64A, please plug the radio receiver in the traffic light control board STA 11 *page 33*

Important: preparation works

- Connect control panels, safety devices and motors in compliance with safety regulations.
  Attention: if no stop switch is connected then the terminals KL1 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 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.

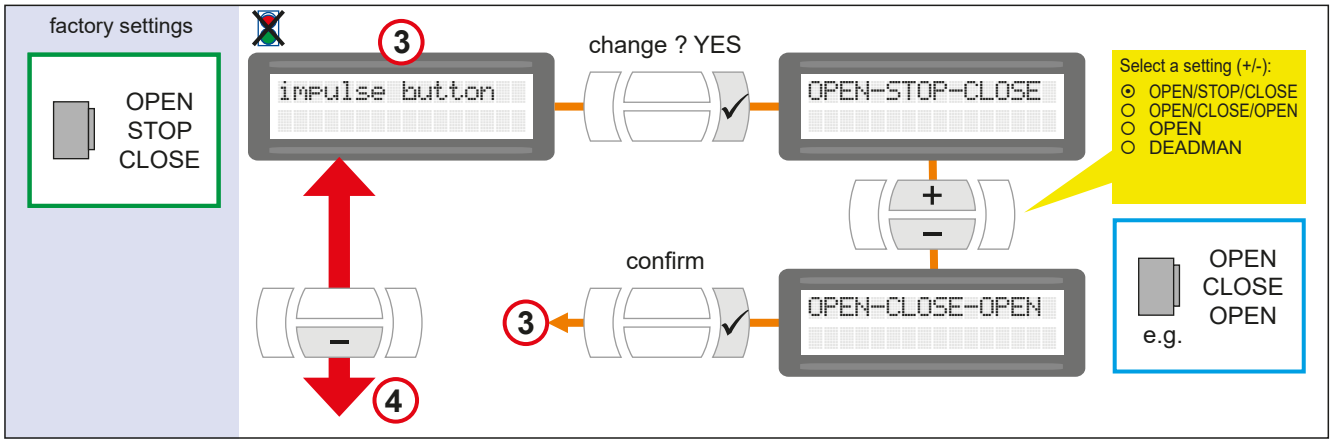
LANGUAGE SELECTION

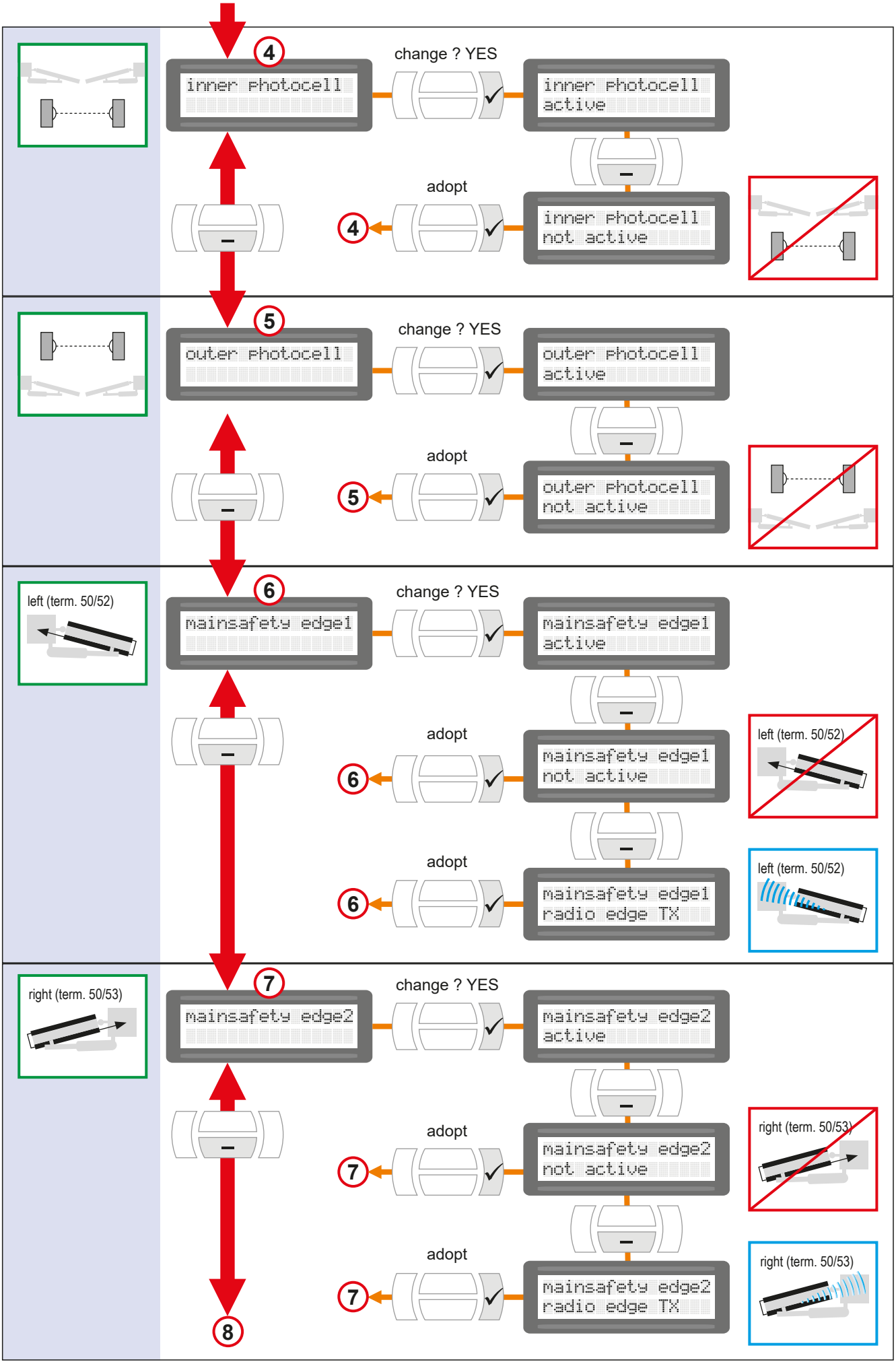
- Can be selected during initial operation (hence after reset to factory settings).
- Can be also chosen by pressing the ESC button ( ) for 5s, from any position in menu.

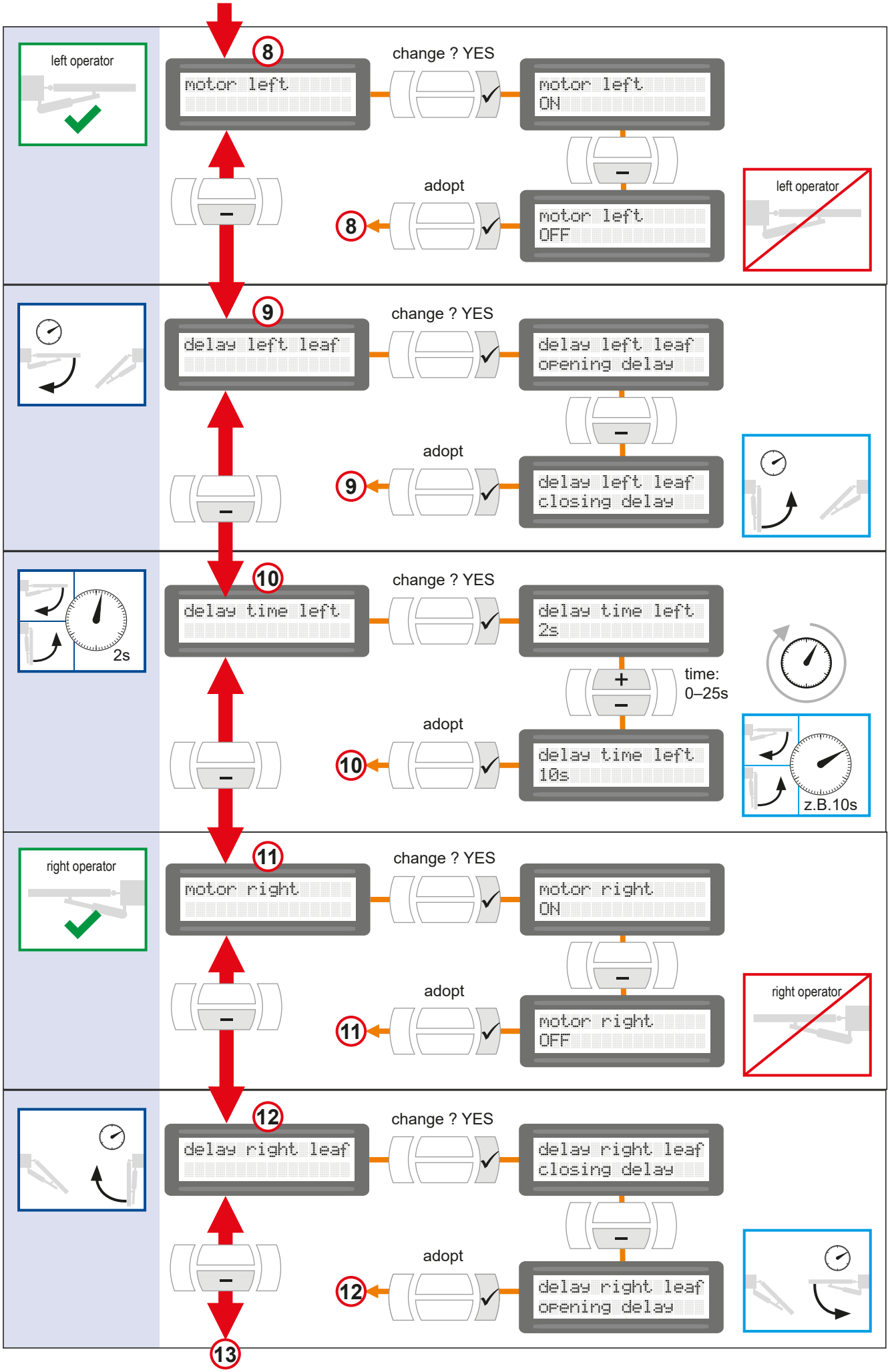


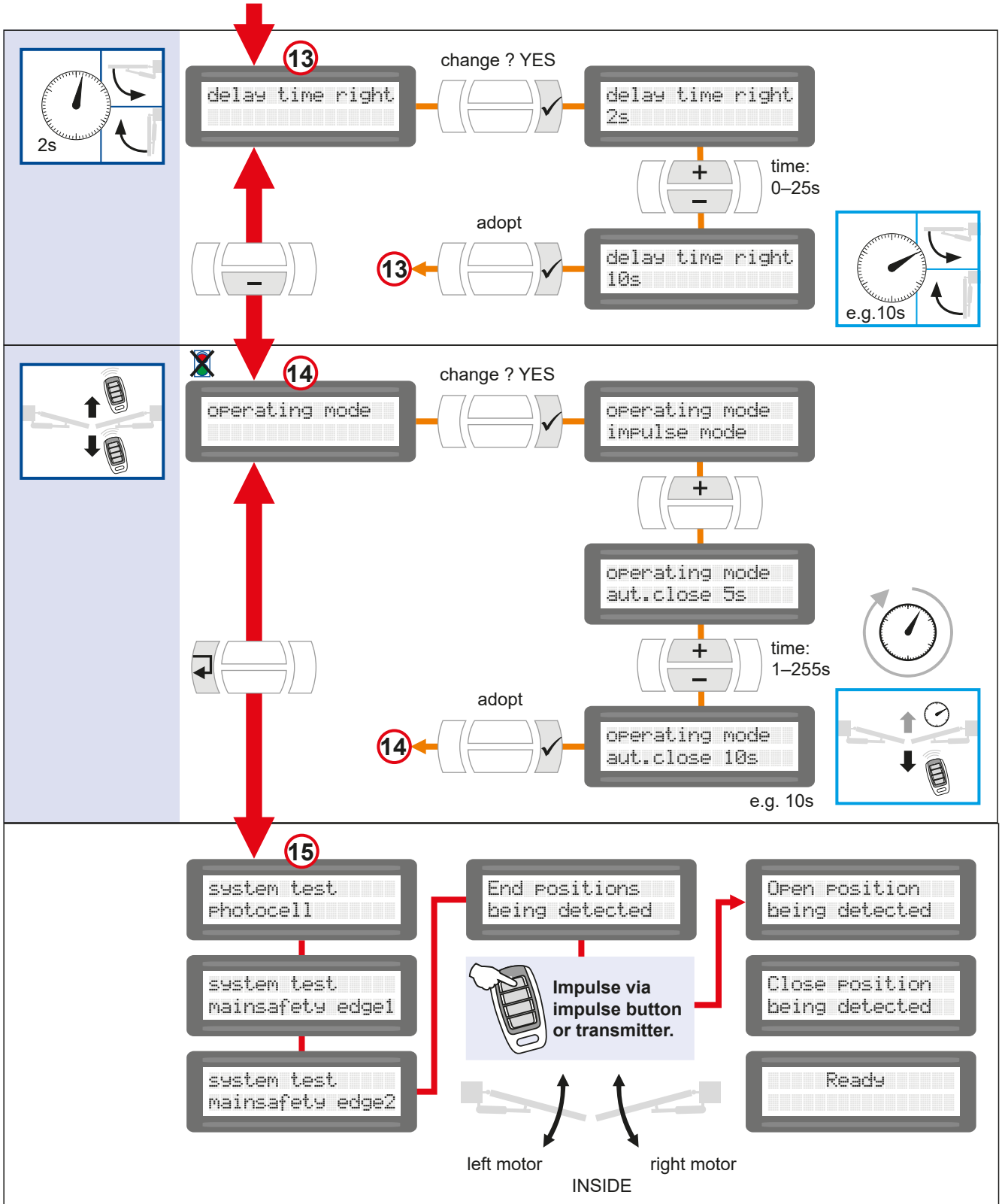
BASIC SETTING

- **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 10).*
- **The next programming adjustments are made in the main settings menu** *(see 9–10).*




4
inner photocell
change ? YES
inner photocell active
adopt
4
inner photocell not active
5
outer photocell
change ? YES
outer photocell active
adopt
5
outer photocell not active
left (term. 50/52)
6
mainsafety edge1
change ? YES
mainsafety edge1 active
adopt
6
mainsafety edge1 not active
left (term. 50/52)
adopt
6
mainsafety edge1 radio edge TX
left (term. 50/52)
right (term. 50/53)
7
mainsafety edge2
change ? YES
mainsafety edge2 active
adopt
7
mainsafety edge2 not active
right (term. 50/53)
adopt
7
mainsafety edge2 radio edge TX
right (term. 50/53)
8


left operator
8
motor left
change ? YES
motor left
ON
adopt
8
motor left
OFF
left operator
9
delay left leaf
change ? YES
delay left leaf
opening delay
adopt
9
delay left leaf
closing delay
10
delay time left
change ? YES
delay time left
2s
2s
time:
0–25s
adopt
10
delay time left
10s
z.B.10s
right operator
11
motor right
change ? YES
motor right
ON
adopt
11
motor right
OFF
right operator
12
delay right leaf
change ? YES
delay right leaf
closing delay
adopt
12
delay right leaf
opening delay
13



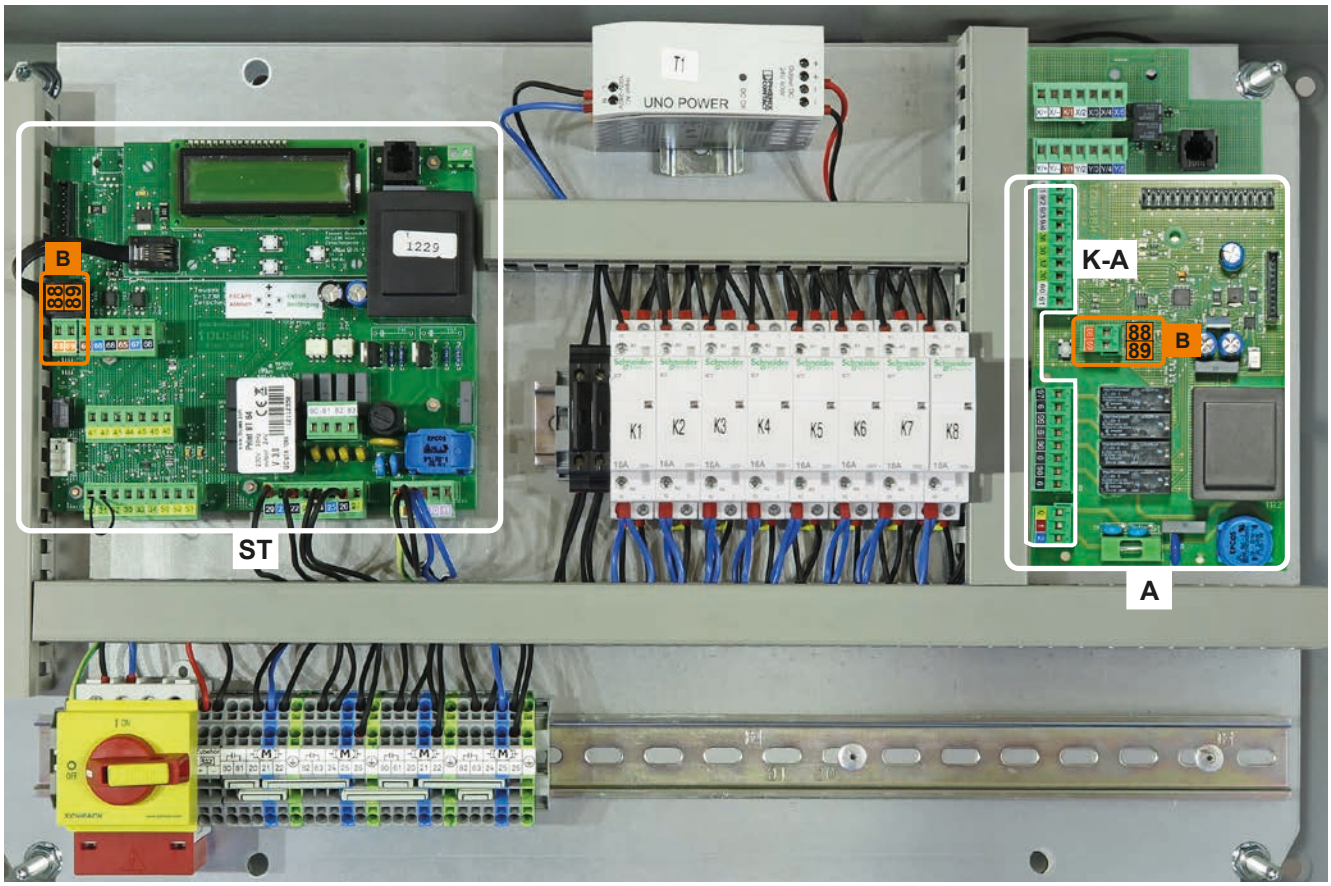
After giving the impulse to program the end positions, no other impulse must be given. Also the safety devices mustn´t be triggered. This would lead to an interruption of the programming process.

Important

- **The settings in the main menu need to be adapted according to the gate installation (single or double leaf)!**
- **Factory setting: Operation of swing gate with 2 gate leaves, the left and right operator are turned on in main menu: „⊙ Motor ON“.**
- **IMPORTANT: With 1 leaf gate installation, only the operator of the actually existing gate leaf must be activated in the main menu, the other one has to be disabled (deactivated) !**
  (In Main Menu: Left(Right) leaf / Motor / „Motor OFF“)

- 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 unit ST 64A necessary**
- CE

(ST) control board ST64A
(A) traffic light control STA 11
(B) Bus terminals (88 / 89)
(K-A) connection terminals STA 11



General

- To implement traffic light function the control unit STA 11 has to be connected with the operator control unit ST 64A via bus system (Bus terminals 88 ⇨ 88 / 89 ⇨ 89).

Valid for the traffic light mode:
- **The inputs of the pulse buttons of the ST 64A have no function and the impulse emission is only possible via traffic light board** *page 31–34 (I-loops, pulse buttons, radio)*!
- **When using a radio receiver in traffic light mode, the receiver is not to plugged into the slot of the operator control unit, but into the slot of the traffic light control!!**

Technical data

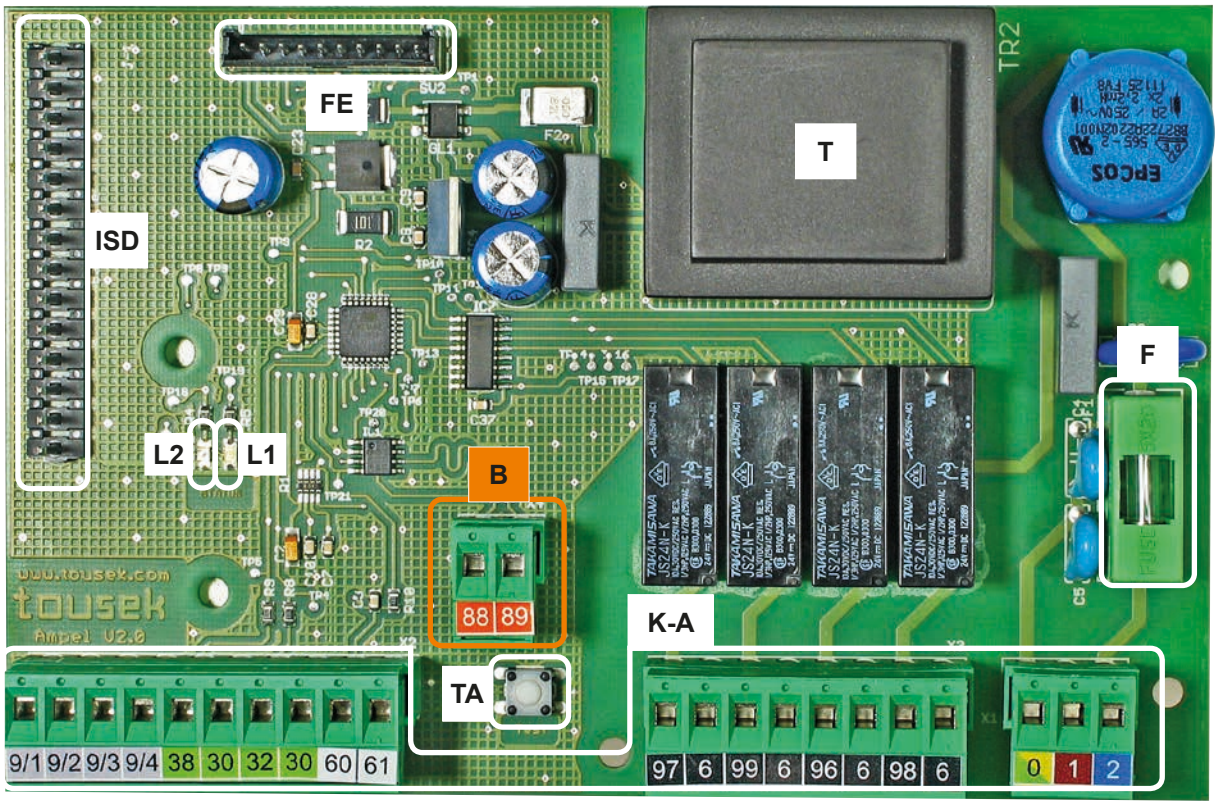
Traffic light control board STA 11 (in steel housing IP 66 of the operator control unit ST 64A)	
Power supply	230Va.c., +6/-10%, 50Hz
Relay load Red/Green traffic light	230V, max. 60W
Article no.	12120360
Optional equipment	induction loop detector ISD 6 (2-channels) • pluggable receiver

Function

Separate impulse generators can be connected to the terminals of the STA 11 for „inside“ and „outside“ area.
The programming of the traffic light control unit is done in the programming menu of the connected operator control board. It affects the function of the duration of the green phase, the clearance time, the traffic light at the gate position „closed“ (whether turned off or continuous red) and the traffic light system logic.
Depending on the selected option of the „traffic light logic“, after receiving a command and completion of the gate opening, either the side, which has given the command 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 control unit has the capability to store incoming commands and to process them after 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)** **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.**			RED	RED
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** **> 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.			RED	RED
ⓘ	• If a further command from one side is given with traffic light logic „both sides Green“ during the green phase/ clearance time is given, then the green phase is restarted. • If a further command from the same side is given with traffic light logic „one side Green“ during the green phase/clearance time, then a restart of the green phase for this side is effected. • If a further command from the counter side 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 Green display changes to the counter side.				

ⓘ **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

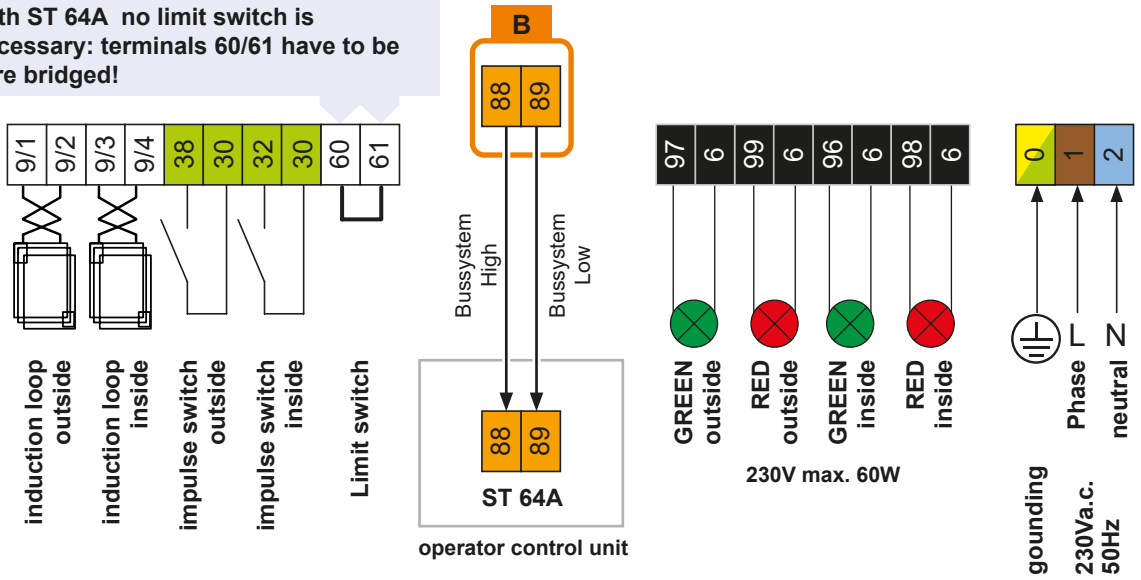
(K-A) Terminals
(B) Bus terminals (connection with operator control unit)
(TA) Test button (switches all traffic lights on)
(L 1) green LED: Status OK
(L 2) red LED: error (message on the display of the drive control)
(T) Transformer
(ISD) Slot for optional induction loop detector *(p. 34)* (command)
(FE) Slot for optional radio receiver *(p. 33)*
(F) fuse 3,15A T

Danger

- **Before connection works or taking off the housing cover the power supply has to be turned off !**
- **Follow safety instructions!** *(page 6)*

Attention: During connection, adjustment and maintenance works please take care, that the electronic circuit board won‘t be damaged by moisture (rain).

With ST 64A no limit switch is necessary: terminals 60/61 have to be wire bridged!



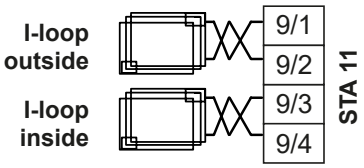
Induction loops

- **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 avalaible I-loop detector ISD 6 (2-channels).**
  (page 34)

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

Connections

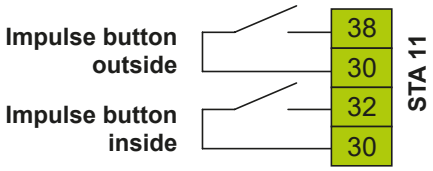
- For the connection of induction loops to give an impulse to the green request.
- With the 2-channel I-loop detector ISD 6 both loops (inside/outside) can be evaluated.



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

Connections

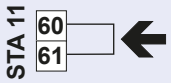
- For the connection of impulse switches on the inside and outside to give an impulse for the green request. The impulse is also possible via an optional, plug-in radio receiver.
- The green switching for one or both sides is dependent on the adjustment of the traffic light logic of the operator control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



Limit switch input (terminal **STA11:** 60/61)

Connections

Important



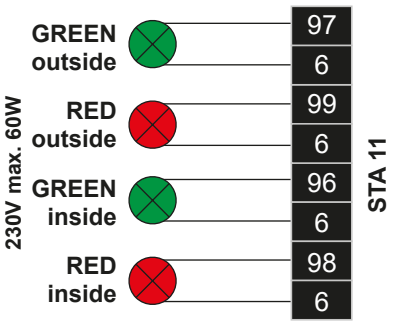
With the control unit ST 64A no limit switch connection at the traffic control unit STA 11 is necessary, **instead the terminals 60/61 must be wire bridged!**

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.



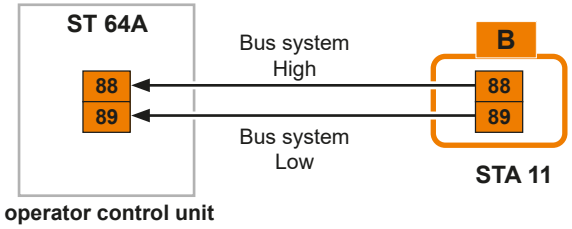
Connection traffic light board with operator control board (term. 88/89)

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 or equal.**



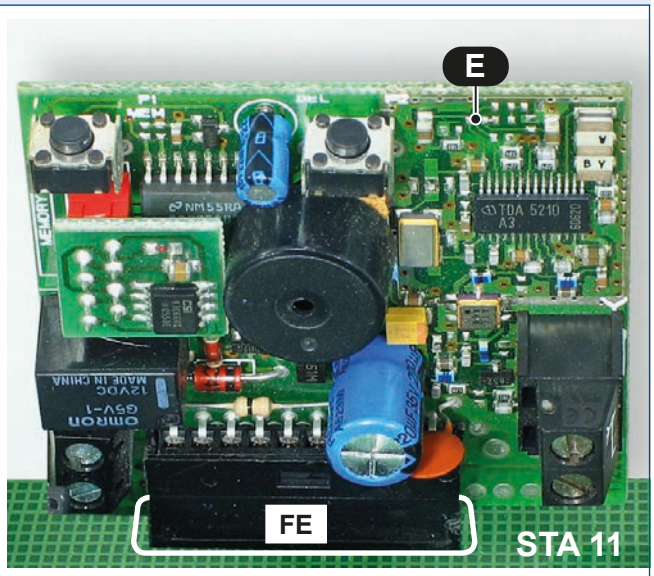
Adjustments

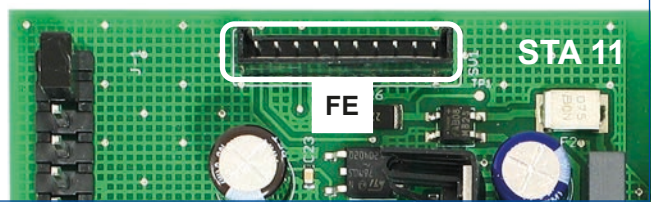
- **The programming of the traffic light control unit is done in the programming menu of the connected operator control board. It affects the function of the duration of the green phase, the clearance time, the traffic light at the gate position „closed“ (whether turned off or continuous red) and the traffic light system logic.**

Important

- **When using a radio receiver in traffic light operating mode, the radio receiver must beed plugged in the slot (FE) of the traffic light control STA 11!**
- **The radio receiver slot is deactived in the operators control unit, when the traffic light control unit STA 11 is in use.**

- **Turn off power supply.**
- 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.



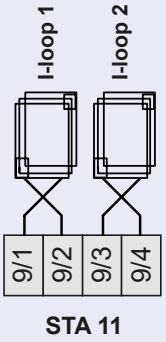


Important

- **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.***

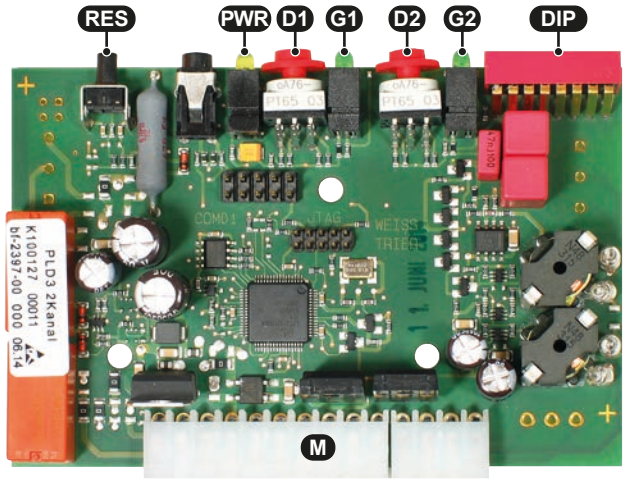
Important

- 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 (= loop 1) and 9/3-9/4 (= loop 2).**
- *Detailed informations can be found in the corresponding manual.*



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.

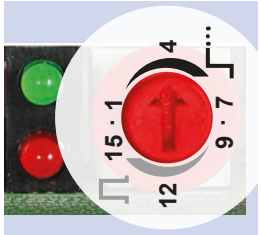


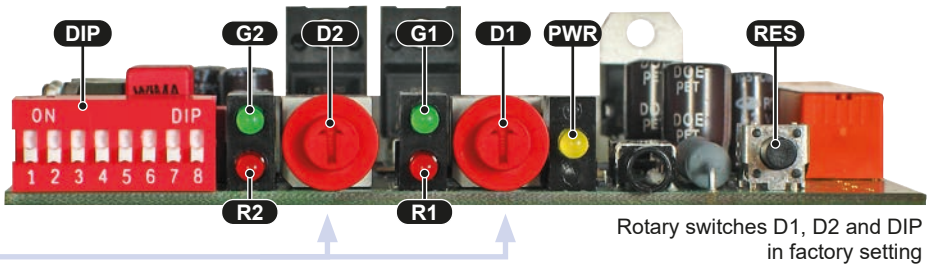
- All detector settings can be made easily with the rotary switches **(D1)** for channel 1 and **(D2)** for channel 2 as well a s the DIP-switches **(DIP)**. *see corresponding manual.*

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 (yellow)	blinking when adjusting / power	

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

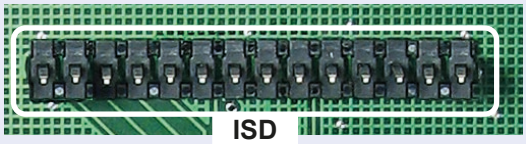


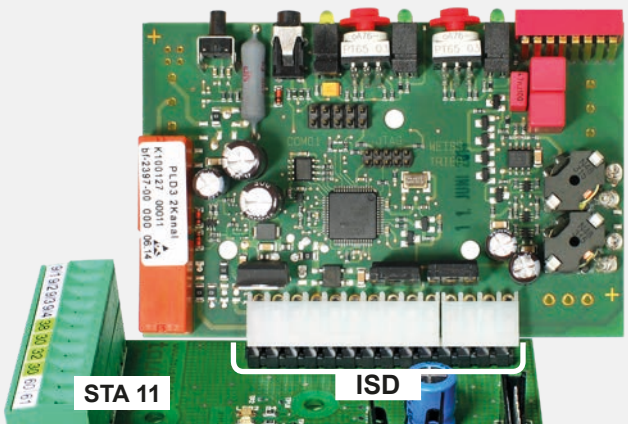


Rotary switches D1, D2 and DIP in factory setting

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**.





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 connected or bridged properly
relays on control board switch but motor does not run	connection between motor and control unit 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 check the function via status display
no function of radio receiver	radio receiver plugged in wrongly	check installation see chapter „connection of radio receiver“
	no / wrong connected antenna	check antenna connection
	radio transmitter not programmed	program radio transmitter
error message „no learned way“	sensors or motors not connected correctly or capacitor not connected	check connections and wiring according to manual

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