Mounting and istallation manual

PULL T8, -T10, -T15 Master / Slave

sliding gate openers for opposite sliding gates

tousek GATE AUTOMATION

Index

GENERAL WARNING AND SAFETY NOTES

- These installation and operating instructions form an integral part of the product “sliding gate operator”. 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. They describe the proper installation and operation of the sliding gate operator 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 at the gate-system, the power supply has to be turned off.
- 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. cannot 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 procection 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.
- The electric motor heats up during operation. Therefore the device should only be touched after it has cooled off.
- 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.
- **Please notice that the warranty will not be applicable if the label with the engine number has been removed or damaged.**

Maintenance

- **Maintenance works may only be carried out by qualified personnel.**
- **Check the proper sensitivity setting of the ARS safety reverse system once a month.**
- **Check the proper function of the emergency release mechanism periodically.**
- **Check if all mounting screws are securely fastened periodically.**
- **Remove dirt deposits from the operator and gear rack periodically.**
- **Maintenance and servicing of the complete gate facility has to be carried out according to the gate builder´s/ installer´s instructions.**

Characteristics PULL T8, -T10, -T15

- Programmable control panel accessible from exterior with illuminated display in english
- Direct connection of 8,2 kOhm contact barriers (safety sensing edges (2-channels)
- Three operating modes (impulse, automatic and dead man)
- Adjustable partial opening
- Built in control board in separate housing
- Safety system ARS (automatic reversal system)
- Self locking worm gear
- Emergency release, lockable with profile half cylinder (3 keys included) - changeable, thus incorporation into an existing house key system is possible.
- Self learning end positions (limits)
- Drive unit (gearbox unit) made of steel and runs in an oil bath
- Permanently selflearning force
- Adjustable soft stop (no loss of force even with reduced revolution speed)
- worm gear and worm wheel made of tempered steel
- CE

General

During the development of the new operator generation Tousek PULL T8, -T10, -T15 special attention has been paid to a quick and simple installation and a troublefree operation, together with the proven quality and reliability. Accordingly, many clever details have been built into the operator - from the automatic learning of gate end positions, to the control board with removable clamps an integrated safety sensing edge analysis, to an easy programmable text display - which make it particularly user-friendly. The drive unit itself consists of an electric motor and a worm gearing, accommodated in a robust aluminium housing, and - together with the integrated microprocessor control unit and the safety reverse system ARS - forms a compact device with small overall dimensions. The safety reverse system ARS senses obstacles during opening and closing of the gate and permits a continuous adjustment of the drive force. Following the Tousek tradition, all operator components have been built in a particularly robust and resistant way to guarantee the safe and reliable operation even in the most adverse weather conditions. Additional improvements are for example: control board with display is accesible from outside, the separate control board housing, which double protects this sensible part, or an oil bath which ensures that the motor/gearing components can move in an optimal way in all temperatures with perfect lubrication and cooling effect. The installation of the PULLT8 is possible for new or already exsting sliding gates in a simple and fast way.

Functions

The integrated control board has three operation modes : **impulse mode** (with button/switch function open and close), **automatic mode** (automatic closing) and **dead-man mode** (the gate moves as long as the button/switch is pressed)
Not only the possibility of connecting a button/switch OPEN / CLOSE / STOP, photocells and a safety device, but also a pedestrian entry button/switch which enables the partial opening of the gate. The system has 230V output terminals, for connecting a signal lamp. Further it´s equipped with slots for a pluggable radio receiver and an additional module (for courtyard lamp or for evaluating the gate state).

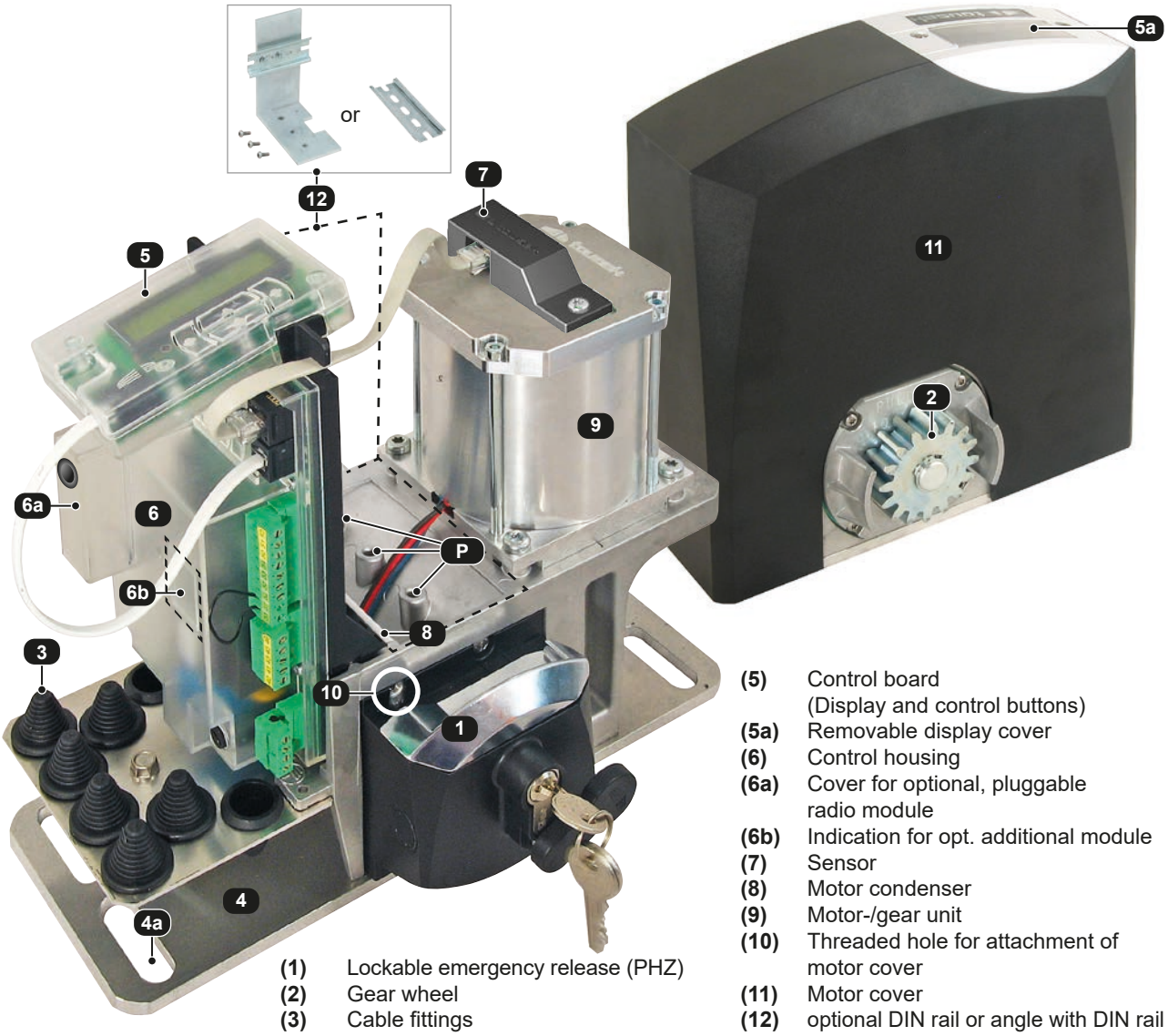
Technical data

Sliding gate opener PULL-	T8	T10	T15			T8	T10	T15
control board	integrated			max. drive		30m		
Power supply	230V a.c., 50Hz			duty cycle in S3 mode		40%	40–60%	
max. current consumption (excl. equipment)	1,6A	1,9A	2,2A	Ambient temperature		-20°C bis +40°C		
Gear wheel	Z20M4	Z16M4		Protection class		IP44		
max. gate weight	800kg	1000kg	1500kg	Torque sensor		■	■	■
Spees	11m/min	9m/min		Art.no..	Master	11110430	11110640	11110680
Torque	25Nm		30Nm		Slave	11110440	11110650	11110690

optional equipment	pluggable receiver • additional module für courtyard/control lamp • additional module for gate status • bracket incl. top hat rail • radio transmission systemTX 310 • iinductive system TX 400i

Motor selection by using a spring scale	T8	T10	T15
Attach the spring scale to the gate at approx. the height of the rack. Then pull horizontally and without rocking at motor speed. Compare the max. detected tractive force with the guide values listed on the right.	up to 30kg	up to 40kg	up to 60kg

Technischer Aufbau PULL T8, -T10, -T15 Master



(1) Lockable emergency release (PHZ)
(2) Gear wheel
(3) Cable fittings
(4) Ground plate
(4a) Slotted holes (4x) for mounting on the foundation/ground

(5) Control board (Display and control buttons)
(5a) Removable display cover
(6) Control housing
(6a) Cover for optional, pluggable radio module
(6b) Indication for opt. additional module
(7) Sensor
(8) Motor condenser
(9) Motor-/gear unit
(10) Threaded hole for attachment of motor cover
(11) Motor cover
(12) optional DIN rail or angle with DIN rail can be bolted at position **(P)** 3x: e.g. for two devices with 11 pole plug socket

General installation notes

Before installing the **Tousek PULL T8, -T10, -T15** sliding gate operator we recommend checking the following points:

- **Checking the gate structure:**
  On a gate which travels on floor rails please check the bottom rollers and the upper guide rollers and make sure that there is no undue friction or jamming.
  On a cantilever gate please check if the gate can be moved out of its end-positions without undue effort.
- The gate must travel in a stable manner without lateral movements of the gate panel.
- Make sure that the gate travels in a regular way without undue friction or jamming along the whole travel length.
- **Make sure that there are stoppers at both ends of the track, preventing the gate from running over its travel limit.**

ATTENTION !

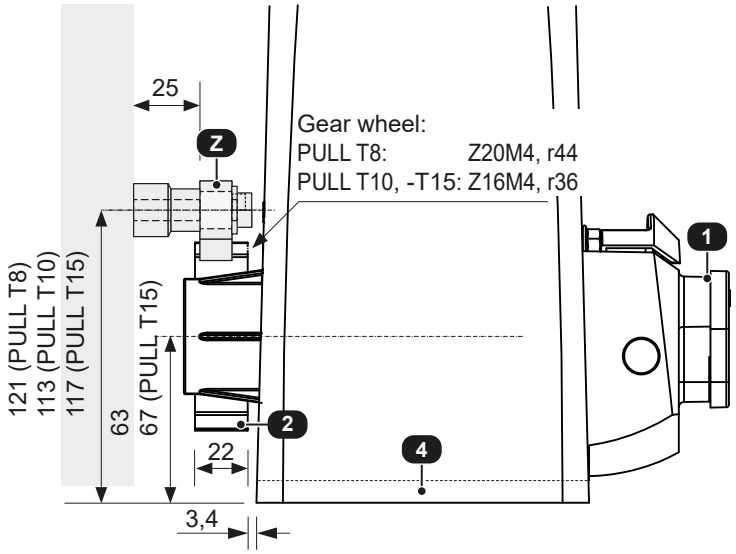
- **ATTENTION: Mechanical limits are necessary!**
- **ATTENTION: the sliding gate operator has been developed and designed for the automation of horizontally travelling sliding gates. Gates on sloping tracks (i.e. gates which follow an inclined, non-horizontal, travel path) must not be automated without additional safety devices (which make sure that the gate cannot start moving on its own from any gate position).**

2.1 Installation of the motor

After installing the protection tubes **(check cable exit of operator (3))** and having finished the concrete foundation, the motor has to be bolted through the 4 slotted holes **(4a)** to the concrete foundation. It is particularly important that the operator is mounted parallel to the gate panel, and that the measurements given in the drawing are kept.

NOTE concerning cable layout

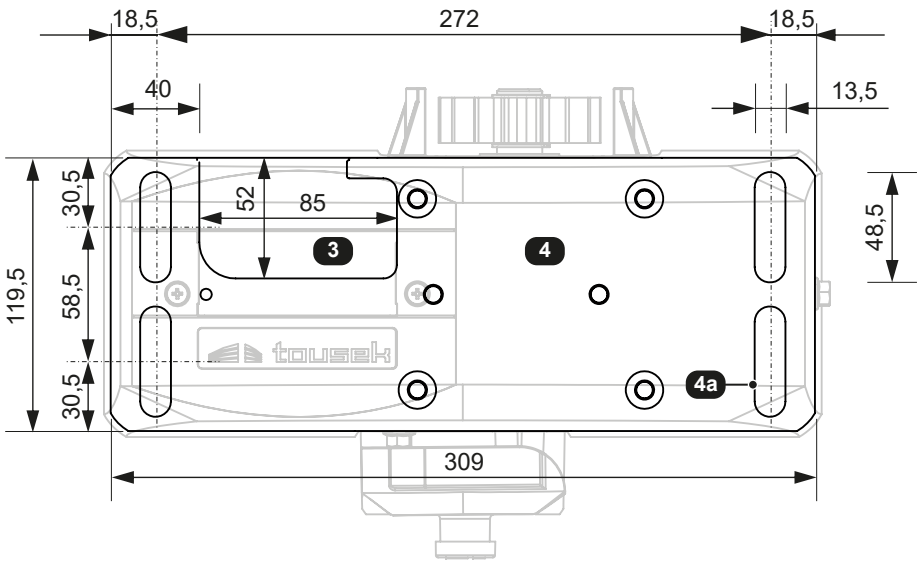
- **The electric cables have to be laid in insulating sleeves which are suitable for underground usage. The insulating sleeves have to be lead into the inner of the operator housing (see picture).**
- **230V cables and control lines have to be laid in separate sleeves.**
- **Only double-insulated cables, which are suitable for underground usage (e.g. E-YY-J) may be used.**
- **In case that special regulations require another type of cable, cables according to these regulations have to be used.**



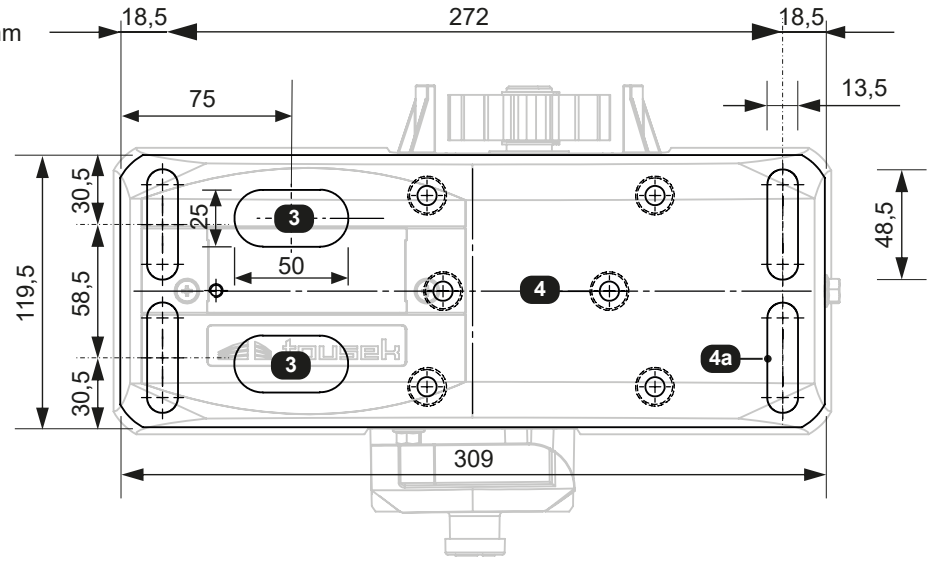
(1) lockable emergency release (PHZ)
(2) gear wheel
(3) cable
(4) ground plate
(4a) slotted holes (4x) for connection on the ground
(Z) steel gear rack

Ground plate PULL T8, -T10

- Dimensions in mm
- depth of ground plate: 8mm

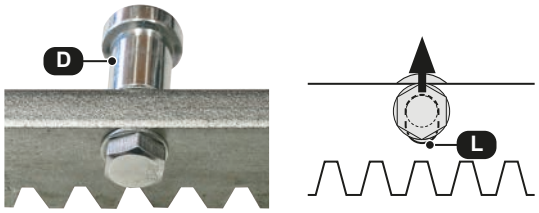


- Dimensions in mm
- depth of ground plate: 12mm

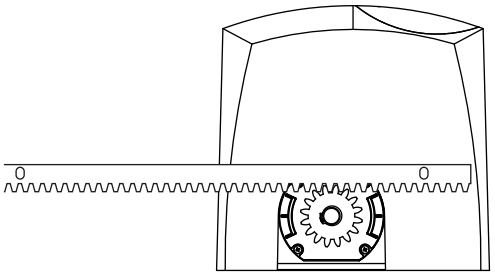


2.2 Installation of the gear rack

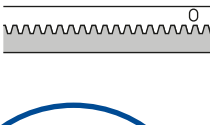
- Disengage the motor from the output drive pinion with the emergency release lever (see emergency release for instructions) and open the gate completely.
- Install the spacer tubes (D) with the help of the bolts and washers on the first meter of gear rack
- Make sure that the bolts/screws sit in the top end of the vertical slots (L), then tighten them.

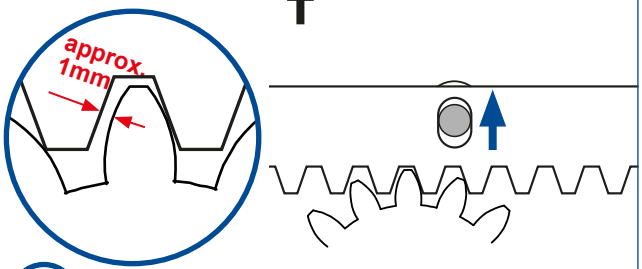


- Place the first gear rack element on the drive pinion and fix it in place with a screw clamp.
- Move the gate by hand until reaching the end of the first gear rack element, then weld the first, second, and third spacer tube to the gate
- Proceed with the other gear rack elements in the same manner.



- **Before fixing the second meter of gear rack it is essential to place another gear rack element under the first and second gear rack elements, thereby making sure that the gearing module between the two gear rack elements will be exactly kept (see illustration).**





- After installation of the gear rack please loosen the fastening bolts slightly and rise the gear rack a little along the vertical slots, creating a **distance of approx. 1 mm between the flank of the drive pinion and the gear rack.**
- The gear rack elements can also be installed without welding, i.e. by screwing them to the gate frame together with the spacer tubes. Apart from that the gear rack elements have to be installed in the same manner.

Attention

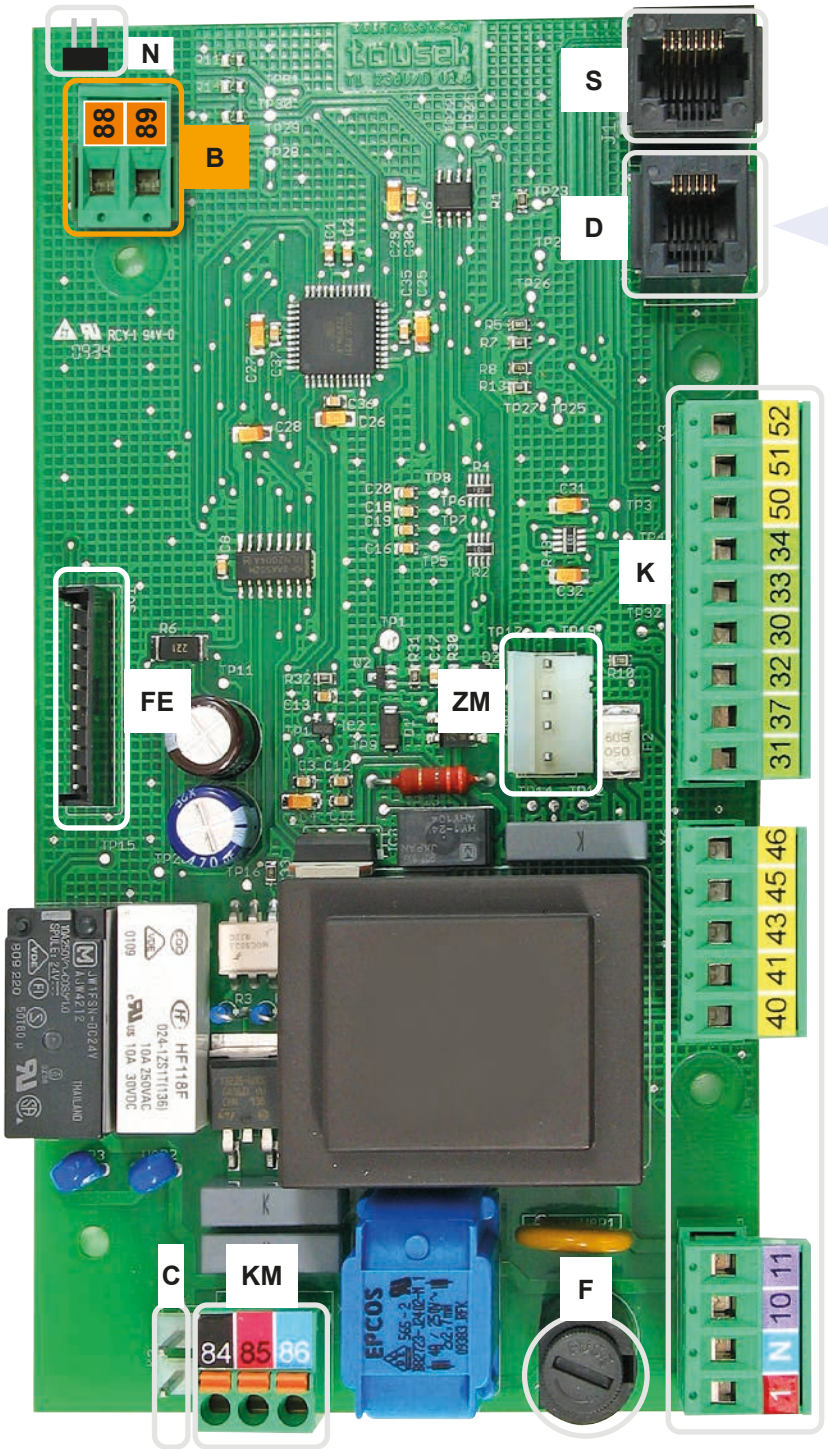
- **Do not weld the individual gear rack elements together!**

2.3 Dismantling

The dismantling of motor is made the other way around of mounting.

Before dismantling please plug off power supply of motor !

Overview of the control board



Important

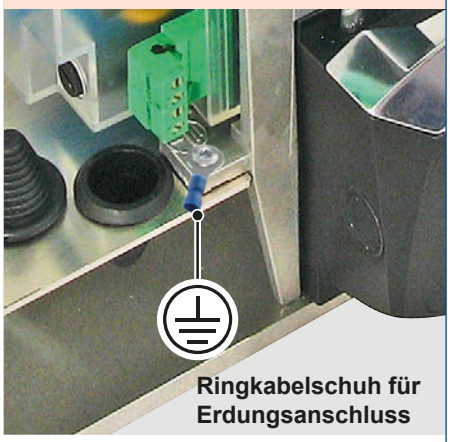
The optional „tousek-connect“ or the „tousek service interface“ must be connected with socket **(D)!**

Attention

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

Grounding

The grounding connection is made on the operator housing with the designated grounding screw!

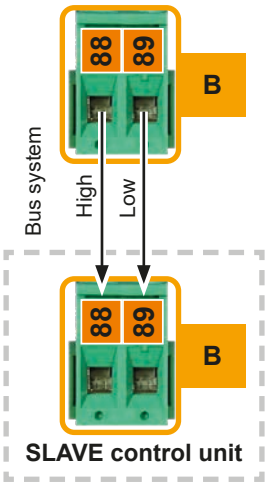


Ringkabelschuh für Erdungsanschluss

Elements of control board

- **(K)** Terminal blocks
- **(KM)** Motor clamps
- **(C)** Condenser plug
- **(S)** Sensor plug
- **(D)** Display plug
- **(B)** **System connector (for connection Master/Slave)**
- **(N)** Connection emergency release cable
- **(FE)** Slot for optional radio receiver *(see page 26 for connection)*
- **(ZM)** Connection slot for optional modulel *(see page 23 for connection)*
- **(F)** Safety fuse T 3,15A

Master control unit

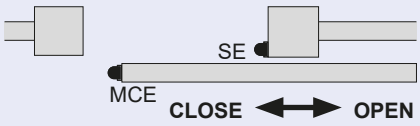


Connection Master /Slave control unit

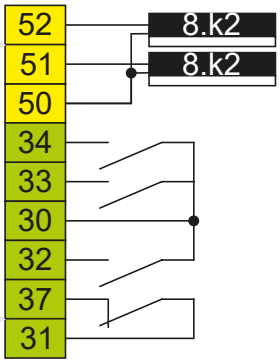
- For the connection of the master and slave control unit connect the terminals 88 and 89 in the system connector to each other.
- Max. cable length between the operators: 25m.
- Cable type e.g.: PVC control cable YSLY 2 x1mm² or equivalent.

Safety sensing edges

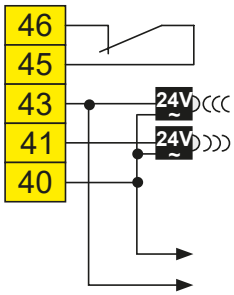
Function main safety sensing edge (MCE):
Safety during closing
Function side safety sensing edges (SE):
Safety during opening



If no stop switch is connected, terminals 31/37 have to be wire-bridged.

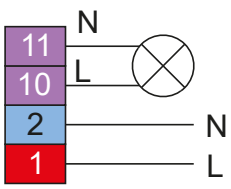


Main safety edge
Side safety edge
Common contact safety edge
Pedestrian - switch
CLOSE - switch
common
impulse - switch
STOP - contact



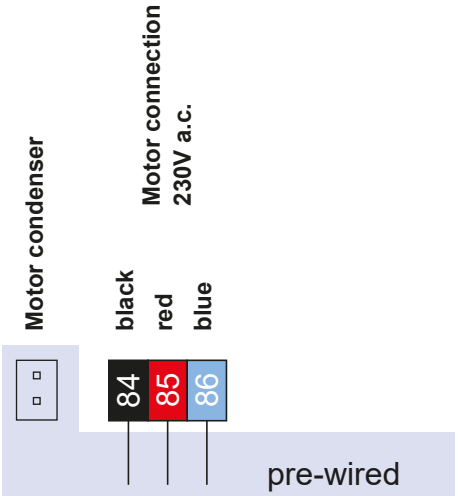
Contact for photocells
Common photocell contact
Power supply photocell receiver
Power supply photocell transmitter
Power supply common photocell

Power supply
max. 24Va.c., 5W



Signal lamp 230V, 100W

Power supply 230V a.c.

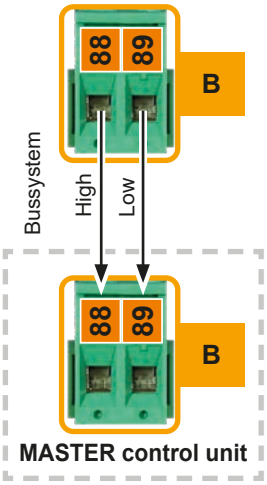


Grounding

The grounding connection is made on the operator housing with the designated grounding screw!

see figure page 8

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!

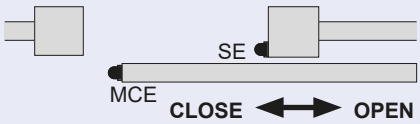


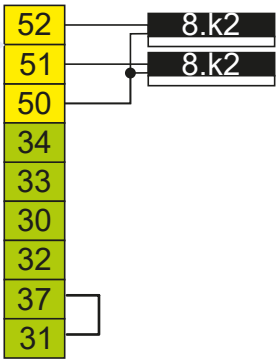
Connection Master /Slave control unit

- For the connection of the master and slave control unit connect the terminals 88 and 89 in the system connector to each other.
- Max. cable length between the operators: 25m.
- Cable type e.g.: PVC control cable YSLY 2 x1mm² or equivalent.

Safety sensing edges

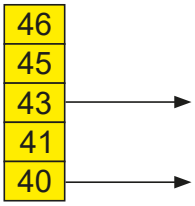
Function main safety sensing edge (MCE):
Safety during closing
Function side safety sensing edges (SE):
Safety during opening



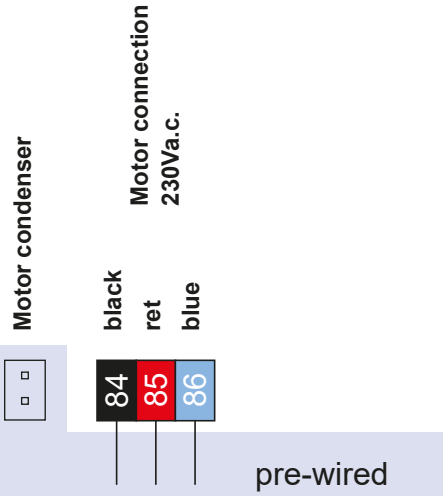


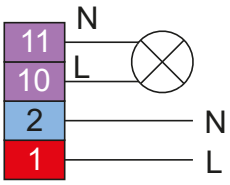
Main safety sensing edge
Side safety sensing edge
common contact safety edge

Jumper (must not be removed!)



Power supply
max. 24Va.c., 5W





Signal lamp 230V, 100W

Power supply 230V a.c.

Grounding

The grounding connection is made on the operator housing with the designated grounding screw!

see figure page 8

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

Warning

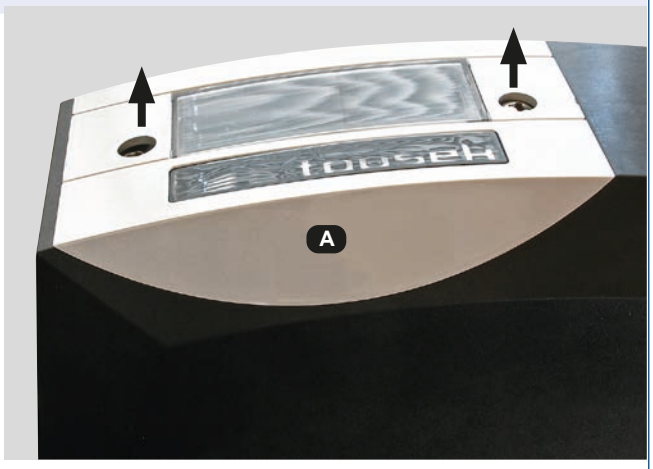
- **Before taking off the control cover, the mains switch must be turned off!**
- **If the control is power supplied, its inner part is under tension.**
- **In order to avoid electrical strokes, the safety regulations have to be kept.**
- **The device may only be connected by trained professionals.**
- **The product is not suitable for installation in explosion-hazardous areas.**
- **An all-pole disconnecting mains 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 (buttons, radio, photocells, etc.) have to be laid separately from the 230V lines (supply line, motors, signal lamp).**

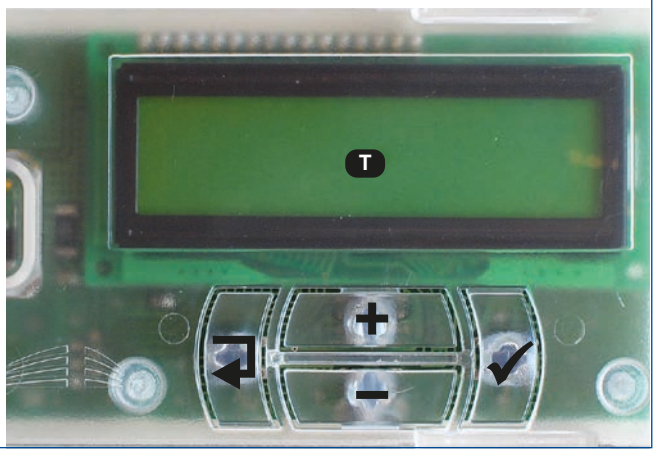
Programming buttons

- Before starting the programming, please choose the language. Use the buttons + or - to choose menu language and confirm with ✓.
- **The language must be set in the master and in the Slave control board.**

Note: Language selection can also be chosen by pressing the ESC button (↵) for 5s, from any position in menu.

- For programming please remove cover **(A)** of control device (loosen 2 bolts).
- The text display **(T)** informs you ou about operating status, chosen menus and the adjustment of various parameters..
- The programming of the control is carried out with the help of four buttons **(+, -,** ✓ (=Enter) and ↵ (=Escape).
- Scrolling through the available menu points (up/ down) or the adjustment of a parameter (value increase/decrease) is carried out with buttons + and –.. ***AUTO-COUNT:*** when holding one of the buttons the value changes automatically.
- When pressing the ✓**-**button a confirmation for entering the shown menu point, resp. for accepting the shown value of a parameter is given.
- When pressing the ↵ **-**button you return to the superior menu point. Possibly changed adjustments of a parameter are rejected with this button (the former values will remain).
- ***AUTO-EXIT:*** if no button is pressed during 1 min. then the menu switches automatically to the “ready” menu (wihtout saving changed parameters).





Programming menu

- The program menu of the MASTER control is divided into “BASIC SETTINGS” and “MENU CONTROL”
- **The program menu of the SLAVE control includes only the “MAIN MENU”.**

BASIC SETTINGS

- **When entering the programming of the control unit for the first time you will see the BASIC SETTINGS** *(see initial operation page 27).*
- Here the necessary adjustments which are necessary for the use of the operator/gate can be set quickly.
- For advanced settings/programming please choose the menu point “menu (control)”.

MAIN MENU

- For futher programming you will reach immediatly the MENU (CONTROL) (Basis settings are skipped)
- The menu control includes all kinds of settings, whereas in the slave control board only a part of the menu options described in the menu structure (see page 13) can be selected (marked with “M / S”).

All other functions are taken over by the master!!

The different menu points are indicated as follows:

○ = selectable settings ⊙ = factory settings ➲ = status display

G shows the menu points which are in the “ BASIC SETTINGS”

M selectable in Master control unit
M/S selectable in Master- und Slave control unit

Main layer		Sub layer	Settings/adjustments	
Button/Switch *see page14*	**M**	**impulste switch**	⊙ 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“)**
	M	**pedestrian button**	⊙ OPEN/STOP/CLOSE ○ OPEN/CLOSE/ OPEN ○ OPEN ○ DEAD MAN*)	
Safety *see page 16*	**M**	G **photocell**	⊙ activ ○ not activ	
	M/S	G **Main safety sensing edge**	⊙ activ ○ not activ ○ radio edge TX ○ TX 400	
	M/S	G **Side safety sensing edge**	⊙ activ ○ not activ ○ radio edge TX ○ TX 400	
	M	**photocell funtion**	⊙ reverse when closing ○ stop, after release open ○ during closing stop, then close	
	M	**photocell pause time**	⊙ no influence ○ abort pause ttime ○ re-start pause time ○ after opening close immediately	
	M	**photocell test**	⊙ activ ○ not activ	
Motor *see page 20*	**M/S**	**max. force**	○ 25...100% [increment 5] ⊙ = 70%	
	M/S	**ARS-response time**	○ 0,15...0,95s [increment 0,05] ⊙ = 0,50s	
	M/S	**speed**	○ 65...100% [increment 5] ⊙ = 100%	
	M/S	**soft stop distance**	○ 0...2m [increment 0,1] ⊙ = 0,5m	
	M/S	**soft stop spped**	○ 30...60% [increment 5] ⊙ = 50%	
	M/S	**end position OPEN**	○ 0...-30 [increment 1] ⊙ = -5	
	M/S	**end position CLOSED**	○ 0...-30 [increment 1] ⊙ = -5	
Operating mode *siee page 21*	**M**	**impulse logic**	⊙ Stop, Start of pause ○ impulse elimination during opening ○ pause time extension	
	M/S	G **opening direction**	⊙ <<<– left ○ –>>> right	
	M	G **operating mode**	⊙ impulse mode ○ automatic 1...255s [increment 1]	
	M	**partial opening**	○ 10...100% [increment 1] ⊙ = 30%	
	M	**automatic mode**	⊙ complete/partial opening ○ only complete opening ○ only partial opening	
	M	**pause time logic**	⊙ no influence ○ constant open in automatic mode	
	M	**motor partial opening**	⊙ Master ○ Slave ○ Master and Slave	
Lights/Lamps *siee page 22*	**M**	**prewarning OPEN**	○ OFF, 1...30s ⊙ = OFF	
	M	**prewarning CLOSE**	○ OFF, 1...30s ⊙ = OFF	
	M	**additional module**	⊙ courtyard lamp/control lamp ○ gate status1 ○ gate status 2	
	M	**courtyard lamp** [1]	○ OFF 5...950s ⊙ = OFF	
	M	**control lamp** [1]	⊙ on at opening and closing ○ flashes slowly/illuminates/flashes faster ○ illuminaTES IN OPENNG POSITION	
Diagnosis *see page 24*	**M/S**	**status disply**	➲ status display of all inputs	
	M	**delete positions**	⊙ NO ○ YES	
	M	**factory settings**	⊙ NO ○ YES	
	M/S	**software version**	➲ show software version	
	M/S	**serial number**	➲ show serial number	
	M/S	**protocol**	➲ show protocol notes	
	M/S	**status sensor**	➲ show sensor	

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.**

tousek DIGITAL

ESC ENTER

Warning notes

- **Before taking off the control cover, the mains switch must be turned off!**
- **If the control is power supplied, its inner part is under tension.**
- **In order to avoid electrical strokes, the safety regulations have to be kept.**
- **The device may only be connected by trained professionals.**
- **The product is not suitable for installation in explosion-hazardous areas.**
- **An all-pole disconnecting mains 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 (buttons, radio, photocells, etc.) have to be laid separately from the 230V lines (supply line, motors, signal lamp).**

The different menu points, that can be selected in the Master control board (= **M**) or in the Master and in the Slave control board (= **M/S**) are indicated as follows:

○ = selectable setting (or possible value assignment) ⊙ = factory settings ➲ = status display

G shows the menu points which are in the " BASIC SETTINGS" of the Master control board

Furthermore connection notes and other instructions are indicated as follows

M = regards the Master control board **M/S** = regards the Master ans Slave control board

- A general status display of all inputs can be found in the menu DIAGNOSIS / STATUS DISPLAY

Buttons/switches

Connections and adjustments

Impulse switch (terminals M 30/32)

M

Buttons/switches

⊙ **OPEN/ STOP / CLOSE impulse repetition** (factory settings): After a command of the impulse switch the motor starts an open or close movement. If the impulse switch is pressed again during this movement, the motor stops. With the next command, the motor drives in the opposite direction of the last gate movement.

○ **OPEN / CLOSE / OPEN impulse repetition:** After a command of the impulse switch the motor starts an open or close movement. If the impulse switch is pressed again during this movement, the motor reverses.

- **In this operation mode it is not possible to stop the motor with the impulse switch – it always travels 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 open commands are accepted of 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 – closing the gate with the impulse switch is not possible. As soon as the switch is released, the gate stops. If hold to run operating mode is selected, the radio receiver slot **(FE)** is set out of order for reasons of safety.

IMPORTANT: Do not put into operation in dead man mode.
Select only after putting into operation (see page 27), if desired.

As impulse emitters pushbuttons or key switches as well as external radio receivers with potential free make contacts can be used.

Pedestrian opening button (terminals M 30/34)

M

Buttons / switches

⊙ **OPEN/ STOP / CLOSE impulse repetition:** An impulse through the pedestrian button-while the gate is in motion-causes gate stopping. If the gate is within the pedestrian area, then an impulse through the pedestrian button causes inversion of the direction.
If the gate is in complete open position an impulse through the pedestrian button causes a movement in CLOSE direction and the gate stopps at pedestrian OPEN position.

○ **OPEN / CLOSE / OPEN impulse repetition:** If the gate is within the pedestrian area, then an impulse through the pedestrian button causes inversion of the direction.
If the gate is in complete open position an impulse through the pedestrian button causes a movement in CLOSE direction and the gate stopps at pedestrian OPEN position.

- **In this operation mode it is not possible to stop the motor with the pedestrian button – it always travels 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 open commands are accepted of the pedestrian opening button. Closing the pedestrian entry with the button is not possible.

○ **DEADMAN** (not selectable)**:** As soon as the Impulse button is set to DEADMEN, automatically the pedestrian- and the CLOSE button are set to DEADMEN.

The motor opens as long as the pedestrian button is pressed – closing the gate with the pedestrian button is not possible. As soon as the switch is released, the gate stops.

As impulse emitters pushbuttons or key switches as well as external radio receivers with potential free make contactscan be used.

CLOSE-button (terminals M 30/33)

Buttons / switches

- 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.

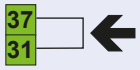
As CLOSE-buttons you may use pushbuttons or key switches as well as external radio receivers with potential free make contacts can be used.

STOP-switch (terminals M/S 31/37)

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 31/37 have to be wire-bridged.

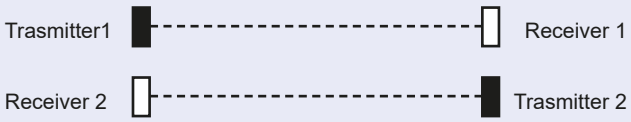


The stop input has no emergency stop function! - In order to ensure the emergency stop function, provide the supply line with an all-pole disconnecting emergency stop switch, that locks after actuation!

Photocells

- **The control unit has a power supply connection for a 24V a.c. photocell (LS):**
  supply LS-transmitter: terminals 40/41 / supply LS-receiver: terminals 40/43.
  Note: in „gate closed“ position the terminals 40/41 are being switched into energy saving mode - no current (only if no radio transmission system TX 310 is used) !
- **The contact has to be closed when using powered and positioned photocells (opening contact). Connection of the photocell contact: terminals 45/46**

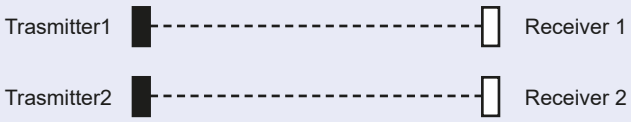
Standard:



- **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.

mit SYNC-Funktion:



- **Photocell self-test function:** The control unit has a monitoring function for the connected photocells. A test is 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 allowed if the safety installations correspond to the category 3 !
- The exact function of the photocells depend on the programming of the control unit.
  Photocell function please see *menu point SAFETY / photocell function or photocell with pause time (page 19)*
- ***More d*etailed information in the corresponding photocell manual.**

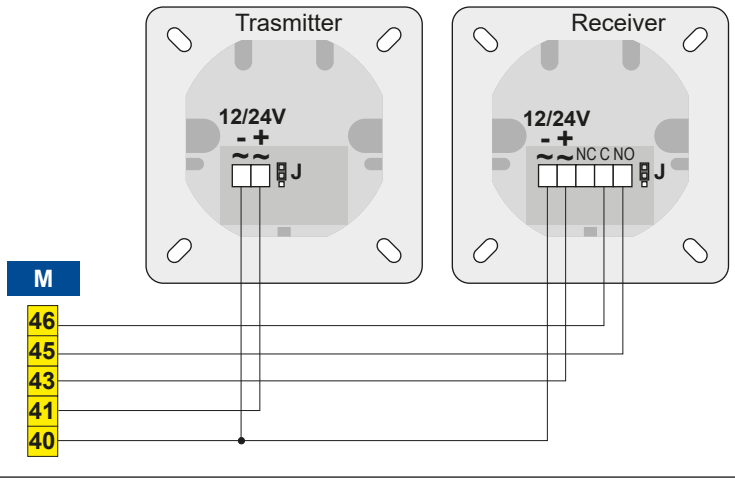
G **Photocell** (contact: terminal 45/46) **M** Safety

⊙ **activ:** to be selected, if photocell should be triggered.

○ **not activ:** to be selected, if photocell should not be triggered.

Photocell - connection examples

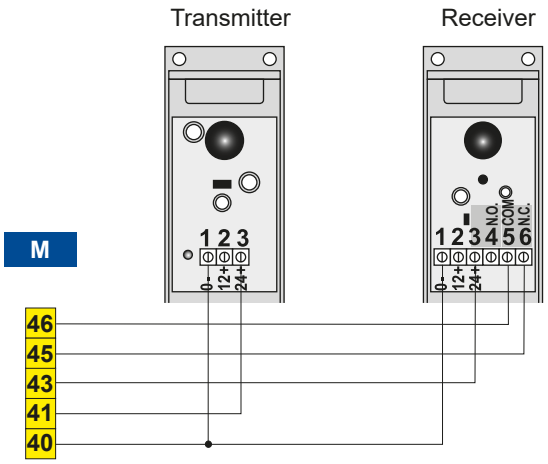
Photocell Tousek LS 26
as safety device



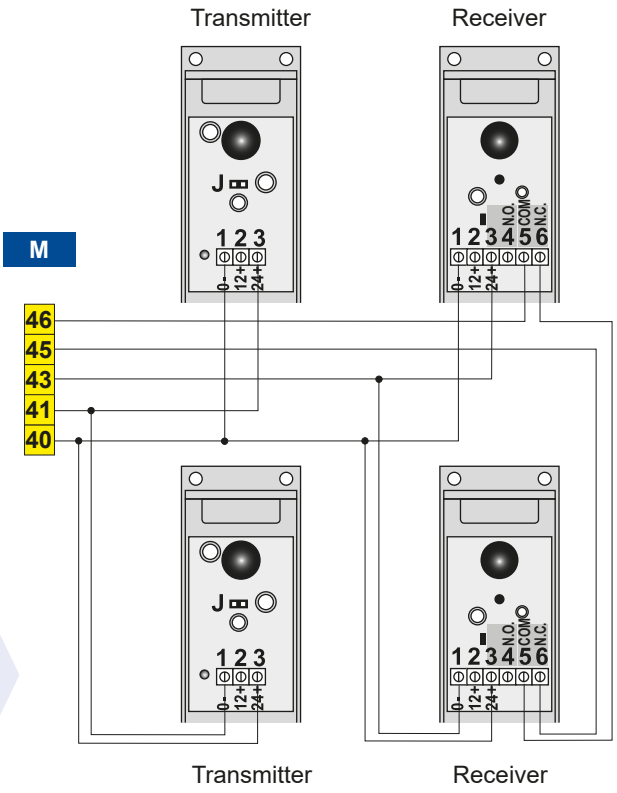
Important

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

Photocell Tousek LS 41 as safety device

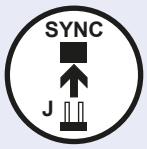


2 Photocells Tousek LS 41 as safety-device with active SYNC-function

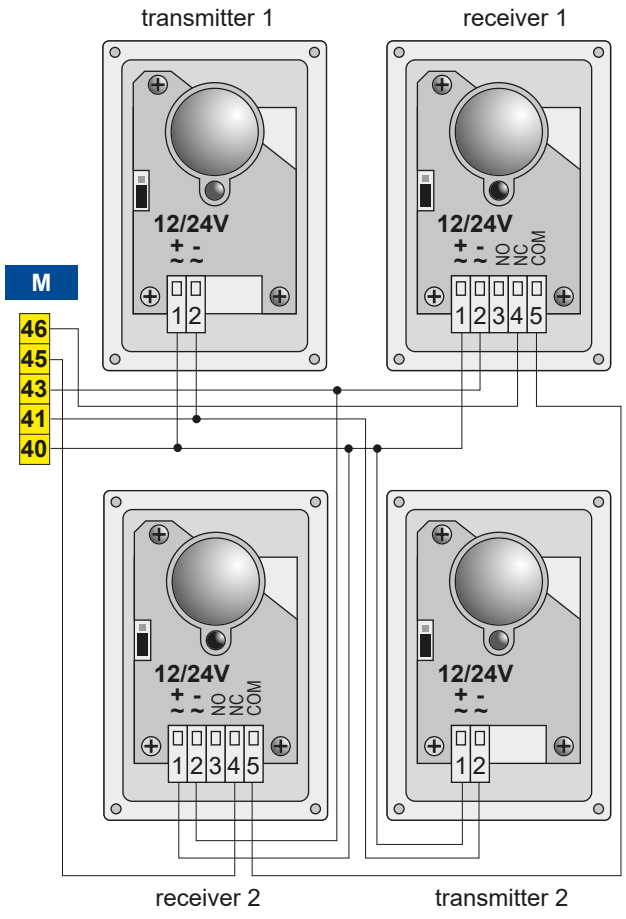


Activation of SYNC-function

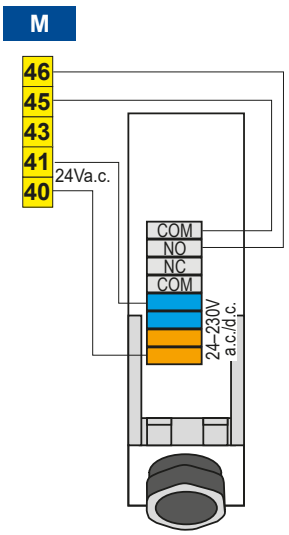
- To activate the SYNC-function when you connect two photocells (see notes on photocells) (see right figure the plug-in bridges (J) in both photocell transmitters have to be removed (see manual LS 41).



2 Photocells Tousek LS 45/2 as safety device



Photocells Tousek RLS 610 as safety device

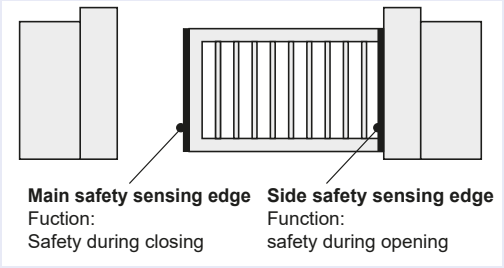


Important

- **as the LS 45/2 has no SYNC-function, both photocell transmitters and receivers must be mounted on different sides!**

Safety sensing edges (main and side edge) M/S

- **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.

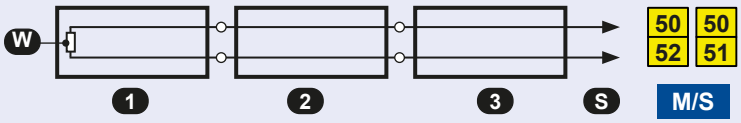


main safety sensing edge ▼
Side safety sensing edge ▼

Hence if safety edges have to react on obstacles in closing movement have to be serially connected to the terminals of the main safety edge.

Safety edges that have to react on obstacles in opening movement have to be serially connected to the terminals of the side safety edge.

Example:		
	W	8,2kΩ final resistance
	1	Final edge
	2+3	passage edge
	S	to control board



When connecting one safety edge a final edge (1) 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 sensing edge (terminal 50/52) M/S Safety

⊙ **activ:** to be selected if the contact strip (8,2kOhm) of the main safety sensing edge should be evaluated.

○ **not activ:** to be selected if the contact strip of the main safety sensing edge should NOT be evaluated.

○ **Radio transmission TX:** to be selected if safety sensing edge (8,2kΩ) of main entrance edge should be evaluated with the radio transmission system TX 310.

○ **TX 400:** to be selected if safety sensing edge (8,2kΩ) of main entrance edge should be evaluated with the system TX 400i.

G Side safety sensing edge (terminal 50/51) M/S Safety

⊙ **activ:** to be selected if the contact strip (8,2kOhm) of the side safety sensing edge should be evaluated.

○ **not active:** to be selected if the contact strip of the side safety sensing edge should NOT be evaluated.

○ **Radio transmission TX:** to be selected if safety sensing edge (8,2kΩ) of side entrance edge should be evaluated with the radio transmission system TX 310.

○ **TX 400:** to be selected if safety sensing edge (8,2kΩ) of side entrance edge should be evaluated with the system TX 400i.

- *Connection and detailed information of radio transmission system TX 310 see according manual.*
- *Connection and detailed information of inductive system TX 400i see according manual.*

Photocell function M

- ⊙ **Reverse at closing:** 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.
- ○ **Stop at closing, after release open:** an interruption of the photocell during closing makes the motor stop as long as the photocell stays interrupted. After release of the photocell, the gate opens.

Photocell with pause time M

- ⊙ **no influence:** the photocell doesn't have any influence on the pause time in automatic mode.
- ○ **Immediate closing:** in automatic mode an interruption of the photocell during pause time shortens the pause time. After release of the photocell the gate starts closing.
- ○ **Restart 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.
- ○ **Close after opening:** If the photocell is interrupted during the opening movement, the gate starts closing as soon as it reached end position open after release of the photocell.

Photocell test M

- ⊙ **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 !**

max. force ⊙ 70% (factory setting) M/S

Motor

○ **25–100% adjustable [increment 5]:** determines the max. possible motor force.

ARS response time ⊙ 0,50s (factory setting) M/S

Motor

○ **0,15–0,95s adjustable [increment 0,05]:** determines, in which time the AR-System responds. The lower the value, the more sensitive the sensor will react.

Speed ⊙ 100% (factory setting) M/S

Motor

○ **65–100% adjustable [increment 5]:** determines the speed of motor.

Soft stop distance ⊙ 0,5m (factory setting) M/S

Motor

○ **0–2m adjustable [increment 0,1]:** determines the distance of soft run.

Soft stop speed ⊙ 50% (factory setting) M/S

Motor

○ **30–60% adjustable [increment 5]:** determines the speed during soft run.

End position OPEN ⊙ -5 (factory setting) M/S

Motor

○ **0...-30 adjustable [increment 1]:** for readjustment of the automatically detected OPEN limit position of gate (e.g. for safety sensing edges). With adjustment 0 the motor runs to the previously learned open position.
For a diminished drive distance the value can be extended to up to -30.

This adjustment is ONLY adopted in CLOSED-position.

End position CLOSED ⊙ -5 (factory setting) M/S

Motor

○ **0...-30 adjustable [increment 1]:** for readjustment of the automatically detected CLOSE limit position of gate (e.g. for safety sensing edges. With adjustment 0 the motor runs to the previously learned close position.
For a diminished drive distance the value can be extended to up to -30.

This adjustment is ONLY adopted in CLOSED-position.

Attention

With force adjustment the valid safety regulations and standards have to be strictly followed !

Impulse switch/button

M

Operation logic

- ⊙ **Stop at opening and start of pause time:** An impulse during the opening movement stops the gate and starts pause time in automatic operation. When the pause time has run out, the gate closes automatically.
- ○ **Impulse suppression at opening:** Commands received during the opening movement are suppressed, commands during closing are accepted.
- ○ **Pause time extension:** A command during pause time restarts the pause time. If this menu point is chosen, an impulse suppression during opening is active at the same time.

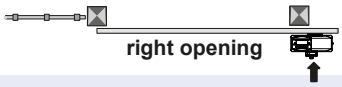
G Opening direction

M/S

Operation logic

- ⊙ **<<<– left:** gate opens to the left side (seen from inside)
- ○ **–>>> right:** gate opens to the right side (seen from inside)

This adjustment is ONLY adopted in CLOSED-position.



The opening direction of the master or slave motor depends on the given situation (arrangement of the drives).

G Operating mode

M

Operation logic

- ⊙ **Impulse mode:** Impulse through impulse switch/button or CLOSE-button to start closing of gate.
- ○ **Automatic mode, pause time 1-255s adjustable [1 steps]:** gate closes automatically after the adjusted pause time (Exception: ➔ *see adjustment „Automatic mode“ / „only complete opening“*).

Partial opening

⊙ **30% (fatory setting)**

M

Operation logic

- ○ **10–100% adjustable [increment 1]:** value defines the partial opening of the total opening.

This adjustment is ONLY adopted in CLOSED-position.

Automatic mode

M

Operation logic

- ⊙ **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. Exception: If the gate is in partial open position and an impulse for complete opening arrives then the gate opens completely and after the pause time it returns to partial opening position.
- ○ **Only partial opening:** only after partial opening the gate closes automatically after the the adjusted pause time.

Pause time logic

M

Operation logic

- ⊙ **no influence**
- ○ **Permanent open in automatic mode:** If “always open in automatic mode” and “pause time” are simultaneaus activated the automatic mode can be deactivated. An impulse in complete open position causes a switch into “impulse mode” but only for hte current cycle. So the gate stays in OPEN position. The next impulse closes the gate an the control unit switched to “automaitc mode” again. This function allows that the entrance of a company site stays open during the day (first impulse in complete open position). The gate can be closed with the second impulse e.g. in the evening (second impulse - for closing the gate and switching to the “automatic mode”). The control unit switches to the “automatic mode” again (automatic opening and closing of the gate).

  Note: An impulse through the pedestrian button in the complete open position doesn´t start the “always open” function. This action causes a movement in CLOSE direction and the gate stopps at pedestrian OPEN position.

  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.

Motor partial opening

M

Operation logic

- ⊙ **Master:** partial opening by Master operator.
- ○ **Slave:** partial opening by Slave operator.
- ○ **Master and Slave:** partial opening by both operators.

Warning

- **Before connection works please turn off the main power switch !**
- **Safety rules please see page 14 !**

Pre-alert OPEN (Signal lamp: terminals 10/11) M

- ⊙ **turned off**
- ○ **1–30s adjustable:** Before each opening movement the signal lamp/ flashing light is activated for the adjusted time.

Pre-alert CLOSE (Signal lamp: term. 10/11) M

- ⊙ **turned off**
- ○ **1–30s adjustable:** Before each closing movement the signal lamp/ flashing light is activated for the adjusted time.

Signal lamp M/S

- A signal lamp can be connected to the terminals 10/11 of the Master and Slave control board 230V, max. 100W (the setting is done via Master control).

Additional module (*Description add. modules page 23*) M

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

Gate status display		Function	K1	K2
	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	1	0
		Gate in CLOSE position	1	1

0 = signal contact open, 1= signal contact closed

You will need for use of adjustments one of the selected adjustements (courtyard-/control l hence gate status 1 or 2.

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 23*) M

- ⊙ **turned 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.

Pilot (control) lamp (*Description add. modules page 23*) M

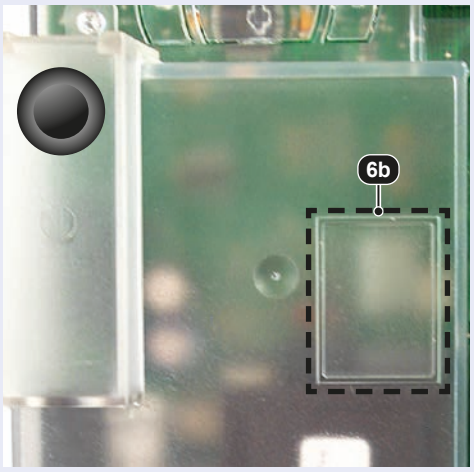
- ⊙ **Illuminates at opening/closing:** The pilot lamp output is activated during opening- and closing movement.
- ○ **Flashing/illuminates/flashing rapidly:** The pilot lamp output is activated as follows: During opening the pilot lamp flashes slowly. During pause time, in opened position or when the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

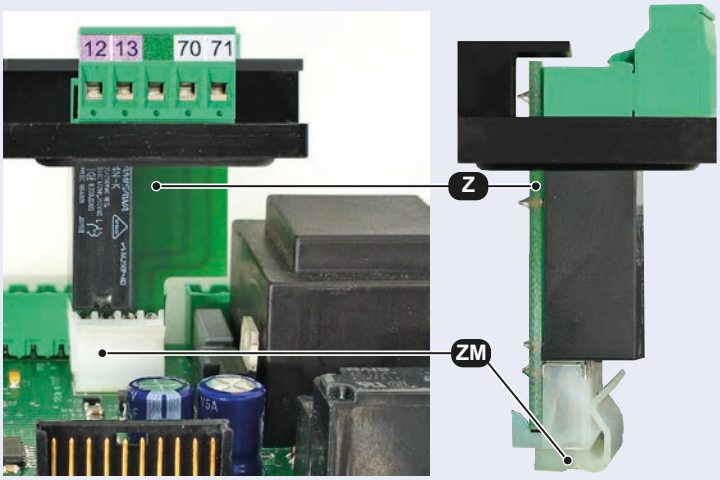
Additional module M
Courtyard lamp/control lamp hence gate status display

- The use of one of the addtional modules is optional.
- Depending on which device, e.g. a courtyard-/Control lamp is chosen or evaluation of gate status should be effected, the corresponding module has to be plugged to the according slot/plug of control board.
- Additionally the corresponding value has to be selected in menu point „Additional module“.

Connecting an additional module

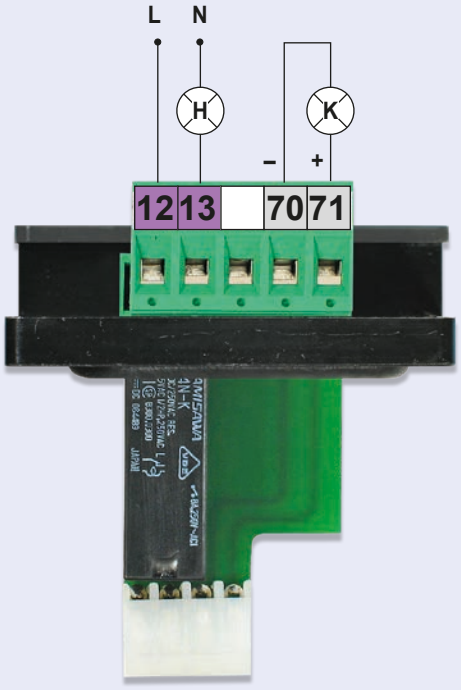
- turn off power supply !
- Cut out the marked area **(6b)**.
- Plug additional module **(Z)** through opening onto the slot **(ZM)**.





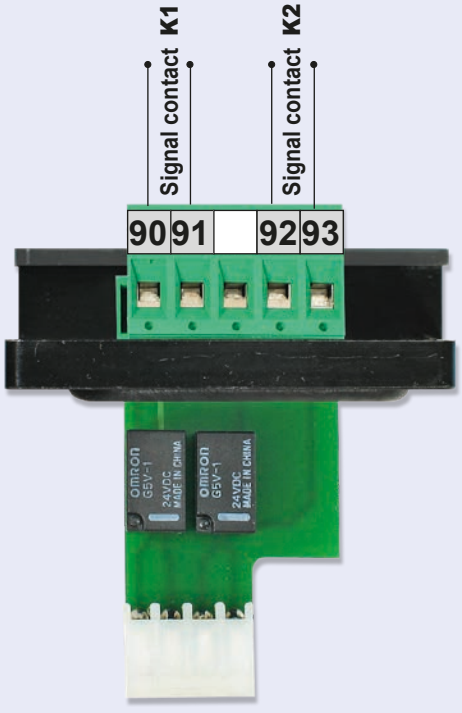
Additional module Courtyard lamp/Control lamp

- On the terminals 12/13 a courtyard lamp **(H)** can be connected: **230V, max. 100W**
- On the terminals 70/71 a control lamp **(K)** 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**



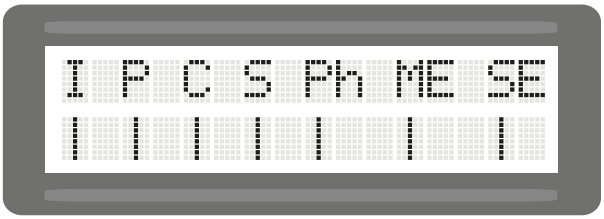
Status display M/S

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

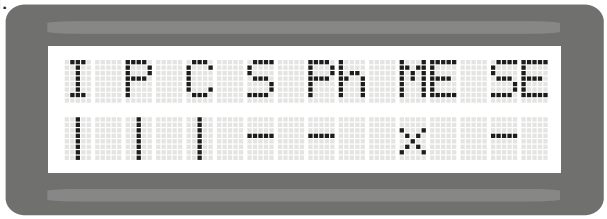
I	Impulstaster
P	pedestrian entry
C	CLOSE-button
S	STOP-button
Ph	photocell contact
ME	main safety edge
SE	side safety edge

┃	Status: not triggered
┅	Status: triggered
⨯	Status: contact strip not connected or defect
▢	Status: contact strip or photocell deactivated in menu

e.g.



All inputs okay.



Impulse-, pedestrian - and close button not triggered.
STOP-button and photocell are triggered.
Contact strip (main closing edge) not connected or defect.
contact strip (side closing edge) triggered.

Delete positions M

⊙ **NO:** does not delete the end positions “gate closed” and “gate open”

○ **YES:** the determined end positions are beeing deleted.
Note: the end positions will be determined after new 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.

If for any reason ONLY ONE of the two control board is replaced, the first thing to do is to select „Delete positions“ in the menu point „Diagnosis“, otherwise a fatal system crash may occur!

Factory settings M

⊙ **NO:** No reset back to factory settings

○ **YES:** Reset back to factory settings

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

Software version M/S

➲ **Shows the software version on display**

Serial number M/S

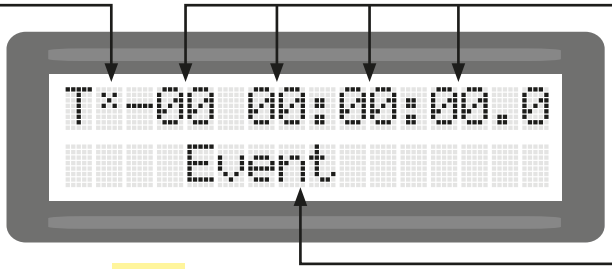
➲ **Shows the serial number on display**

Protocol M/S

➲ **Shows the protocol list on display:** all events that take place are protocolled in this list.
with the buttons **+** and **-** the single events can be seen:

With * the protocole beginning hence the end is shown

Time since the last event:
DAYS HOURS: MINUTES : SECONDS



Type of event

Status Sensor M/S

➲ **Degree and signal strenght of rotation speed sensor is shown on display.**

4. Emergency release in case of power failure (note for the user) M/S PULL T8, -T10, -T15 / Master-Slave

In case of a power failure or other defect the drive pinion can be disengaged from the gearmotor as follows:

- **Switch off power supply**

- Slide key-cover **(A)** slightly to the front and turn it away. Insert the key and turn it clockwise to its limit stop (the emergency release mechanism can be key-locked both in the engaged and in the disengaged position).
- Turn the handle 180° counter-clockwise (viewed from above). The gate can now be manually opened or closed.

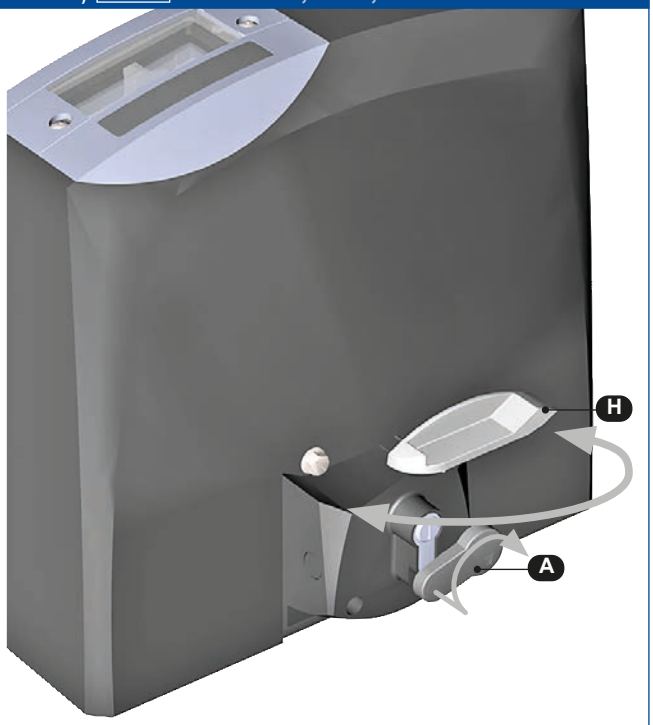
Re-engaging the emergency release mechanism:
To return to normal motor operation please turn the handle back to its original position (i.e. 180° clockwise)

Important

- **after the handle is back in normal position, slowly move the gate manually in its travel direction until you can <u>hear</u> that the gearing has re-engaged!**

Then lock it again and remove the key.

With next command the motor searches the open position (a new learning of end positions is not necessary).

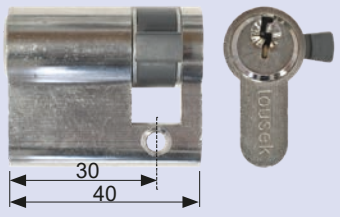


Handle in picture shows unlocked position

5. Exchanging the lock half cylinder PHZ M/S PULL T8, -T10, -T15 / Master-Slave

- Remove the screw protection cap and turn out the screw **(S).**
- Turn the cylinder protection cap down, insert the key, turn it approx. 90° clockwise, and pull out the cylinder.
- To re-insert the cylinder please carry out the above steps in the reverse order

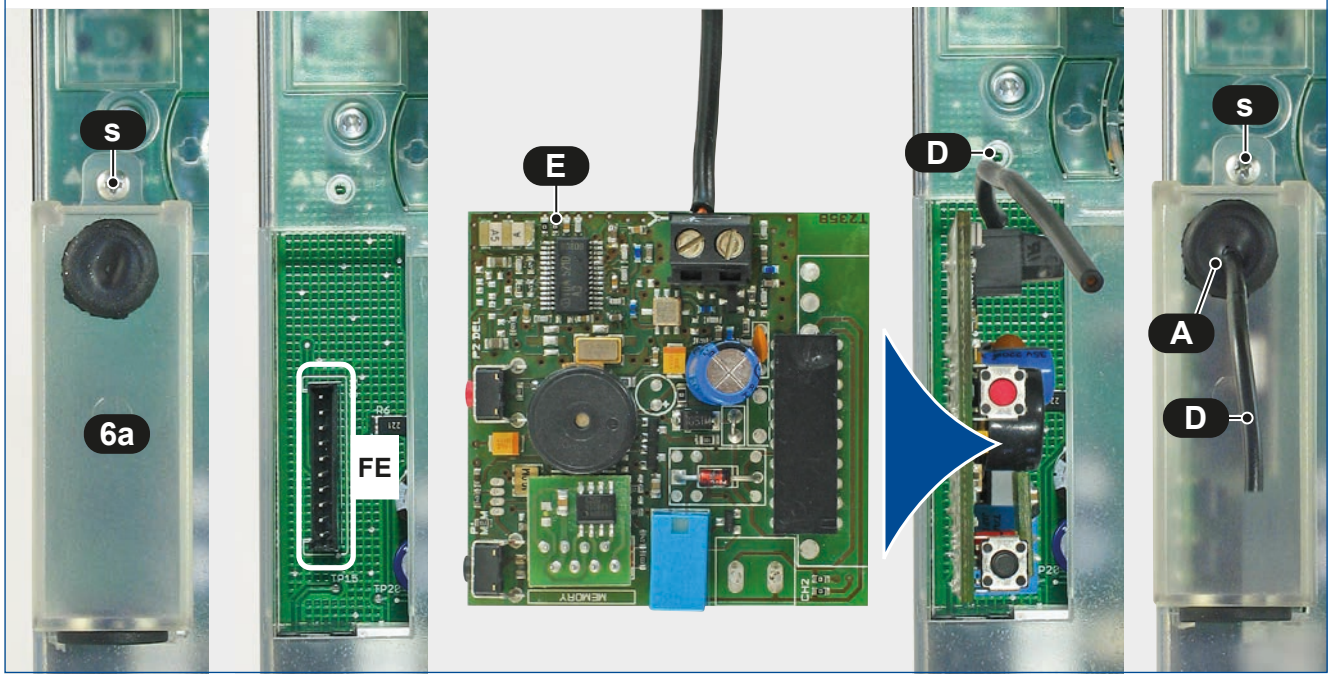
optionalhalf cylinder (PHZ) with 3 keys (Art.code13300220)



- **Disconnect the power supply.**
- Remove radio cover **(6a)** after loosening the bolt **(s).**
- 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.
- Slide the antenna cable **(D)** through the output connection **(A).**
- Place the radio cover **(6a)** back and fix it with bolt **(s).**
- To increase the range an external antenna FK433 or FK868 can be connected.

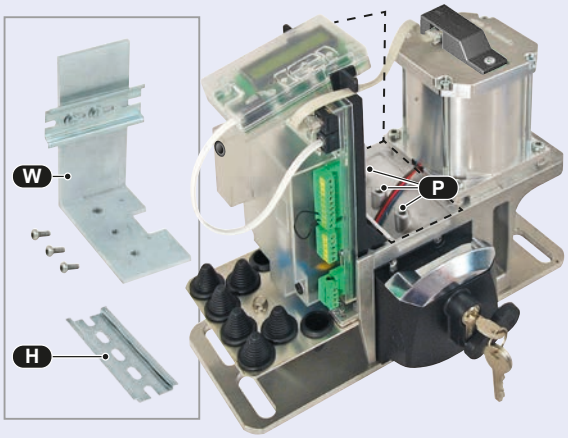
Important

- **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.***

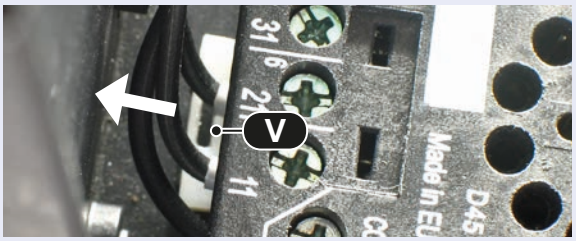


Mounting of additional equipment

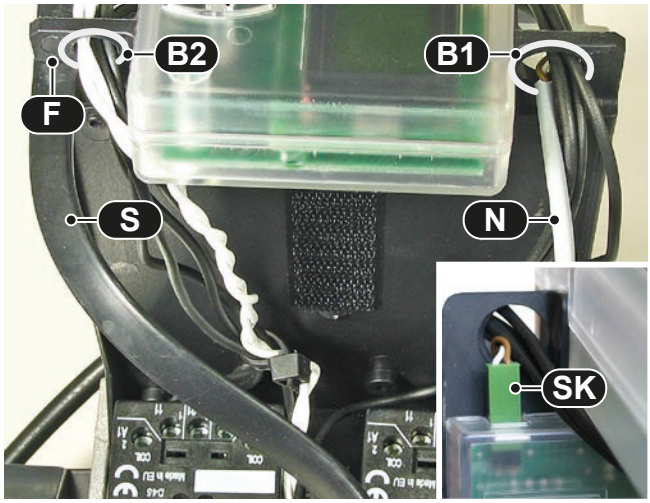
- Depending on the accessory either the DIN rail **(H)** or the angle with DIN rail **(W)** can be be used, the fixation in the drive takes place with three screws at the positions **(P).** Among others, e.g. devices with socket for DIN rail mounting are suitable able.



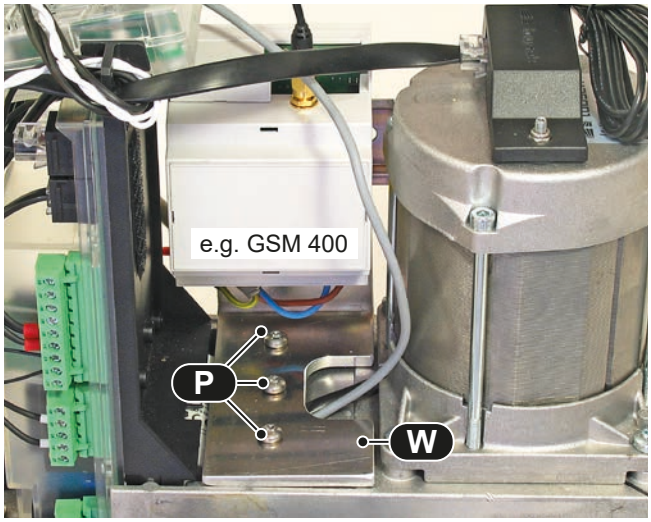
- The pre-wired connectors **(SO)** are fixed by gently pressing on the DIN rail. To remove a plug socket (connector) from the DIN rail, pull the locking lever**(V)** with a screwdriver or similar**.**



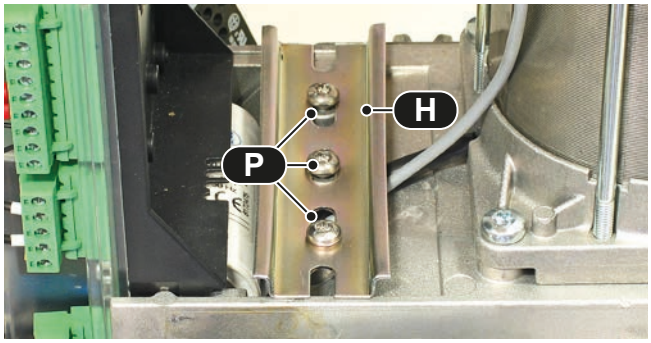
- Proceed carefully for cable routing. Never lay the cables so that that they get damaged when mounting the operator cover. For conducting the cable enlarge the existing hole **(B1)** or make a new hole/driling **(B2)**.
- **Finally, make sure that the sensor cable (S) is in their respective guides (F) and that the plug-comb (SK) of emergency release cable (N) is connected to the control board!**

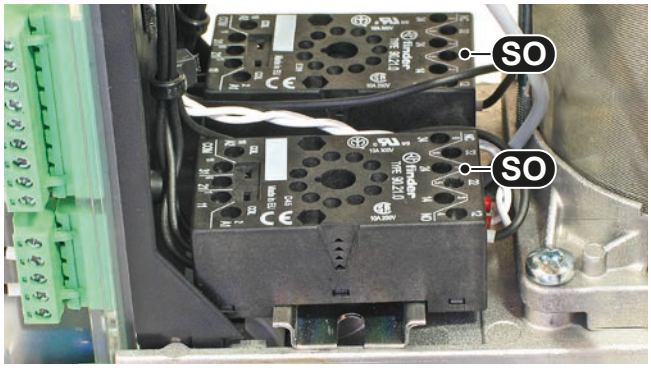


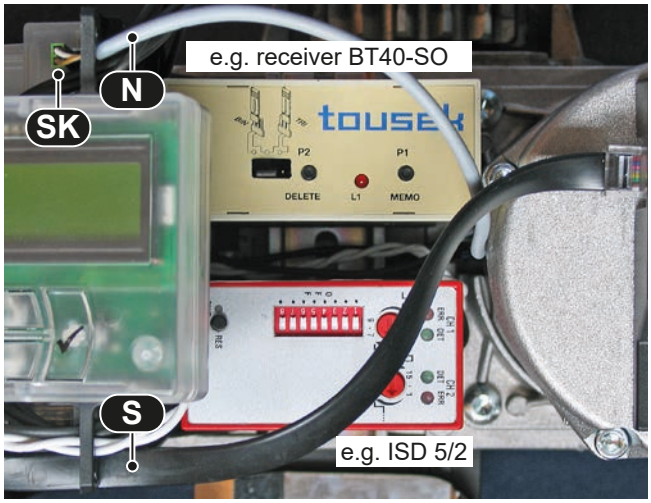
Angle with DIN rail: e.g. with GSM 400



DIN rail without angle: e.g. with ISD and BT40-SO







Important: preparation works

- Connect command devices of the master operator, safety equipment and motors following the safety regulations. **Attention: if no stop button connected at the master/slave control unit, terminals 31/37 of the corresponding control (master and / or slave) must be bridged**
- **Set the mechanical end stops so that the contact strips don´t get triggered, because this would lead to an error message.**
- Release the operators (emergency release) and bring both wings manually in half-open position – then lock the motors again.
- Switch on the system (assuming proper connection).
- **Important:** Putting into operation in Impulse mode (standard setting) and not in dead man mode.
- For the initial commissioning first select the display language (in Master and Slave), then select the main operating parameters in Master /basic settings. Then a system check will be carried out.
- After a successful system check the end positions get detected automatically (after giving an impulse to the Master).
- **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.

Note: During operation, if the basic setting for the end positions OPEN /CLOSE (= -5), the mechanical stops don´t get reached completely (this will happen only by changing this value to 0).

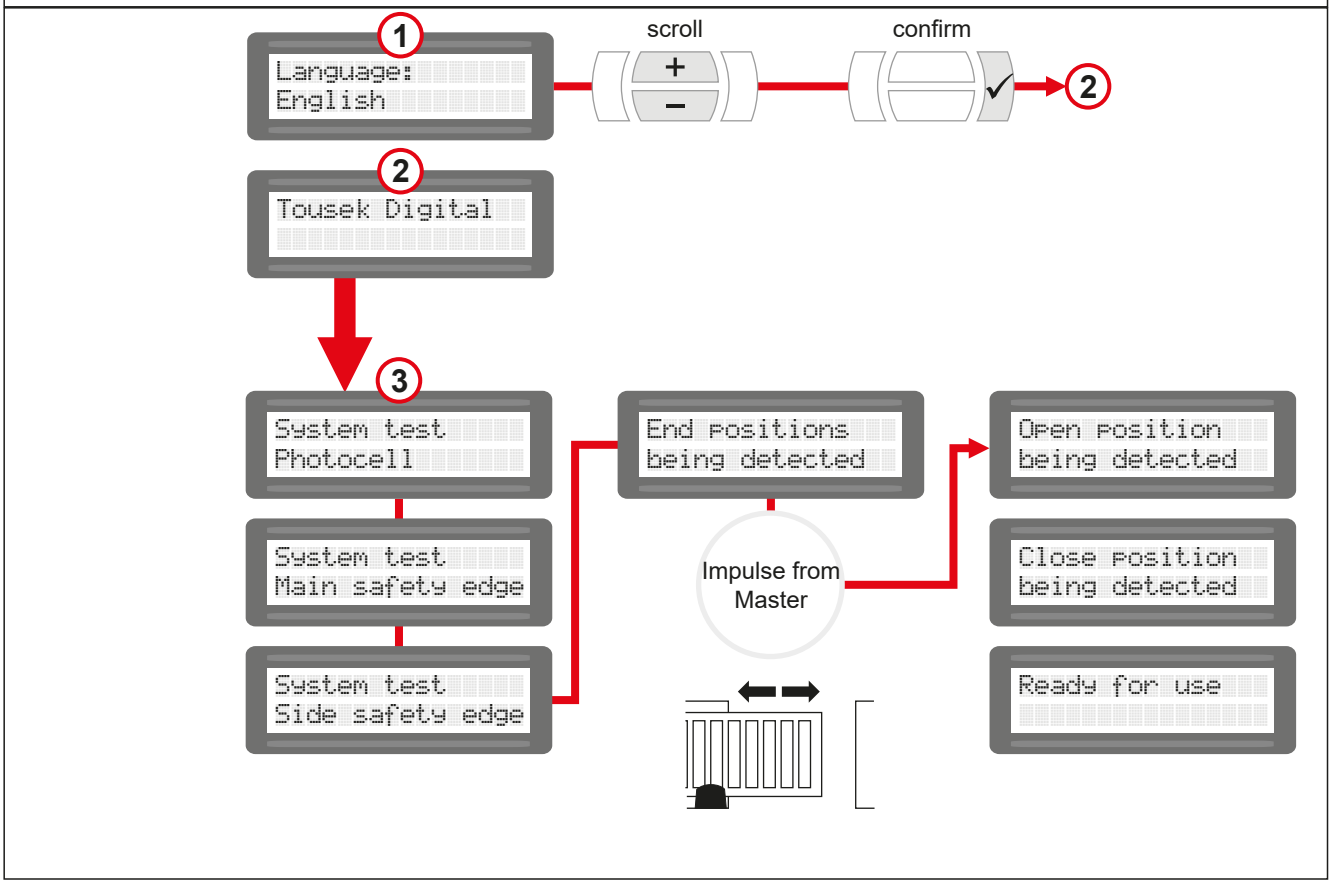
Important (in case of replacement of the control)

- **If for any reason one of the two controls has to be replaced, please select the menu point “delete positions” in “Diagnosis”, because otherwise a fatal system crash may happen!**

Slave-control board S

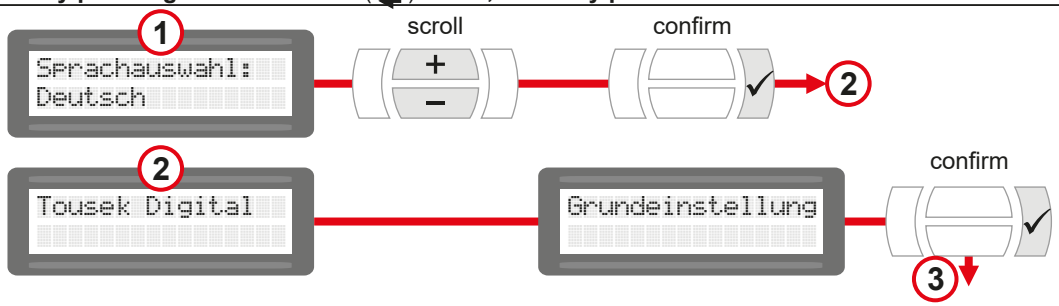
LANGUAGE SELECTION

- **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.**



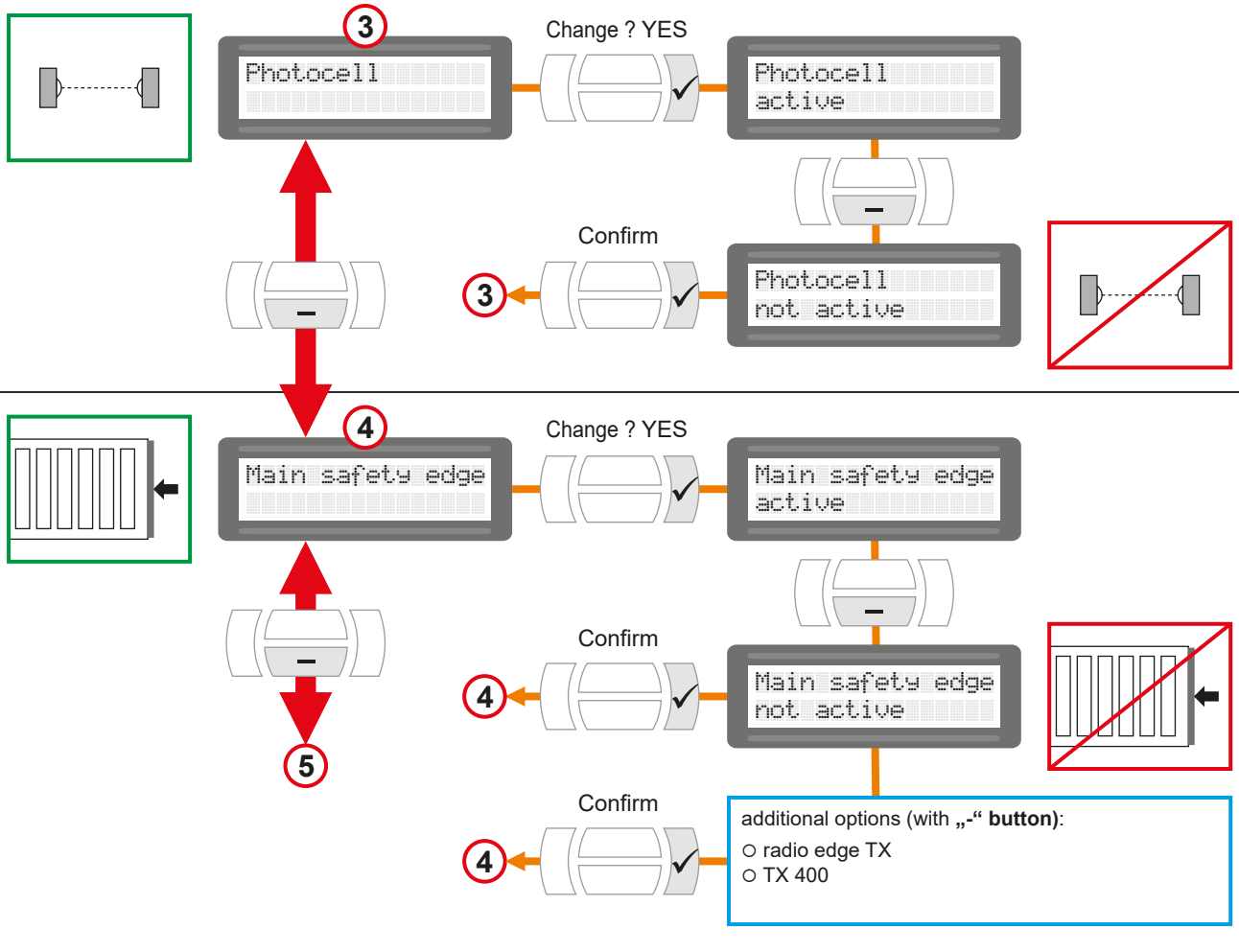
LANGUAGE SELECTION

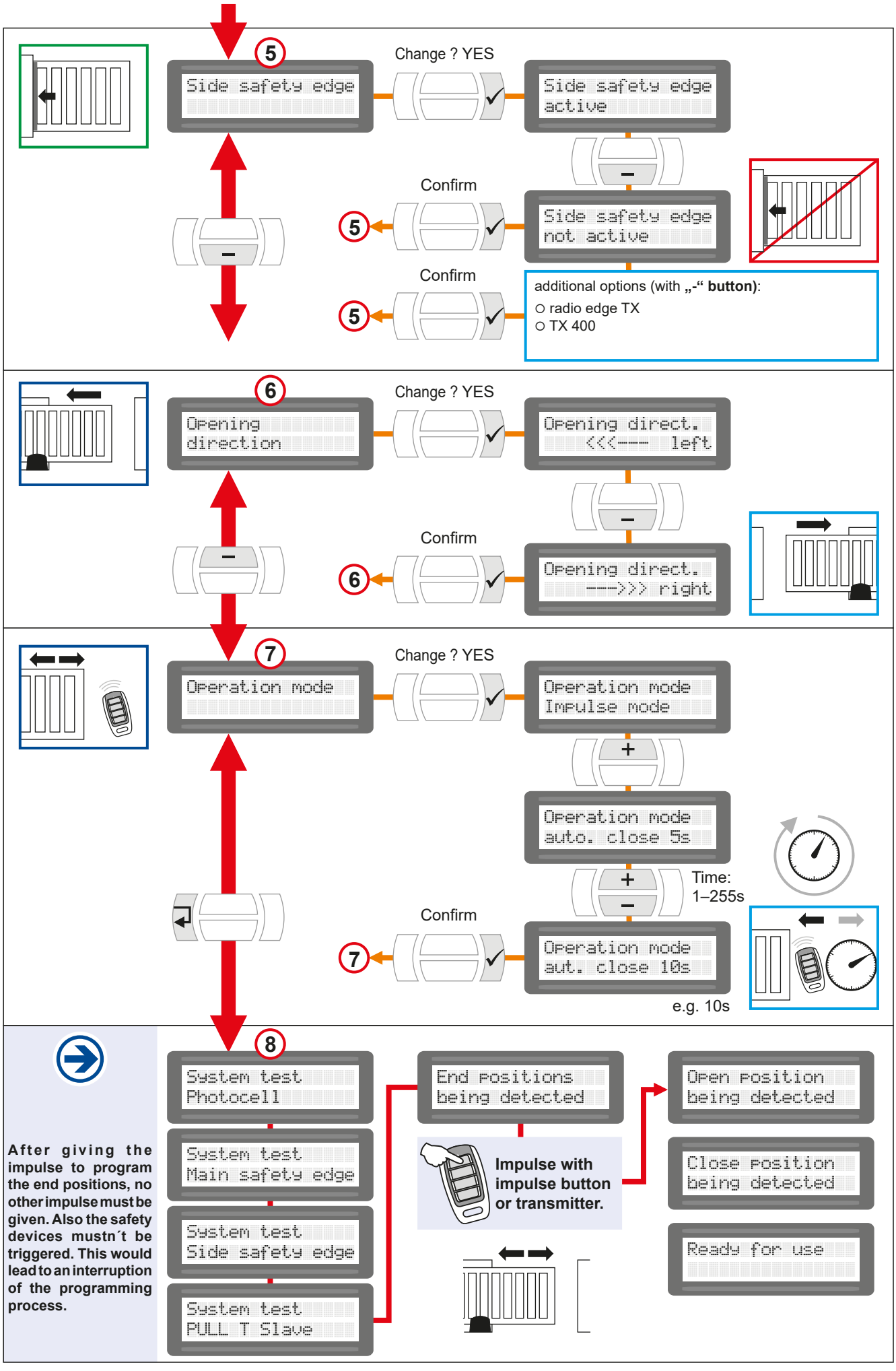
- **Can be selected during initial operation (hence after reset to factory settings).**
- **Can be also chosen by pressing the ESC button ( ) for 5s, from any position in menu.**



BASIC SETTINGS for Master-control board

- **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** *(see menu page 13).*
- **The next programming adjustments are made in the main settings menu** *(see page 12, 13).*




5
Side safety edge
Change ? YES
Side safety edge active
Confirm
5
Side safety edge not active
Confirm
5
additional options (with „-“ button):
○ radio edge TX
○ TX 400
6
Opening direction
Change ? YES
Opening direct. <<<---- left
Confirm
6
Opening direct. ---->>> right
7
Operation mode
Change ? YES
Operation mode Impulse mode
Operation mode auto. close 5s
Time: 1–255s
Confirm
7
Operation mode aut. close 10s
e.g. 10s
8
System test Photocell
System test Main safety edge
System test Side safety edge
System test PULL T Slave
End positions being detected
Impulse with impulse button or transmitter.
Open position being detected
Close position being detected
Ready for use
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.

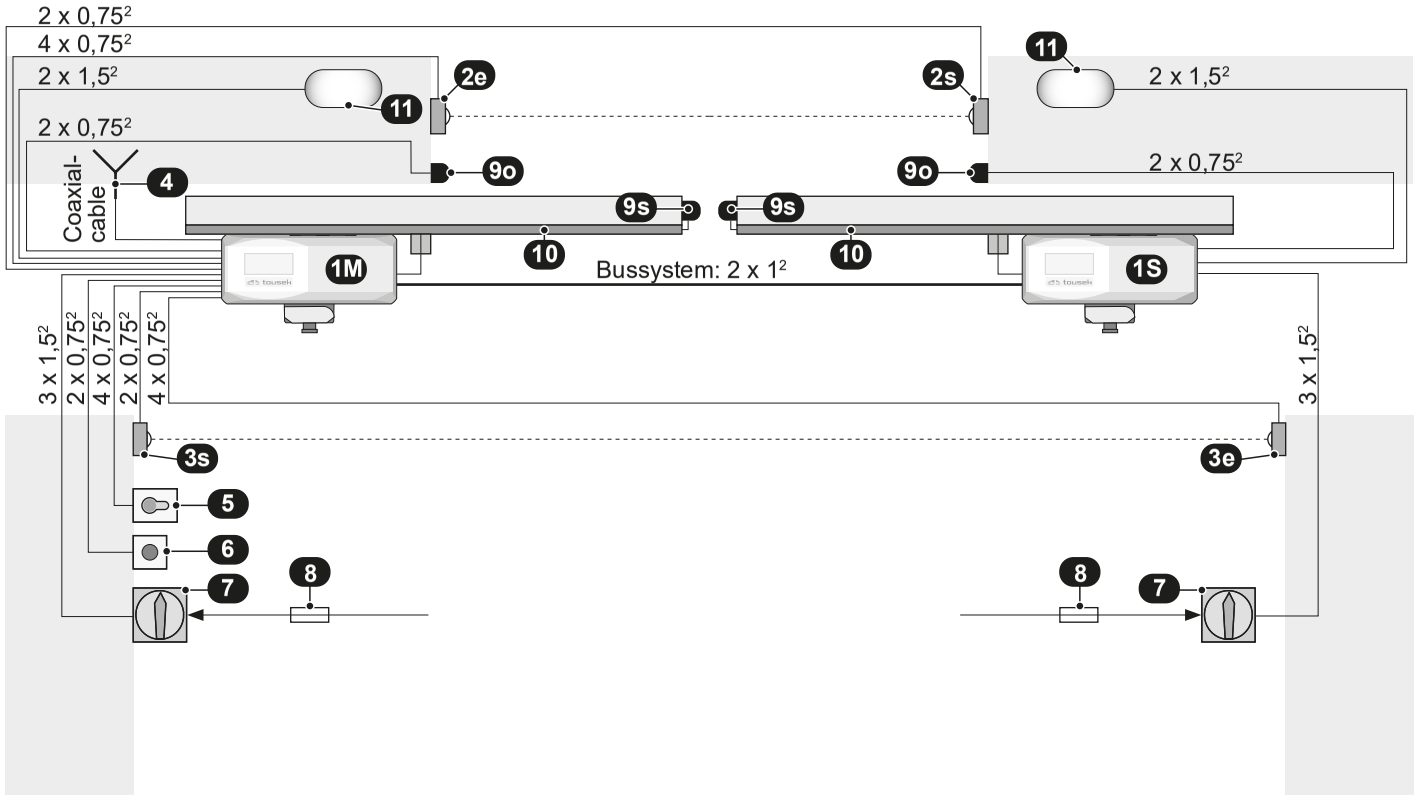
Important notes after installation

- **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.**
- 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 (especially children have to be instructed). 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.
- **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.**
- The electric motor heats up during operation. Therefore the device should only be touched after it has cooled off.
- **After installation the proper function of the gate facility and the safety devices has to be checked!**
- 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.

Error	Possible reason	Solution
display: „Stop-button released“	stop-button not connected or not bridged	stop-button (Kl.) connect or bridge > use status display for help
display: „Photocell released“	photocell interrupted	check correct connection hence remove obstacle > use status dispaly for help
display: „Main safety sensing edge released““	main safety edge interrupted or hot-wired	check correct connection hence remove obstacle > use status dispaly for help
display: „Side safety sensing edge released“	side safety sensing edge interrupted or hot-wired	check correct connection hence remove obstacle > use status dispaly for help
display: „AR-System released“	gate ran into an obstacle or is too hard to move	check adjustment of forces, remove obstacle hence check if gate is easy to move
display: „photocell test negative“	interruption or hot-wired photocell	check correct connection hence remove obstacle > use status dispaly for help
display: „main safety edge test negative“ *(only when using the TX 310)*	short-circuit or interruption of main safety edge	check correct connection hence batterry status of transmitter > use status dispaly for help
display: „side safety edge test negative“ *(only when using the TX 310)*	short-circuit or interruption of side safety edge	check correct connection hence batterry status of transmitter > use status dispaly for help
display: „Low Voltage“	undervoltage	check supply line
display: „Error PULL T8 (T10) Slave“	the slave operator caused an error during the system check of main and side sensing edges	check correct connection of side sensing edge hence remove obstacle > use status dispaly for help
no reaction when giving an impulse	no line voltage hence safety fuse broken	check line voltage as well as safety fuses
	error of transmitter/control device/impulse button, e.g. transmitter not programmed	check transmitter/control device, e.g. program transmitter and check battery

10. Cable plan M/S

1 operator TOUSEK PULL T8, -T10, -T15 (**M**=Master, **S**=Slave)
2 outer photocell (**s**=transmitter, **e**=receiver)
3 inner photocell (**s**=transmitter, **e**=receiver)
4 antenna for integrated receiver
5 key contact switch
6 stop button
7 main switch 16A
Note:An all-pole disconnecting main switch with a contact opening-gap of minimum 3 mm has to be foreseen.
8 fuse 12A
9 safety sensing edge
(**o**=safety when opening, **s**=safety when closing)
10 power supply sytem TX100
if you use a different system (e.g. TX200i or TX) see corresponding instruction manual
11 signal flashing light



NOTE concerning cable laying

The electric cables have to be laid in insulating sleeves which are suitable for underground usage. The insulating sleeves have to be lead into the inner of the operator housing.

230 V cables and control lines have to be laid in separate sleeves.

Only double-insulated cables, which are suitable for underground usage (e.g. E-YY-J) may be used.

In case that special regulations require another type of cable, cables according to these regulations have to be used.

SAFETY NOTE

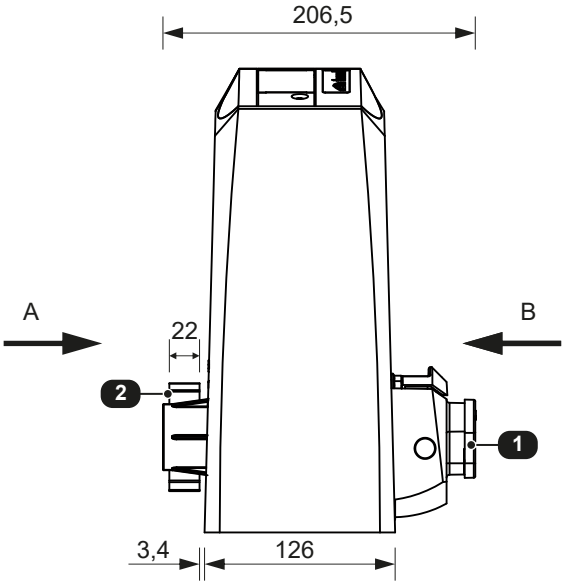
Please be aware that the beside picture is only a symbolic sample illustration of a gate facility and may therefore not show all safety devices required for your specific application.
To achieve an optimum safety level at your gate facility, please make sure that all safety components and accessories which - according to the applying safety rules and laws - are required in your particular case (e.g. photocells, induction loops, sensing edges, signal lamps, traffic lights, mains- and emergency power off switches etc.) are properly installed, operated, and serviced.
In this context please follow the EU Machine Directive, accident prevention rules and laws, as well as applying EU- and national standards in force at the time of installation and operation of the gate facility.
The Tousek Ges.m.b.H. cannot be held responsible for any consequences resulting from disregard of applying standards and laws during installation or operation of the gate facility.

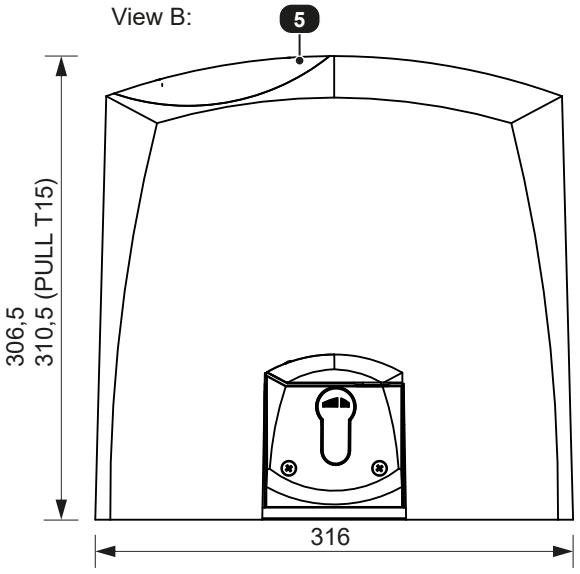
The 0,75mm² control lines are shown without ground lead. In order to facilitate connections we recommend using flexible wires and not using thicker wires for the control lines.

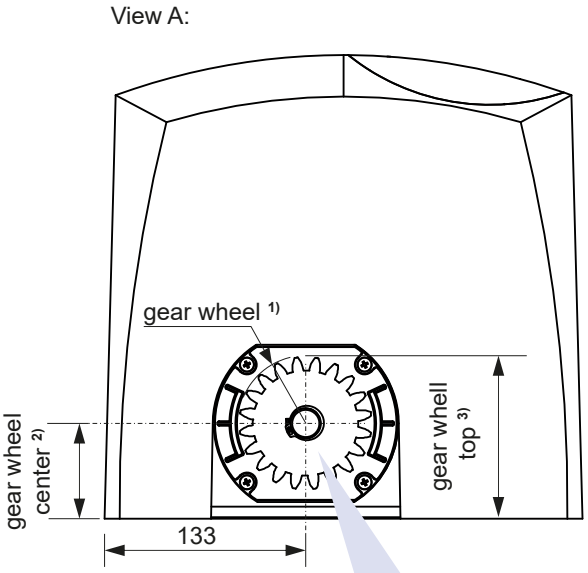
- Dimensions in mm

(1) lockable emergency release (euro standard cylinder)
(2) gear wheel
(3) cable entrance
(4) ground plate
(4a) slotted holes (4x) for mounting on foundation
(5) display for programming

PULL	-T8	-T10	-T15
[1] gear wheel	Z20M4, r44	Z16M4, r36	
[2] gear wheel center	63		67
[3] gear wheel top	107	99	103

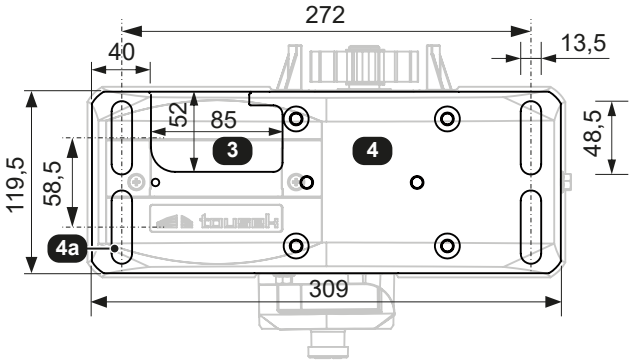




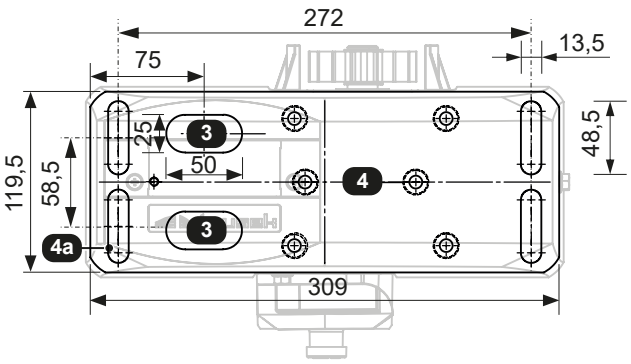


Fixing of the gear wheel:
- PULL T8, T10: Seeger ring
- PULL T15: with screw

PULL T8, -T10: depth of ground plate = 8mm



PULL T15: depth of ground plate = 12mm



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

Declaration of incorporation

In compliance with EC Machine Directive 2006/42/EC, Annex II B for the installation of an incomplete machine.

We hereby declare that the following product, as well as its version, put by us into circulation, complies with the essential requirements of the Machinery Directive (2006/42/EC), due to its design and type of construction.

The validity of this declaration will cease in case of any unauthorized modifications to the products.

The product:

Sliding gate opener PULL-T5, -T8, -T10, -T15, -T24, -T24speed, -T5SE, -T8 Master/Slave, -T8A, -TSA

is developed, designed and manufactured in accordance with:

Machinery Directive 2006/42/EG
Low Voltage directive 2014/35/EU
Electromagnetic compatibility 2014/30/EU

Applied and used standards and specifications:

EN ISO 13849-1, PL-„c“, Cat 2
EN 60335-1 as applicable
EN 60335-2-103
EN 61000-6-3
EN 61000-6-2

Following requirements of Annex I of the EC Directive 2006/42/EC are met:

1.1.2, 1.1.3, 1.1.5, 1.2.1, 1.2.2, 1.2.3, 1.2.6, 1.3.2, 1.3.4, 1.3.7, 1.5.1, 1.5.4, 1.5.6, 1.5.8, 1.7

The relevant technical documentation is compiled in accordance with Annex VII, Part B of the EC Machinery Directive 2006/42/EC.

We undertake to submit it in electronic form and within a reasonable time to the market surveillance authorities in response to a duly substantiated request.

TOUSEK Ges.m.b.H., A1230 Wien, Zetschegasse 1, Österreich

is authorized to compile the technical documentation.

The incomplete machine cannot be put into service, until it is determined that the machine, into which the incomplete machine has to be inserted, complies with the the Machine Directive 2006/42/EC.

Eduard Tousek, CEO

Vienna, 24. 04. 2016

EC Declaration of Conformity

In compliance with EC Machine Directive 2006/42/EC, Annex II, Part 1 A.

When the described operators are connected to a gate they form a machine in the sense of the EC Machine Directive.

Relevant EU directives:

Construction Products Directive 89/106/EWG
Machinery Directive 2006/42/EG
Low Voltage directive 2014/35/EU
Electromagnetic compatibility 2014/30/EU

We hereby declare that the following product, in the version put by us into circulation, complies with the essential requirements of the Directives mentioned above. The validity of this declaration will cease in case of any unauthorized modifications to the products.

Product:

_____

Gate description

_____

Motor description

The incomplete machine cannot be put into service, until it is determined that the machine, into which the incomplete machine has to be inserted, complies with the the Machine Directive 2006/42/EC.

_____

Installation company

_____

Address, ZIP code, Place

_____

Date/ Signature

Motor number (Type plate): _____

Other components:

www.tousek.com

tousek PRODUCTS

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

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