

# Mounting and installation manual

## Swing gate operator SONIC 24



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## Explanation of symbols

For transport, assembly, maintenance and repair work it is necessary to wear the prescribed work and protective clothing, such as:



Read the mounting and installation manual carefully!



Safety shoes



Protective gloves



Protective suit



Safety goggles



Welding goggles



Special care and attention



Switch off the power supply!



Maintain safety distances



Wait (until e.g. cooled down)



Danger from automatic gate



Danger from crushing point



Danger from hot surfaces



Prohibition sign:  
Do not touch the surface (hot!)



## Important warning and safety notes for installation and operation



These installation and operating instructions form an integral part of the product "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/connection. It concerns the gate operator only, not of the overall device automatic gate. After the installation this manual has to be handed over to the user.

- The machinery directive as well as accident prevention regulations and EC or national standards in their currently valid version must be considered and followed.
- The ÖVE / VDE regulations and standards applicable in specific individual cases must be followed.
- TOUSEK Ges.m.b.H. cannot be held liable for disregarding standards resulting from assembly or operation of the system.
- 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.
- **The product is not suitable for installation in explosion-hazardous areas. The existence of inflammable gas and steam is of great danger !**
- 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.
- 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. Please check the product for transport damages.
- 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.). Connect the automated gate to a standard earth-termination system if necessary.
- An all-pole disconnecting main switch with a contact opening-gap of minimum 3 mm has to be foreseen.



- 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.
- The emergency stop button must be located in the close area of the gate system and must be freely accessible at all times (without aids such as ladders or similar)  **Connection of the emergency stop button 2- or 4-pole (with emergency battery), see page 13.**
- When working on running parts of the machine with the safety devices removed (if not otherwise practicable) special protective measures must be taken. For example, a second person must be called in to actuate the emergency stop or the main switch with voltage cut-off in an emergency.
- When installing the safety device (photocells, safety edges, emergency-stops etc.) please comply with the valid directives/standards, the criteria of practical rules of conduct, the installation environment, the operating logic of the system and the effected force of the motorised gate.
- The safety devices must secure possible bruise, shear and general danger areas of the motorised gate.
- After installation the proper function of the gate facility and the safety devices has to be checked!
- **After putting the gate in operation, the gate system must be checked with a suitable force measuring device in accordance with the applicable standards EN 12453 or national regulations.**
- Place warning signs and notes of the valid regulations to indicate danger areas.
- With each installation the identification data of the motorised gate has to be placed in a visible place.
- The electric motor heats up during operation. Therefore the device should only be touched after it has cooled off.
- Cable laying: The laying of the electrical lines must take place in protective tubes, which are suitable for use in the ground. 230V wires and control wires must be laid in separate tubes!  
Only cables with double insulation may be used which are suitable for installation in the ground. If special regulations require a different cable type, cables according to these regulations must be used.
- Please make sure that no other persons are on site of the motorised gate area, especially when operating the facility in hold to run mode (switch with OFF-pre adjustment). The pre-adjusted OFF-button/switch has to be placed in sight of the actuated gate but away from moving parts. This switch/button (except key-switch) has to be mounted in min. 1,5m height and non-accessible to the public.
- **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.**
- **Escape route:** The escape route concept must be complied with by the building contractor in accordance with the applicable standards and legal requirements for your country. Escape routes must be designed in such a way or suitable measures must be taken (e.g. separate exit door) that they can be used unhindered and barrier-free at all times, especially with regard to distance and lighting. Users of the facility must also be instructed on the escape routes. For persons unfamiliar with the area, escape routes must be marked and signposted accordingly.
- Only original spare and replacement parts may be used for repair of the product.
- 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.
- For longer shutdowns, the machine is taken out of operation according to a certain procedure. The machine is disconnected from the power supply. Some of the technical safety devices are deactivated for this purpose; additional organisational measures ensure that the personnel trained for this purpose continue to work safely.
- The basis for dismantling and disposal is a machine that has been taken out of operation. The problematic materials remaining in the machine are removed according to the specified process steps and sent for disposal or reuse. The machine itself is either dismantled and stored for later reassembly or separated into its components for recycling.
- 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.
- The user has to be informed that he has to turn off the main power switch in case of malfunction of the product and that he can use the facility again after repair and adjustment works have been completed.
- **Please notice that the warranty will not be applicable if the label with the engine number has been removed or damaged!**

### Characteristics SONIC 24

- Very fast, 11s for 90°
- Integrated speed sensor and power monitoring
- Built-in stop mechanical in the open and closed position
- 24V technology
- Sensor cable integrated with the motor cable
- Available in the following colours: pure white RAL9010, Moss green RAL6005 and Anthracite gray RAL7016



### Characteristics control unit ST 24

- Large illuminated LCD display with plain text menu navigation in the following languages: DE, EN, PL, FR, NL and CZ
- Automatic motor detection
- Integrated 2-channel radio receiver RS868
- Up to 54 hand transmitters programmable
- Integrated courtyard light output
- Integrated 24V flashing light output
- Gate leaf time delay adjustable
- ARS (Autom. Reversing System - obstacle detection)
- Individual adjustable soft stop time
- Operating modes: impulse, automatic mode
- Pedestrian partial opening
- Self-monitoring photocells function
- Electric lock output



### Delivery contents

- 2 swing gate operators with internal limit stops for the open and closed position, including assembly material
- 1 Control unit ST 24 with integrated radio receiver RS 868
- 2 radio transmitters RS 868-4M, 4-channel
- 1 photocell pair LS 180



## 2. Technical data

## Swing gate operator SONIC 24

Swing gate operator SONIC 24				
Max. leaf width	2,5m	Max opening angle	100°	
Max. gate leaf weight	200kg	Usage	Private	
Motor voltage	24V DC	Protection class	IP54	
Max. power consumption	2,5A	Sound pressure level	< 70dB	
Thrust	1800N	Operator colours	Product code	
Max. working stroke	380mm		Anthracite gray	62004
Max. opening speed	11s for 90°		Green moss	62005
Speed sensor	■		Pure white	62006



The max leaf widths are given for wind permeable and horizontal built gates!

Control unit ST 24				
Power supply	230V AC, ± 10% 50Hz		Flashing light output	24V DC
Motor output	2 x 24V DC		Ambient temperature	- 20°C to + 50°C
	normal	45W		
	max.	75W		
Operating logic	Automatic / impulse		Protection class	IP54
Courtyard light output	24V DC 10W		Electric lock output	24V DC, 1A
Photocells output	24V DC		Photocells input	separate for outside / inside

Photocells LS 180			
Feed	12V or 24V AC/DC	Potential-free relay output	max. 30W, 24V Changeover contact
Power consumption	12/24V AC: 95mA, 12/24V DC: 63mA	Adjustable rotating lens	180 ° horizontally, 25 ° vertically
Signal	infrared, modulated (wavelength: 880nm)	Protection class	IP54
Range	20m	Dimensions (HxWxD)	138 x 40 x 35mm
Ambient temperature	-20 to +50°C	Article number	13510340
Others	simple surface mounting • plastic housing		

➡ For optional components see page 30

Transport, set-up, installation, connection, initial operation and maintenance may only be carried out by qualified specialist personnel in compliance with the installation instructions, the practical rules of conduct and compliance with the applicable standards (e.g. steel fitter for installation, electrician for installation, mechatronics technician, control engineer for commissioning). Incorrect assembly can lead to serious injuries and property damage!



Wear the prescribed protective clothing, use the tools that are suitable and functional for the individual work steps, pay attention to possible dangerous situations and take the individual work steps carefully so that your health and that of others cannot be harmed and no other damage is caused! Pay attention to an ergonomic posture and be aware of any extreme weather conditions that make it hard or impossible to carry out the work safely!

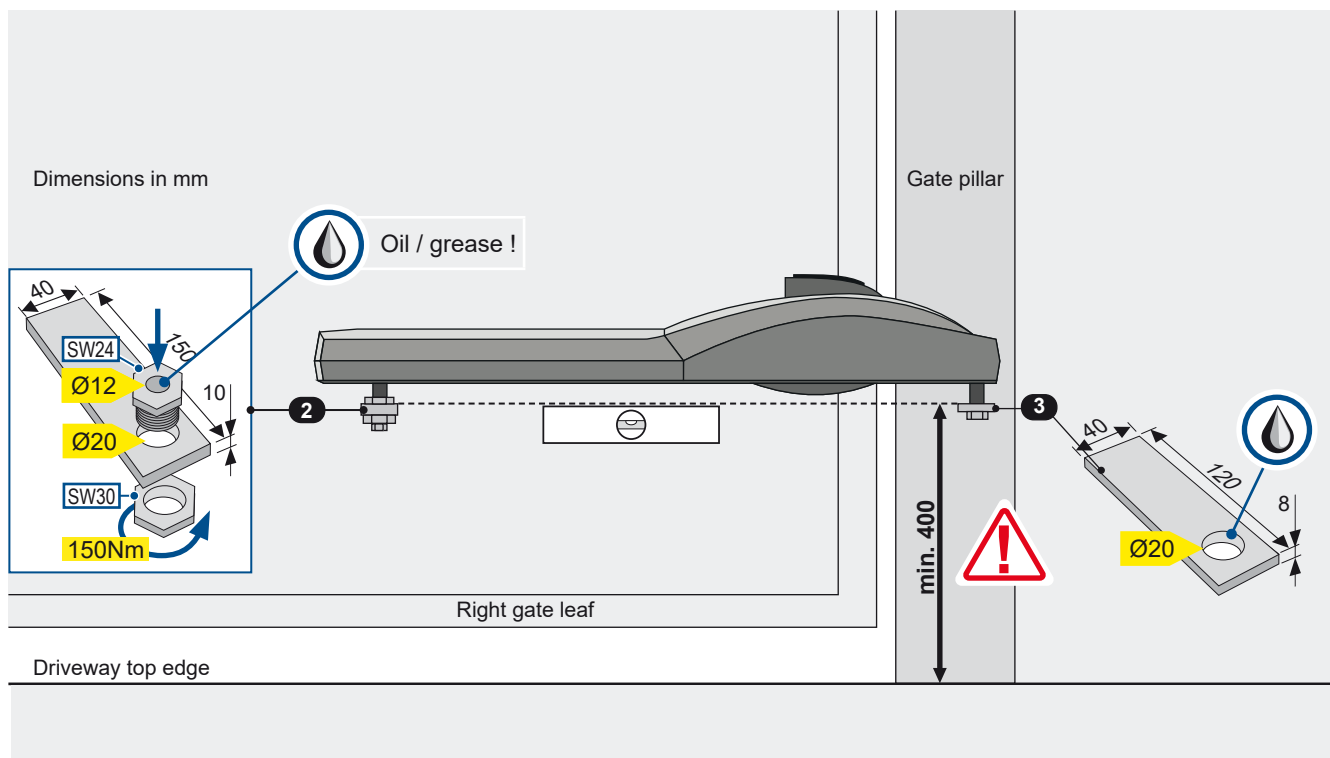
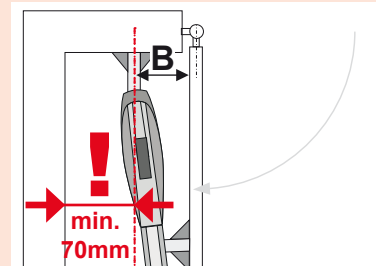


#### General instructions

- In case of thin-walled molded tube frames, the front part **(2)** must not be directly welded on the gate, but on a flat iron used as underlaid.
- In order to avoid dirt and to ensure a durable and reliable use over the long term, the swing gate operator should be mounted at a minimum distance of **400mm** from the driveway top edge.
- The mounting points for the front **(2)** and the rear welded part **(3)** are to be chosen in accordance with the following dimensions spreadsheet (→ *Installation dimensions see tables page 8*).
- **Dimensions A, B and D must always be measured from the rotation point of the gate.**



- When planning or installing the operator, make sure that it has enough space in the gate opened position.
- **In no case, in order to create space, the assembly dimension B must be shorter than specified!**  
(*Installation dimensions* → see below and page 8)



### 3a. Hazardous areas / safety measures

#### Before initial operation / operation



- Secure the movement area of the gate (e.g. photocells, safety edges, blinking lamp).
- 1** • Take into account the necessary space for people who work with the machine (e.g. during operation and maintenance): Movement space according to EN 12453 at least 500mm.
- 2** • Secure the areas behind the gate or maintain minimum distances in accordance with EN12453.
- 3** • Secure the pivot points of the gate (e.g. access protection).
- 4** • Secure gate edges (e.g. safety edges) according to EN 12453.

#### During initial operation / operation



- ▶ Assembly and initial operation must only be done by trained specialist personnel in compliance with the assembly instructions, the practical rules of conduct and compliance with the applicable standards.
- ▶ Movement space of gate must first be approached by hand and only then by motor.



- 5** ▶ Do not reach into the spindle area or the pivot points of the operator!

- 6** ▶ Do not reach into the intermediate area between the gate and operator!



- 7** ▶ Check safety devices (e.g. EMERGENCY STOP, photocells, safety edges, blinking lamp ...) for correct function
- 8** ▶ Pay attention to the blinking lamp (if present)

#### If the operator / power supply fails



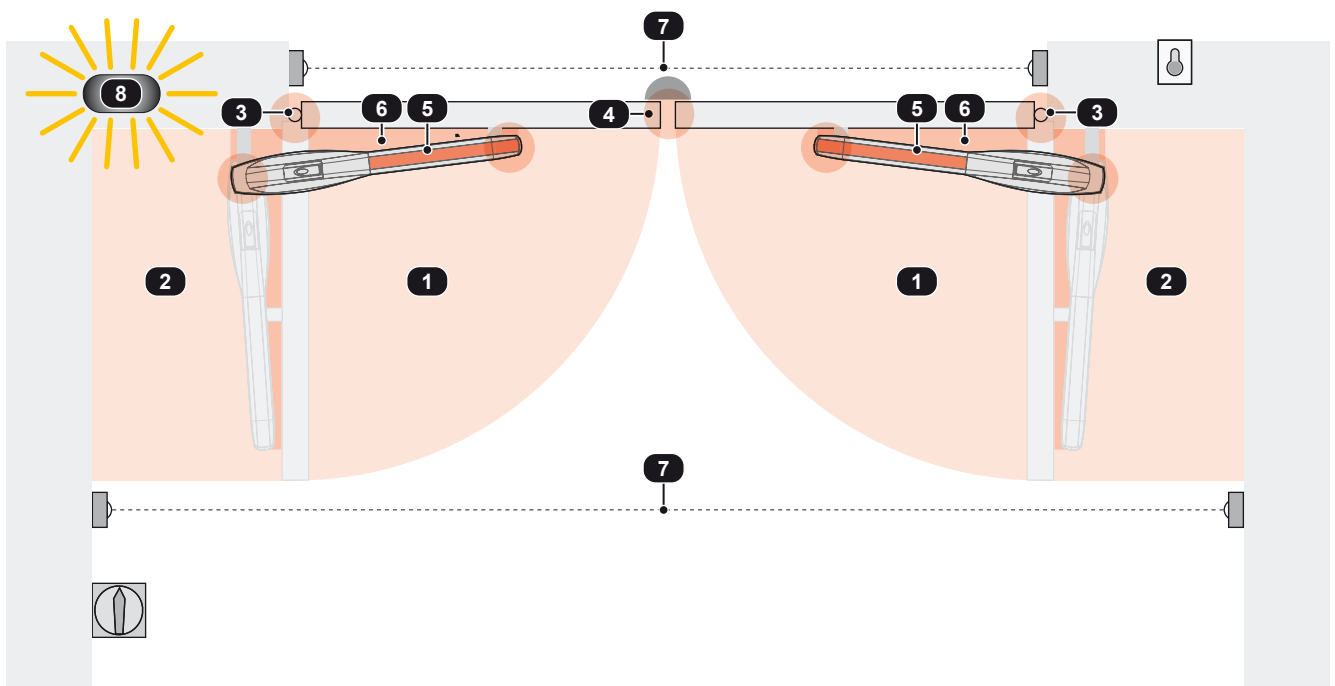
- ▶ POWER OFF!
- ▶ Emergency release, page 10

#### If the safety devices fail

*The control unit carries out a self-diagnosis of the safety devices. Movement is prevented in the event of a failure or defect.*



- ▶ POWER OFF!
- ▶ Emergency release, page 10

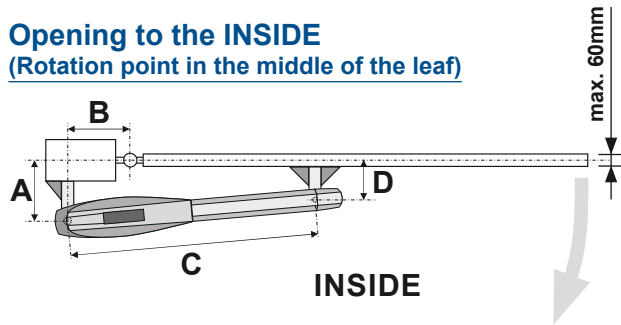




### 3b. Determination of the mounting points and fastening of the welded parts

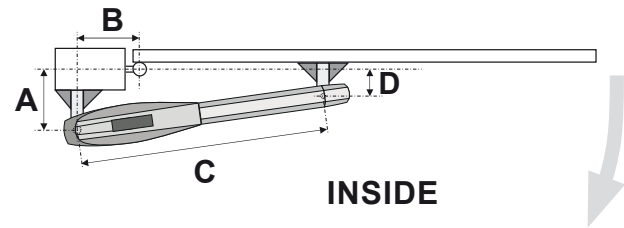
#### Opening to the INSIDE

(Rotation point in the middle of the leaf)



#### Opening to the INSIDE

(Rotation point NOT in the middle of the leaf)



Installation dimensions SONIC 24					INWARD opening
Opening angle	Max leaf widths	A (mm)	B (mm)	C (mm)	D (mm)
max. 95° (standard)	2,5m	200	160	730	135
max. 100°	2,0m	165	165	730	125

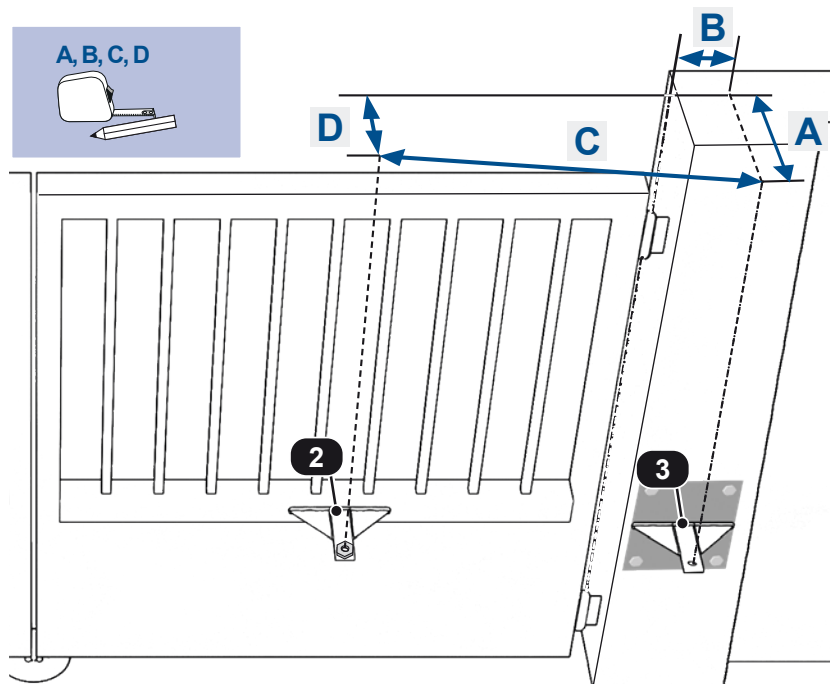
#### Fastening of the welded parts

- After determining the pivot point (taking into account the assembly dimensions), weld the rear of part (3) and strengthen it with gusset plates (4).

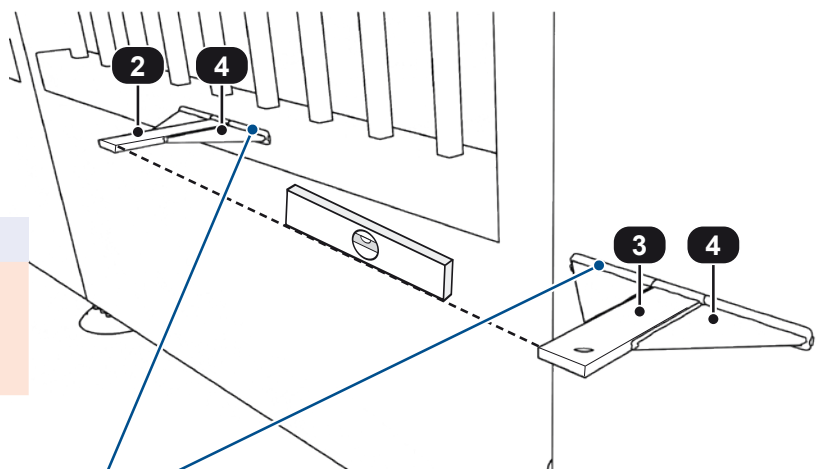
- Now weld the front part (2) to the gate leaf observing dimension C.

Make sure that the gate is completely closed.

Also strengthen the front of part (2) using gusset plates (4).



When grinding off the welding points

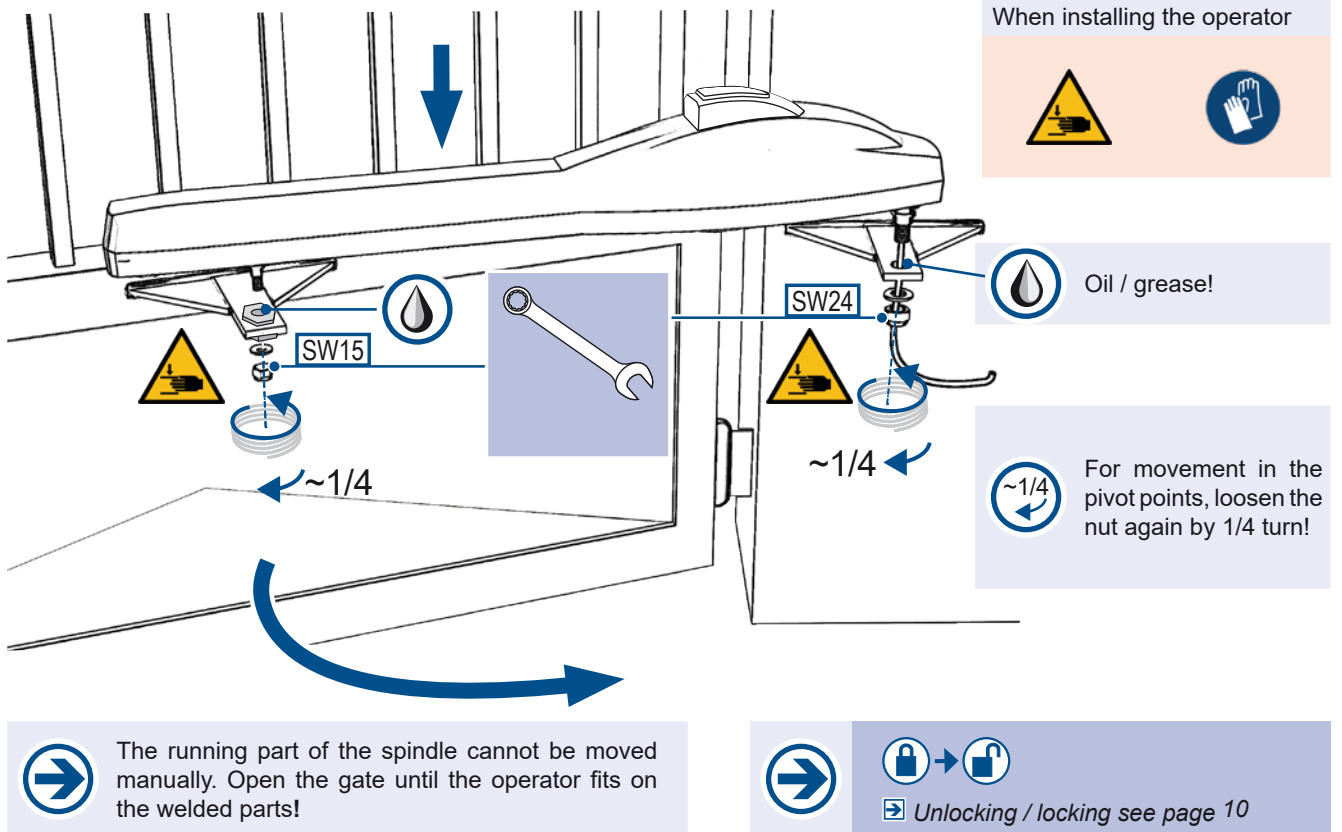


Welding goggles

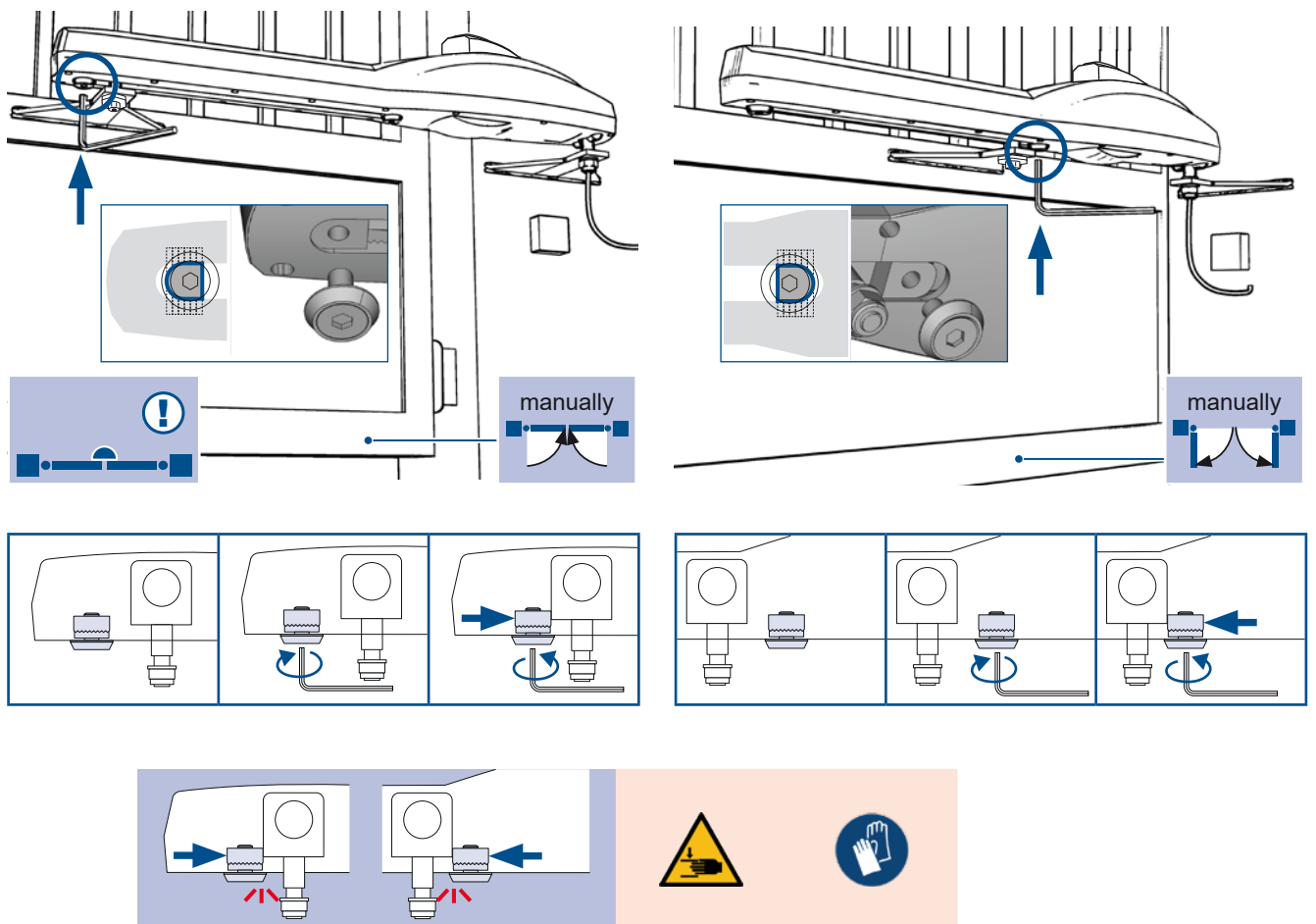




### 3c. Operator installation



### 3d. Gate end positions setting



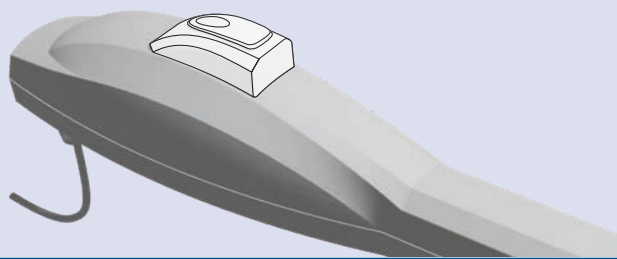
### 3e. Emergency release in the event of a power failure (information for the user)

SONIC 24

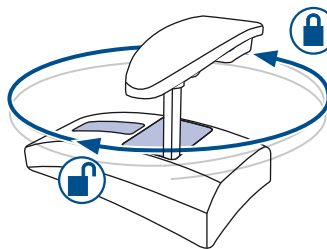
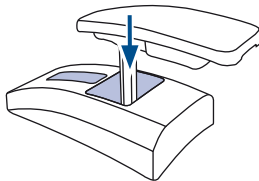
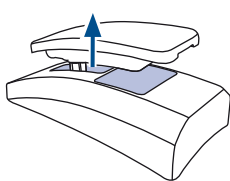
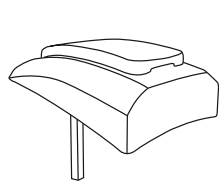
In order to move the gate manually, the operator can be unlocked via the integrated emergency release mechanism.



**Move the unlocked gate slowly (not faster than in motor operation).**



#### Emergency release



To restore engine operation, turn the release key anticlockwise, remove it and store it again as shown in the figure on the left. **Always move the gate by hand until you hear the gear clicks into place!**



### 3f. Maintenance for SONIC 24

**Always disconnect the operator from the power supply, before working on the gate system!**

#### Maintenance work by the owner/user:

- Check the moving parts of the gate system and the operator.
- Check the gate system for wear or damage.
- Check the smooth running of the gate by hand.
- Check the wiring for damages.

A damaged wire must be replaced by the manufacturer, its customer service or a similarly qualified person in order to avoid hazards.

#### Maintenance work by qualified personnel:

Automated gates must be inspected by qualified personnel as required, but at least once a year (with written proof).

- Check the fastening of the drive brackets.
- Control and adjustment of the open / closed end positions.
- Functional check of the emergency release.
- Functional check of all safety devices and accessories.
- Check the drive force with a dedicated closing force gauge.
- If necessary, replace damaged or worn parts.

### 3g. Machine care



- Before cleaning, it is essential that you disconnect the operator system from the power supply and ensure that it remains disconnected during this time.
- Property damage due to incorrect handling.
- Never use to clean the operator: direct water jet, high-pressure cleaner, acids or alkalis.
- Clean the outside of the housing with a damp, soft, lint-free cloth.
- If the housing is very dirty, it can be cleaned with a mild detergent.

### 3h. Dismantling / disposal



#### Disassembly and disposal only by qualified personnel!

- Before dismantling, it is essential that you disconnect the operator system from the power supply and ensure that it remains disconnected during this time.
- The disassembly must be carried out by a specialist in the reverse order of the assembly. For the decommissioning, skilled workers from industrial assembly or comparable professions are to be used. Knowledge of hazardous substances and waste disposal is also required.
- **Warning: Severe injuries possible from falling parts!**
- Secure the operator system against falling before dismantling.
- Consider all applicable work safety regulations.

Disposal:

#### Old devices and batteries must not be disposed of with household waste!

- Dispose of old devices via a collection point for electronic waste or via your specialist dealer.
- Dispose of the old batteries in a recycling bin for old batteries or through a specialist retailer.
- Dispose of the packaging material in the collection bins for cardboard, paper and plastics.

## 4. Control unit ST 24



### Warning

- Operation selection, setting and programming of the control board is only possible with a tool.
- Before opening the control box or making electrical connections, emergency unlocking, installation/maintenance work or similar make sure that the power supply of the swing gate system (including control unit) is absolutely switched off and remains switched off!
- The safety regulations for avoiding electric shocks have to be applied.
- The device must only be connected by qualified personnel.
- The device must not be used in potentially explosive environments!
- An all-pole isolating main switch with a contact opening distance of min. 3mm has to be provided.  
The system must always be protected in accordance with the applicable safety regulations!
- IMPORTANT: The cables of the control lines (sensor, button, radio remote control, photocells, etc.) must be laid separately from the 230V cables (power line, motors, light signal)!
- The force adjustment must be in accordance with the applicable safety rules and standards!
- Please observe the information on laying cables!



- The stop input has no emergency stop function! - To ensure the emergency stop function, an omnipolar isolation emergency stop switch that locks when activated must be installed on the power line!  
➔ emergency stop switch see page 13

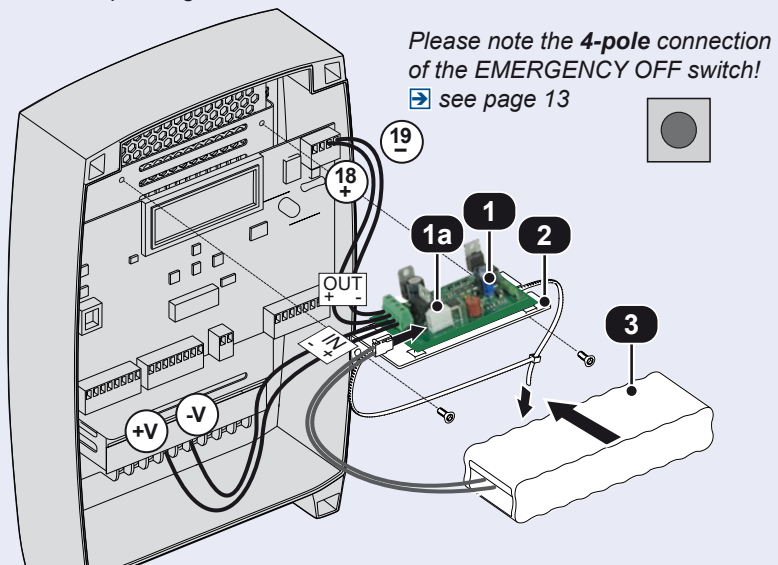


- During connection, adjustment and maintenance work, make sure that the electronic parts of the control unit are not damaged by rain.



### Optional emergency battery pack for power failure

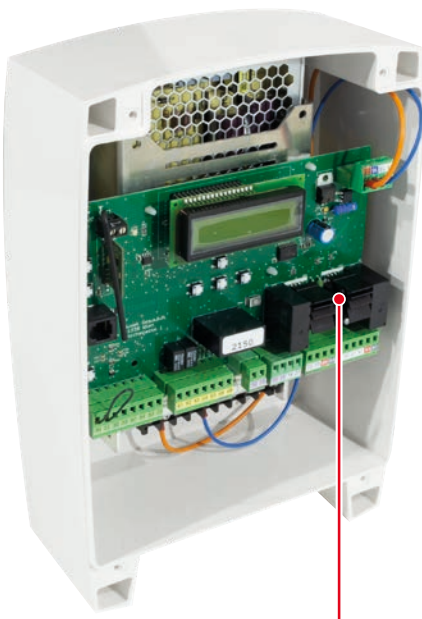
- The charging board (1) is connected as shown and then screwed into the control unit using the mounting bracket (2). The battery (3) is connected to the socket (1a) and fixed underneath the bracket using cable ties.



### Protection against DEEP DISCHARGE of the accumulator (battery):



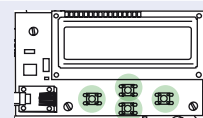
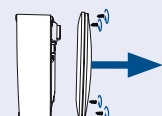
If the system is to be disconnected from the mains supply for a longer period of time (from one day), it is absolutely necessary to disconnect the rechargeable battery from the control.



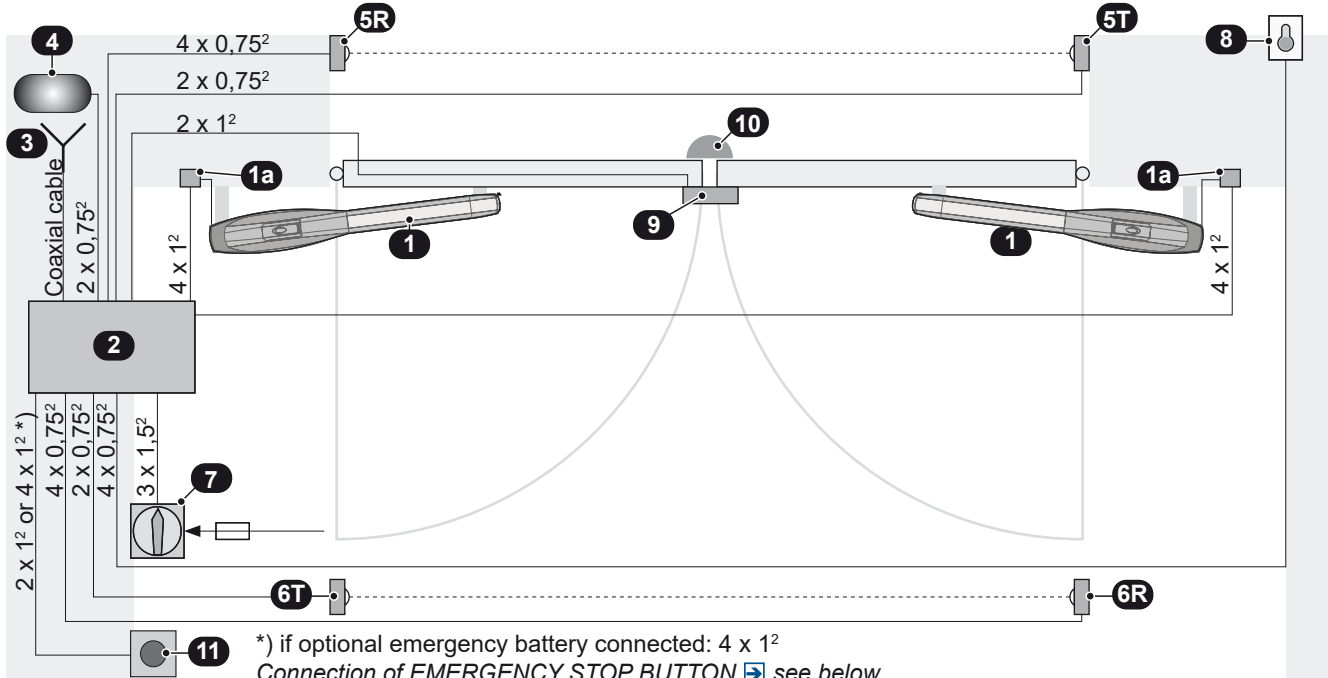
**Connection work:**  
**POWER OFF** before removing the housing cover!



**Programming work:**  
**Take increased care** when opening the control housing!  
Avoid touching other components except the programming buttons!



- |  |  |
|--|--|
| <p>1 swing gate operator tousek SONIC 24</p> <p>1a connection box</p> <p>2 electronic control unit ST 24 (with integrated radio receiver)</p> <p>3 external antenna (for increasing range)</p> <p>4 LED signal lamp</p> <p>5 photocells outside (R: receiver, T: transmitter)</p> <p>6 photocells inside (R: receiver, T: transmitter)</p> | <p>7 main power switch 16A and fuse 12A - (Note: An all-pole disconnecting main switch with a contact opening gap of min. 3mm shall be provided)</p> <p>8 key switch</p> <p>9 electric lock</p> <p>10 floor limit stop (optional: internal limit stop)</p> <p>11 emergency stop switch</p> |
|--|--|



- The motor connection cable may not exceed the length of 50m!
- Shielded cables must be used for lengths of more than 20m.
- The shield of the shielded cable must be connected to the ground conductor in the control unit!
- The 0,75mm<sup>2</sup> 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.

motor wire (min. 4 x 1<sup>2</sup>)

- max. 50m !
- > 20m → **shield**



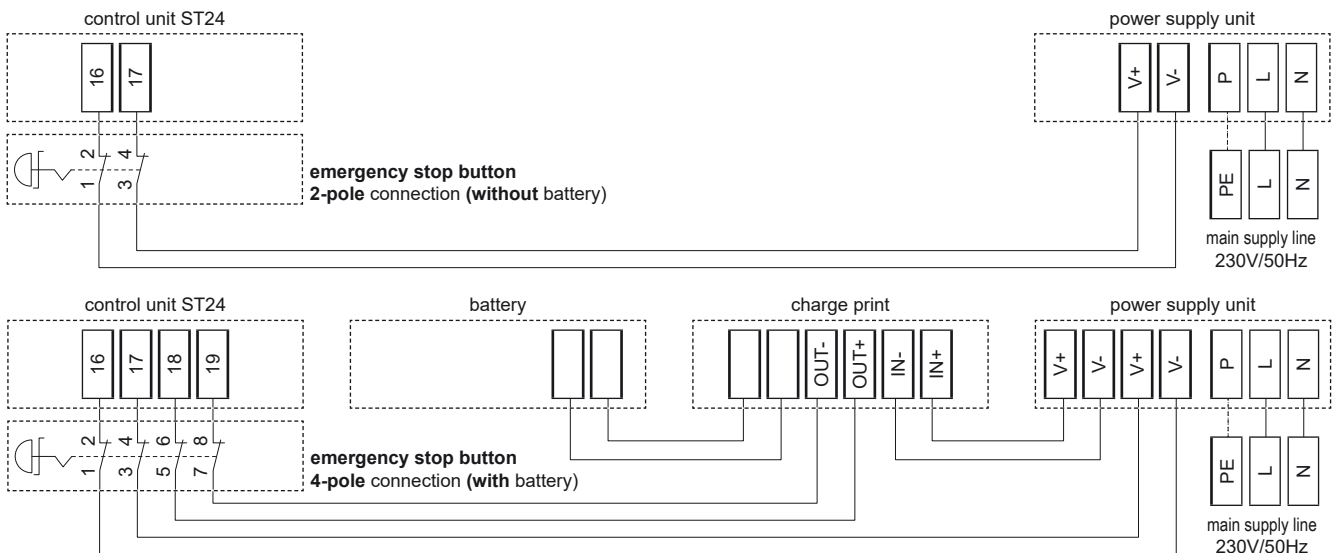
**Attention:** be aware that the beside picture is only a symbolic sample illustration of a gate facility and may therefore not show all safety devices required for your specific application.

### Connection EMERGENCY STOP button

### SONIC 24 / ST 24





The emergency stop button must be located in the close area of the gate system and must be freely accessible at all times (without aids such as ladders or similar) Connection of the emergency stop button 2- or 4-pole (with emergency battery)!





## Overview of the control unit

### (K1 / K2) Terminal connectors

(D) Display connection or  -connection (optional "tousek service interface") or "tousek-connect" 

(FE) integrated radio receiver with antenna wire

(A) Connection for external antenna

(P1) Pairing push button (MEM) for radio transmitter

(P2) Push button (DEL) for deleting radio transmitter

(IMP) Push button (pulse button equivalent)

(N) power adapter

### Emergency battery pack (optional)

 see also page 12

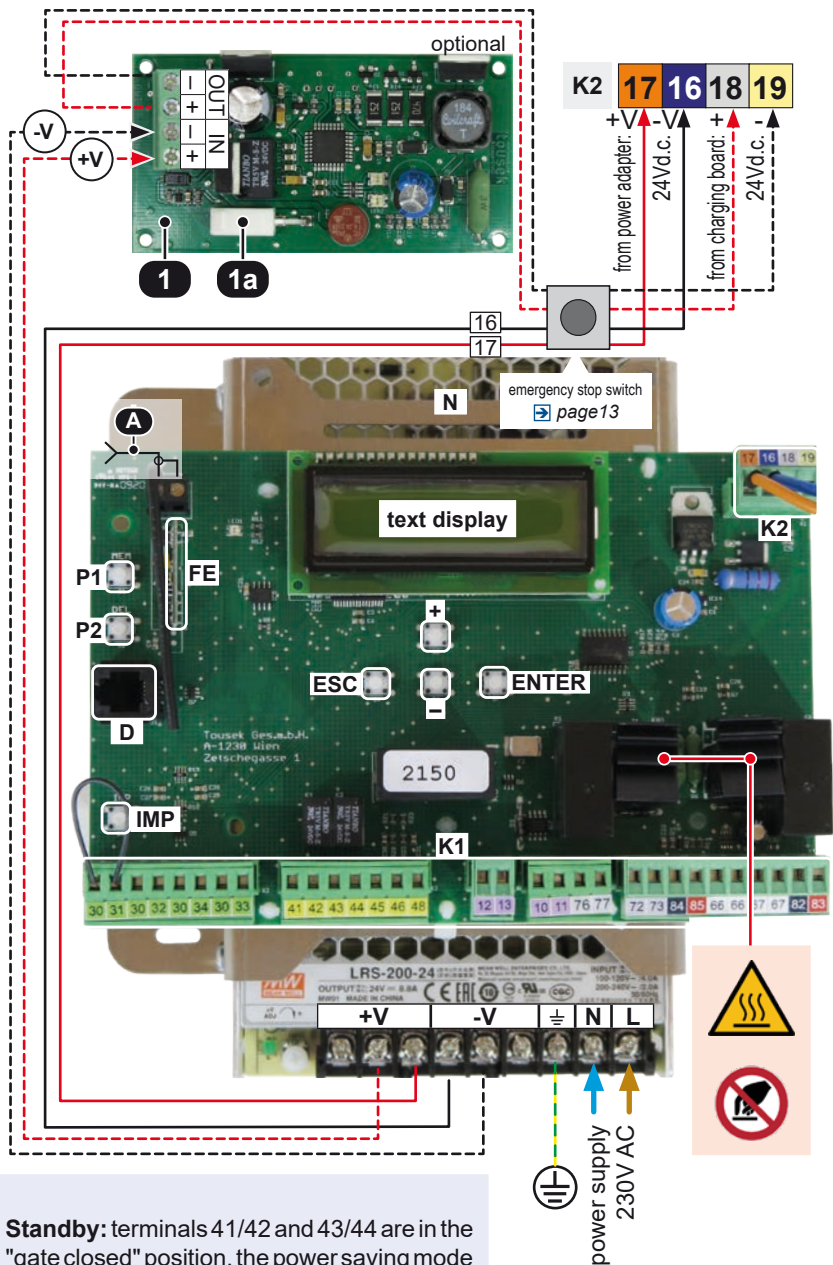
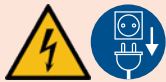
(1) Charging board with socket (1a) for connecting the emergency battery



### Attention

- External voltage at the connection terminals of the control board leads to the destruction of the electronics!
- Attention: In order to ensure that the control unit functions properly, no additional external accessories may be connected to the power supply unit.!

For connection work:

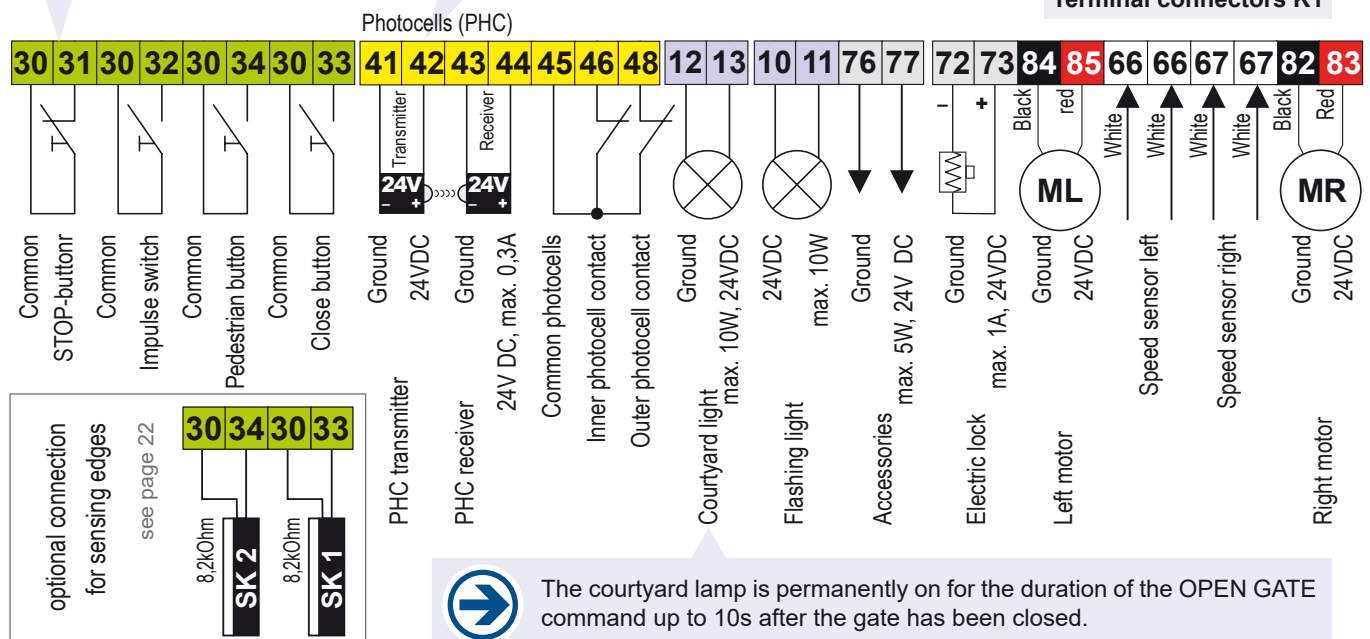


Terminals 30/31 have to be bridged (factory setting) when no Stop push button is connected.



**Standby:** terminals 41/42 and 43/44 are in the "gate closed" position, the power saving mode (i.e. voltage-free) switched.

### Terminal connectors K1

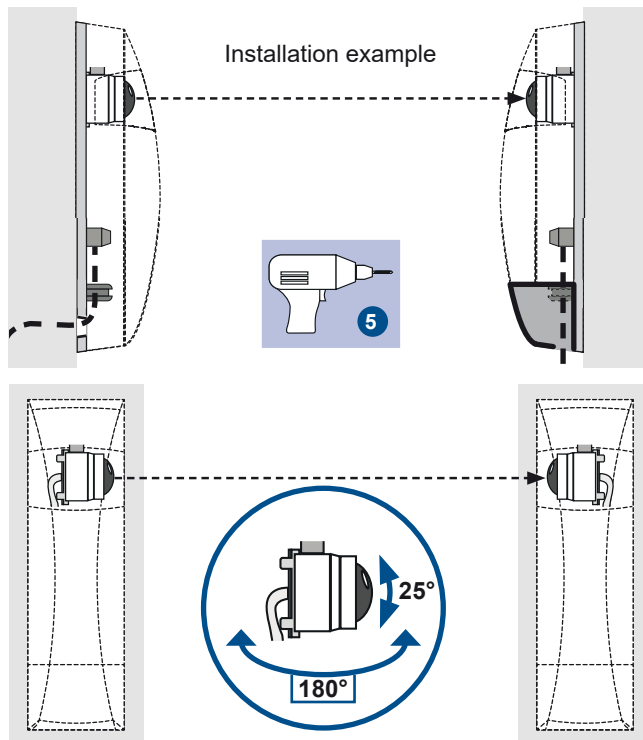
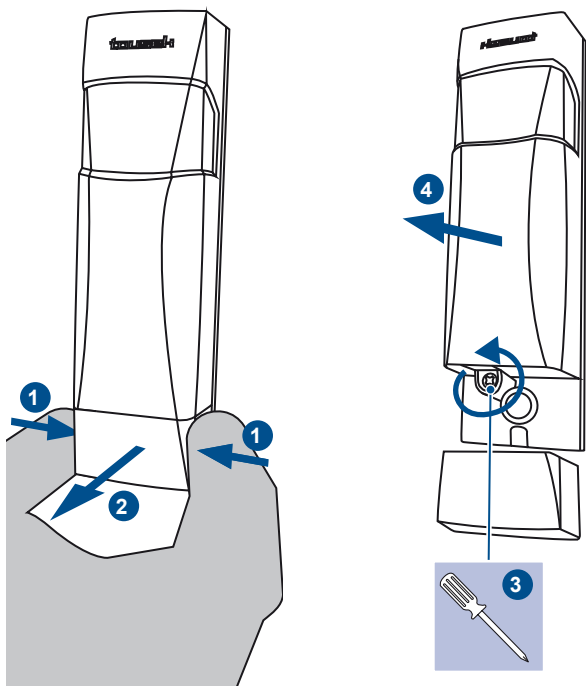


## 5. Set: Photocells LS 180



page 12

Technical data LS 180: [page 5](#)

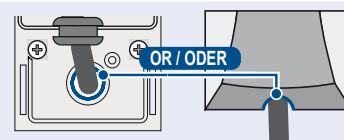
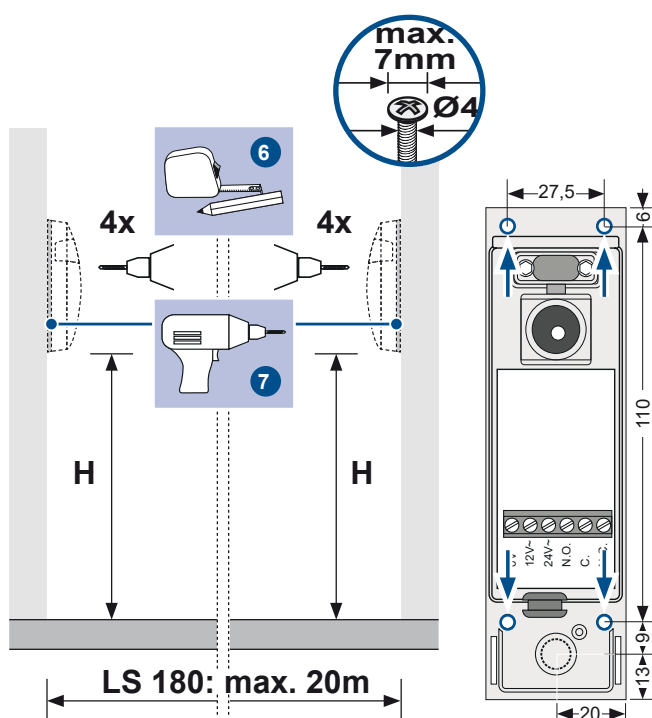


### Installation instruction

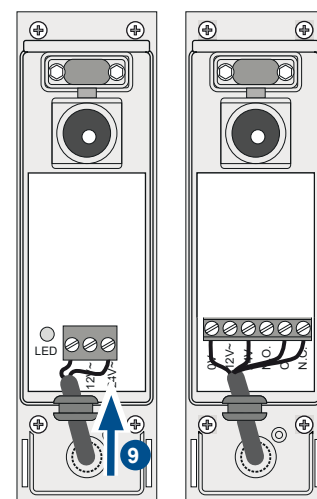
**IMPORTANT:** To prevent mutual interference when using two pairs of photocells, the two photoelectric transmitters must be installed on opposite sides!

Standard

transmitter 1	receiver 1
receiver 2	transmitter 2



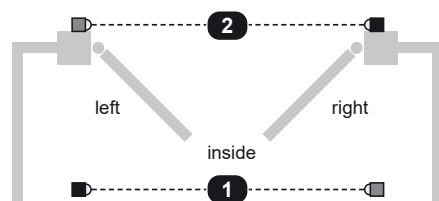
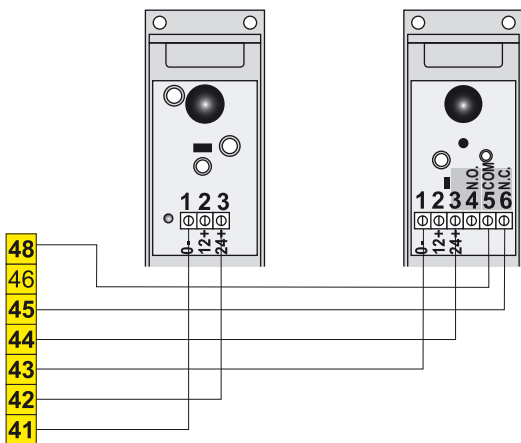
**8** Make sure that the opening made for cable routing is properly sealed so that no moisture can get inside the housing!





## photocell pair connection

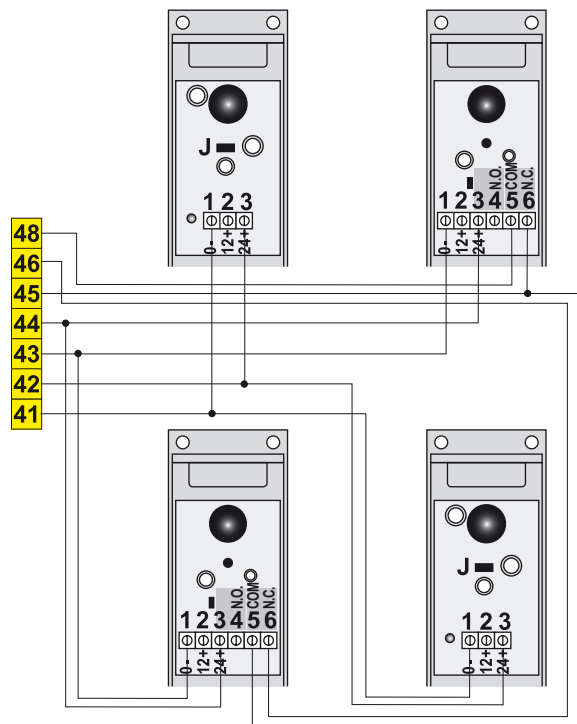
OUTSIDE: transmitter receiver



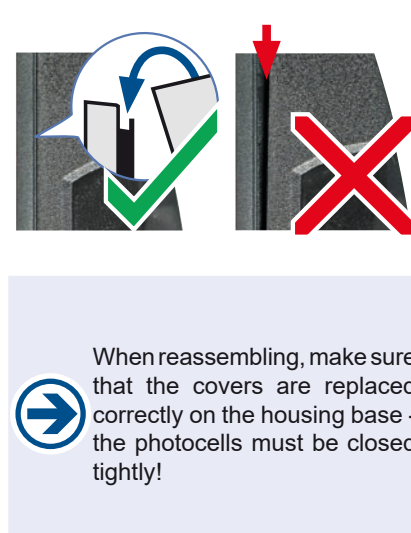
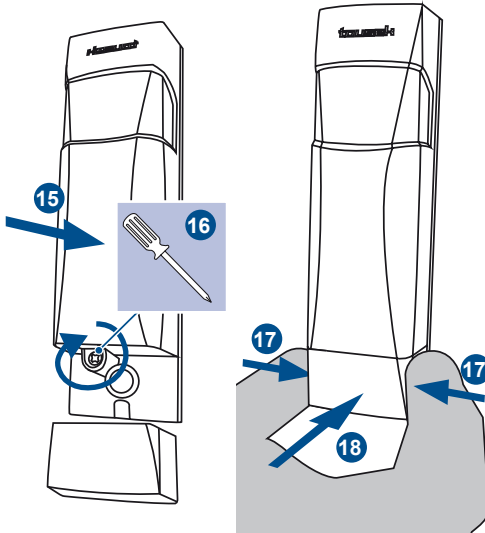
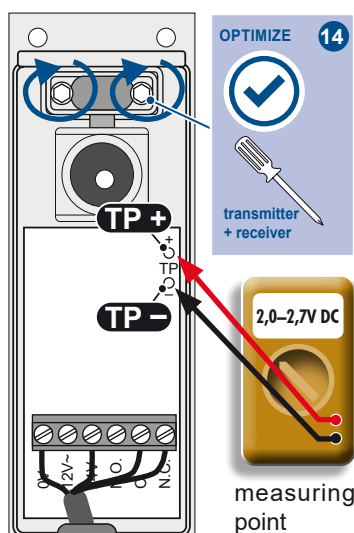
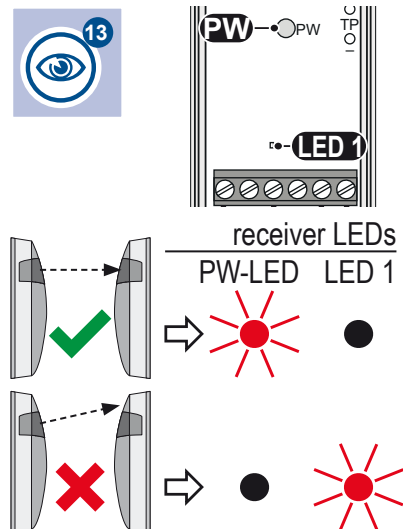
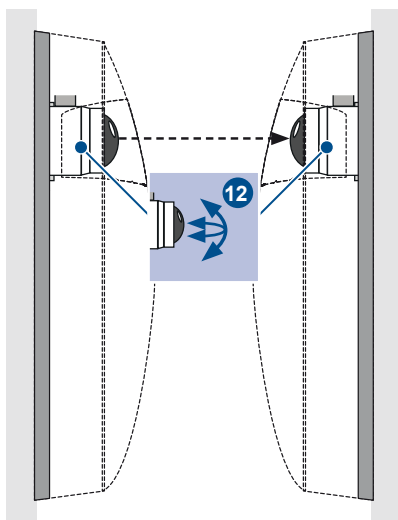
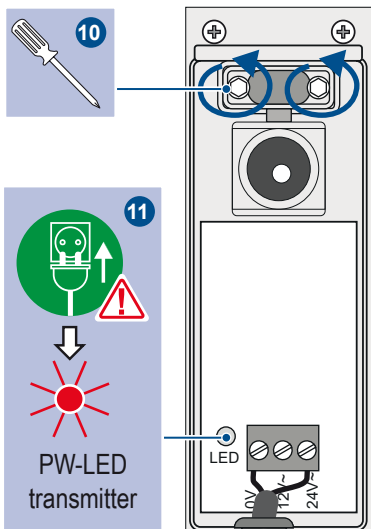
(1) inside photocells / (2) outside photocells

## example: outside and inside photocell pair

OUTSIDE: transmitter receiver



INSIDE: receiver transmitter





→ page 12



### Important

- Use only potential-free normally open pushbuttons, key switches or external radio receivers as impulse, pedestrian or close buttons.
- Use only potential-free normally closed button for the STOP terminal block!

#### functionality of switches:

- **impulse button (terminals 30/32), pedestrian button (terminals 30/34): OPEN/STOP/CLOSE adjustment**  
An impulse makes the operator start with an opening or closing movement. If the button is pressed again during the movement, the operator stops. With the next impulse, the operator moves in the opposite direction to the last gate movement. The impulse button enables the gate to be opened completely, the pedestrian button only opens according to the partial opening setting in the menu.
- **CLOSE button (terminals 30/33):** An impulse with the CLOSE button enables the closing of the gate.
- **STOP-switch (terminal 30/31):** An impulse with the STOP-button stops the gate.



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



→ emergency stop switch see page 13

## 7. initial operation

## swing gate control ST 24



### important: preparatory measures

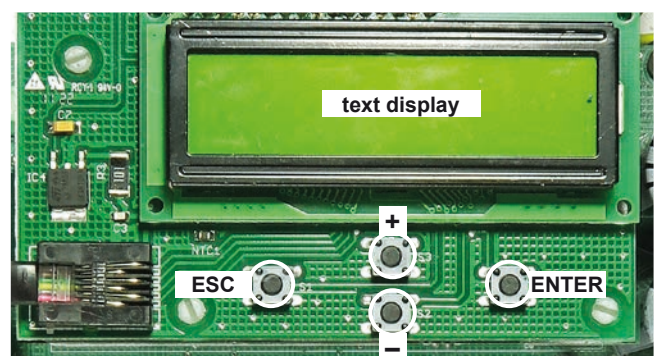
- Connect control devices, safety devices and motors in compliance with the safety regulations.
- **The movement area must first be approached by hand and then by motor before initial operation!**
- Unlock the operator and move the leaves manually to the half-opened position - then lock the operator again.
- Switch on the complete system (correct connection required).

#### Programming buttons / text display


ENTER	Confirmation
ESC	Back, exit Press 5s: to select the language
+	Increase value, scroll up
-	Decrease value, scroll down

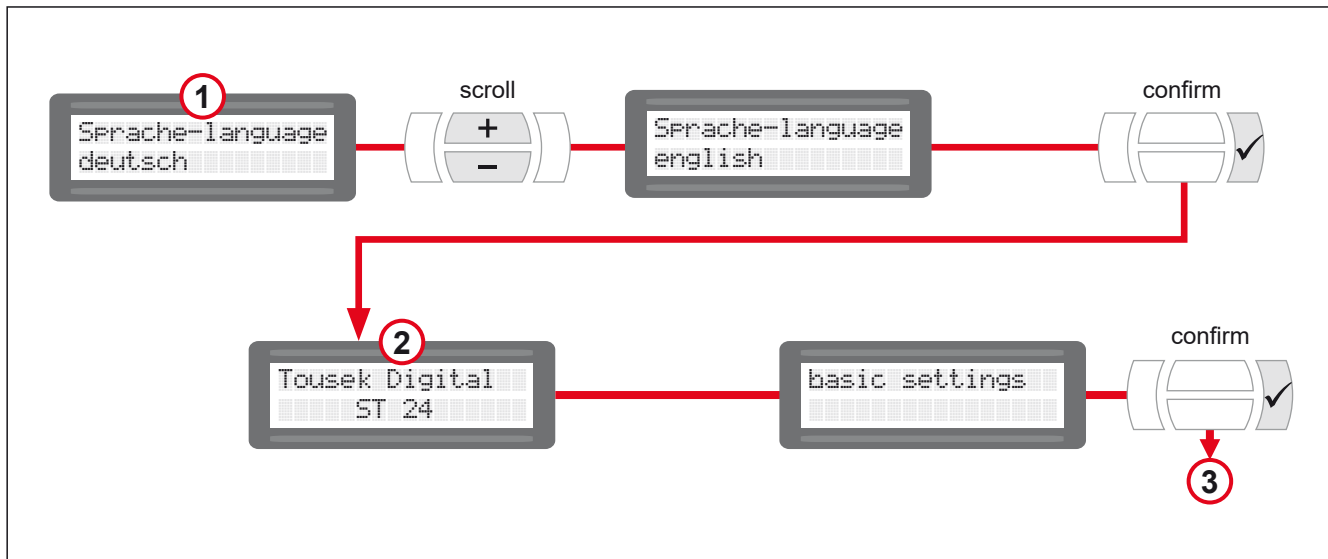


**AUTO-EXIT:** if during programming no key is pressed for 1 minute, you automatically return to the Ready mode of the control unit without saving any settings previously changed.



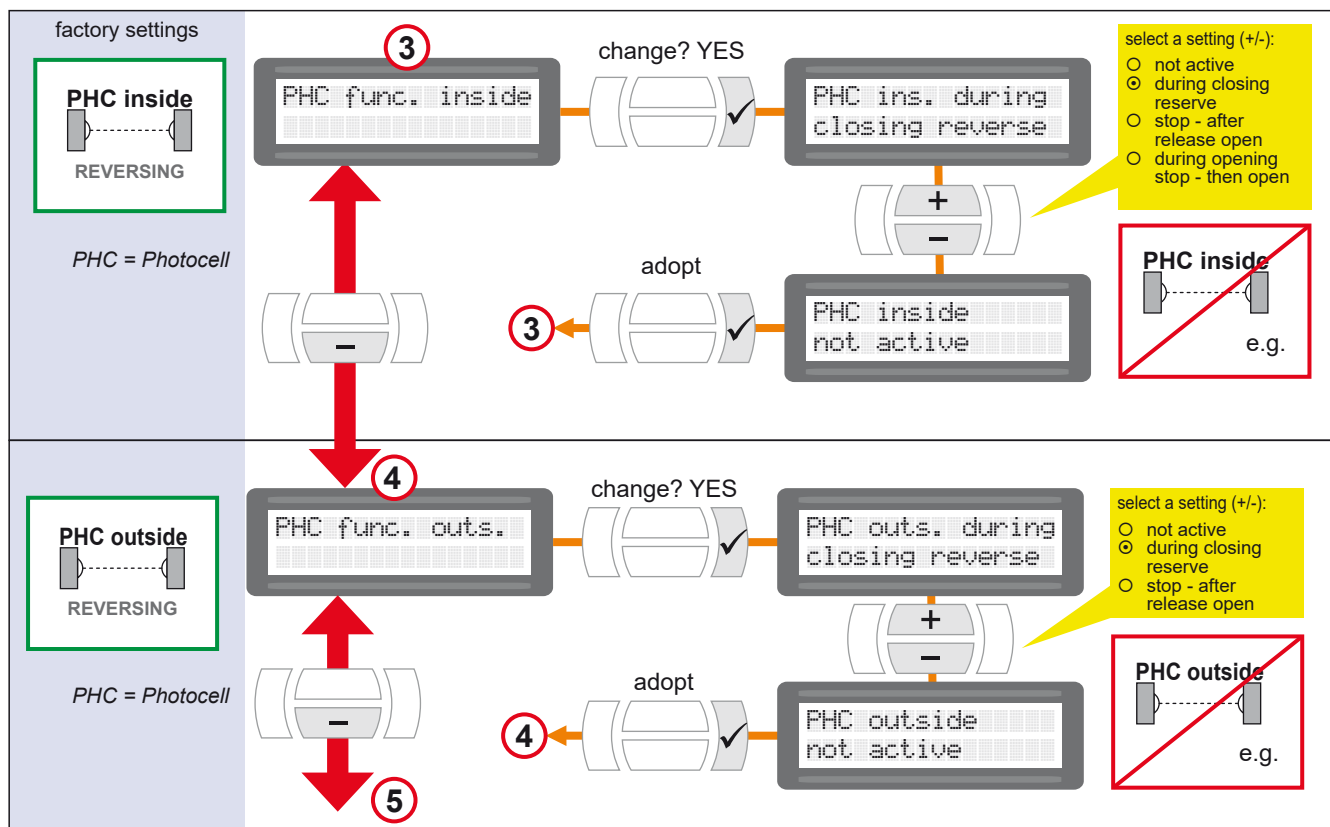
## language selection

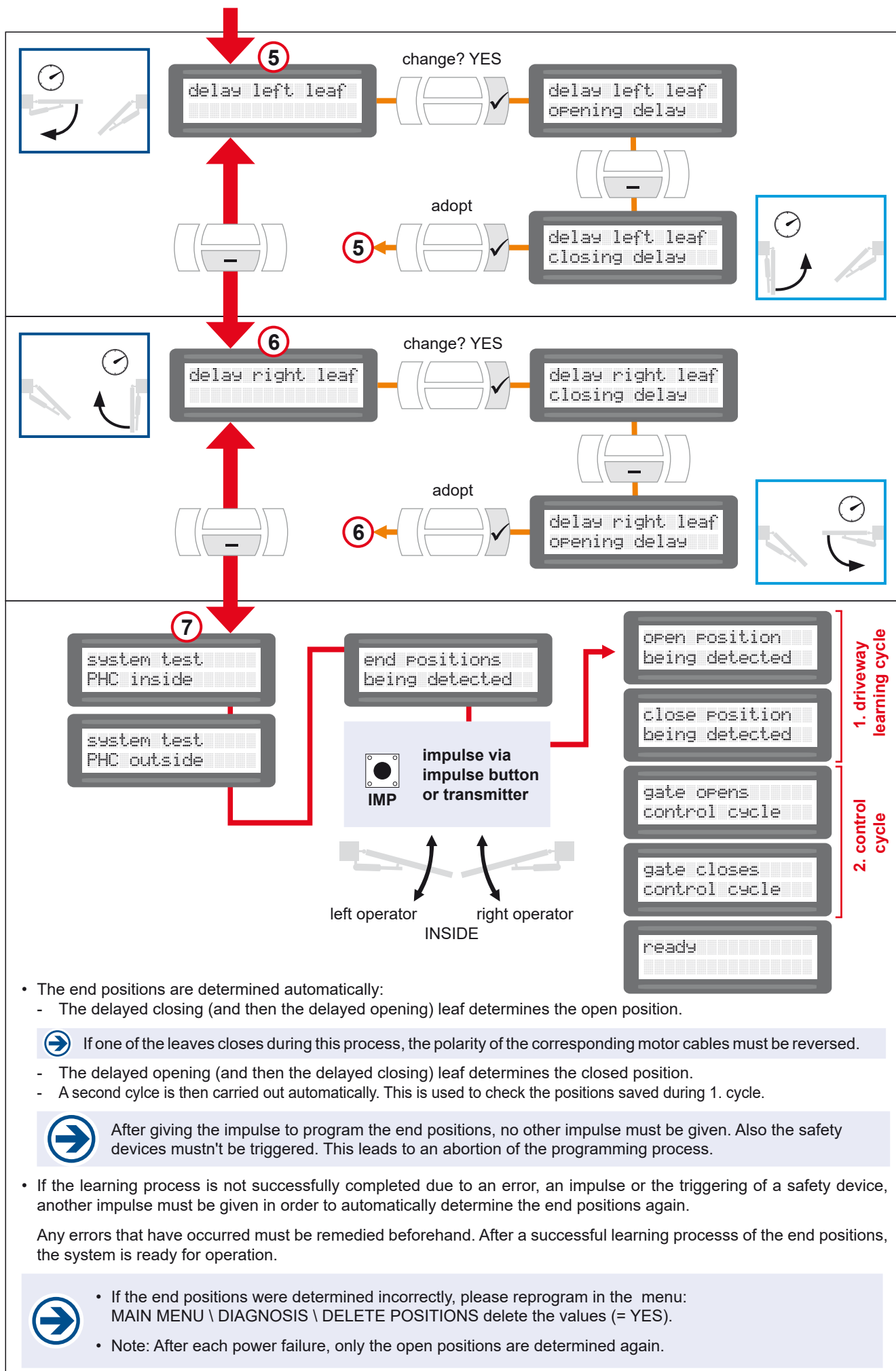
- Can be selected during initial operation (hence after factory reset).
- Can also be chosen by pressing the escape button for 5s (  ) from any position in the menu.



## BASIC SETTINGS

- Used to select the most important operating parameters during initial operation.
- Selectable during initial operation (or after factory reset)
- All safety devices are activated at the factory.
- Further programming can be done in the main settings menu, which allows all possible settings (see menu structure [page 20](#)).





main layer	sub layer	adjustments
<b>radio</b> page 21	<b>learn impulse</b>	↻ display of memory location
	<b>learn partial impulse</b>	↻ display of memory location
	<b>show transmitter</b>	memory location
	<b>delete transmitter</b>	memory location
	<b>delete memory</b>	<input type="radio"/> NO <input type="radio"/> YES
<b>safety</b> page 22	<b>PHC function inside</b> <i>PHC = photocell</i>	<input type="radio"/> not active <input type="radio"/> during closing reverse <input type="radio"/> stop - after release open <input type="radio"/> during opening stop - then open
	<b>PHC function outside</b>	<input type="radio"/> not active <input type="radio"/> during closing reverse <input type="radio"/> stop - after release open
	<b>PHC-pause time</b>	<input type="radio"/> no influence of photocell <input type="radio"/> abort pause time <input type="radio"/> re-start of pause time <input type="radio"/> immediate close after opening
	<b>PHC-self test</b>	<input type="radio"/> active <input type="radio"/> not active
	<b>inputs 30/33</b>	<input type="radio"/> CLOSE-button <input type="radio"/> SE only open <input type="radio"/> SE only close <input type="radio"/> SE open/close
	<b>inputs 30/34</b>	<input type="radio"/> part.open.Imp. <input type="radio"/> SE only open <input type="radio"/> SE only close <input type="radio"/> SE open/close
<b>left leaf</b> page 23	<b>delay left leaf</b>	<input type="radio"/> opening delay <input type="radio"/> closing delay
	<b>delay time left</b>	<input type="radio"/> 0...10s ⊙ = 2s
	<b>speed</b>	<input type="radio"/> fast <input type="radio"/> slow <input type="radio"/> medium
	<b>soft stop time</b>	<input type="radio"/> 0...10s ⊙ = 2s
	<b>ARS response time</b>	<input type="radio"/> 0,15s...0,95s ⊙ = 0,4s
<b>right leaf</b> page 23	<b>delay right leaf</b>	<input type="radio"/> opening delay <input type="radio"/> closing delay
	<b>delay time right</b>	<input type="radio"/> 0...10s ⊙ = 2s
	<b>speed</b>	<input type="radio"/> fast <input type="radio"/> slow <input type="radio"/> medium
	<b>soft stop time</b>	<input type="radio"/> 0...10s ⊙ = 2s
	<b>ARS response time</b>	<input type="radio"/> 0,15s...0,95s ⊙ = 0,4s
<b>operating mode</b> page 23	<b>operating mode</b>	<input type="radio"/> impulse mode <input type="radio"/> automatic closing 1...255s
	<b>partial opening</b>	<input type="radio"/> 25...100% ⊙ = 100%
	<b>automatic mode</b>	<input type="radio"/> complete/partial opening <input type="radio"/> only complete opening <input type="radio"/> only partial opening
<b>lights/lamps</b> page 23	<b>prewarning OPEN</b>	<input type="radio"/> OFF, 1s...30s ⊙ = OFF
	<b>prewarning CLOSE</b>	<input type="radio"/> OFF, 1s...30s ⊙ = OFF
	<b>electric lock</b>	<input type="radio"/> OFF, 1...10s ⊙ = OFF
	<b>reverse stroke</b>	<input type="radio"/> not active <input type="radio"/> 0,5s...3,0s
<b>diagnosis</b> page 24	<b>status display</b>	↻ status display
	<b>delete positions</b>	<input type="radio"/> NO <input type="radio"/> YES
	<b>factory settings</b>	<input type="radio"/> NO <input type="radio"/> YES
	<b>software version</b>	↻ show software version
	<b>serial number</b>	↻ show serial number
	<b>protocol</b>	↻ show protocol entries



The single menu adjustments are marked as shown below:

☐ = possible setting (or value assignment)    ⊙ = factory setting

marks the menu items which the BASIC SETTINGS contain.

Note: Some changes regarding the functionality or operational logic are only adopted, when the gate is closed and the display shows "ready".

## radio

## program settings

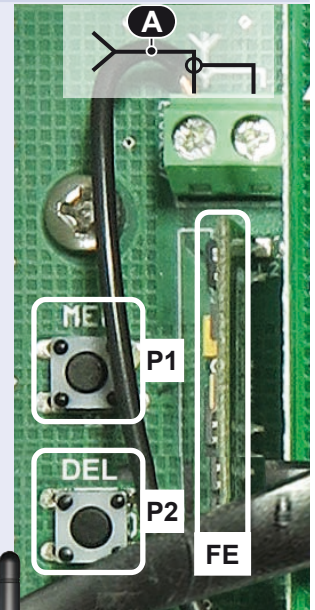
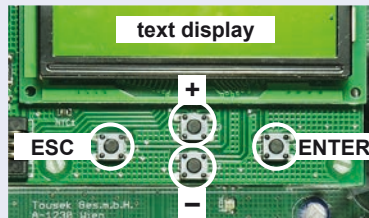


## integrated radio receiver RS 868, 2-channel

- The code of the transmitters is programmed into the integrated radio receiver.
- The receiver memory can store up to 54 transmitters.
- **IMPORTANT: Note the numbers shown on the display when programming!**

## programming / deleting transmitter

- We recommend programming / deleting transmitter buttons using the menu items described below. Use the programming buttons to navigate to the desired menu point until the display shows e.g. "learn impulse" and confirm to enter the selected function with the ENTER button.
- Alternatively you can also choose the conventional method, if you are familiar with the programming / deleting other tousek radio receivers using the learning button **P1 (MEM)** and the delete button **P2 (DEL)**. Please note that with the remote learning function, i.e. when learning is activated using the P3 radio transmitter button of transmitter that has already been programmed, the receiver does not signal readiness for this by means of buzz, but rather by means of the display.



## antenna FK 868

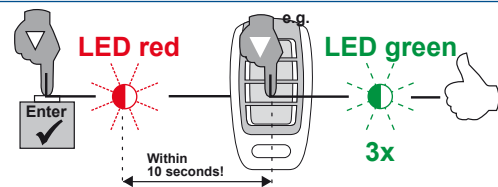
- An 8.5 cm long wire (**A**) is connected to the antenna terminal block of the receiver. Do not change the length of this wire (reduces the range)!
- The FK 868 antenna is optionally available to extend the range.



antenna FK 868 (optional)

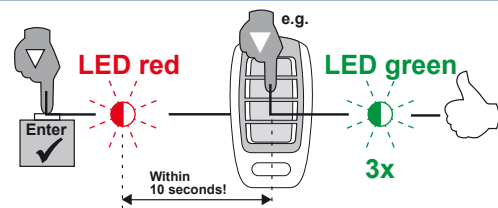
## Learn impulse (complete opening)

After confirming with the ENTER button, the red LED flashes very quickly for approx. 10s. Within these 10s, press the transmitter button to be programmed. Successful storage is indicated by three green LED flashes.



## Learn partial impulse (partial opening)

After confirming with the ENTER button, the red LED flashes very quickly for approx. 10s. Within these 10s, press the transmitter button to be programmed. Successful storage is indicated by three green LED flashes.



## show transmitter (occupied memory)

After confirming with the ENTER button, the occupied memory locations are displayed. Use the + or - buttons to scroll through this list until the memory position (number) of the desired transmitter is displayed. Exit the function with the ESC button.

## delete transmitter

After confirming with the ENTER button, the occupied memory positions are displayed. Use the + or - buttons to scroll through this list until the memory position (number) of the desired transmitter is displayed. When you confirm with the ENTER button, the relevant transmitter is completely deleted, meaning all programmed buttons of the transmitter. Exit the function with the ESC button.

## delete memory

⊙ NO

○ YES: All programmed transmitters are deleted after confirmation ( ✓ Enter).



### **PHC function inside** (inner photocell contacts: terminals 45/46)

- **not active:** No evaluation of the inner photocells.
- ⊗ **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.

### **PHC function outside** (outer photocell contacts: terminals 45/48)

- **not active:** No evaluation of the outer photocells.
- ⊗ **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**

- ⊗ **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 photocells are interrupted during the opening movement or in the open position, then the gate begins to close after reaching the open position and clearance of the photocells.

### **PHC-self test**

- ⊗ **active:** The control board is equipped with a monitoring function for the connected photocells. Every start impulse (button or radio) initiates a test whether the photocell receiver reacts correctly to the signal of the transmitter. If this is not the case, the control board will show an error message.
- **not active**



### **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 !

### **Safety edges** (SE 1: terminals 30/33, SE 2: terminals 30/34)

If "SE" is selected in the menu for "input terminal 30/33" or "input terminal 30/34", then safety edges with a resistor of 8.2kΩ can be connected to these terminals.



example of use

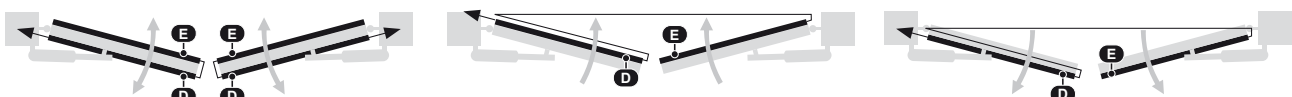
(D) passage safety edge, (E) final safety edge

SE 1 - terminal 30/33  
open/close active

SE 2 - terminal 30/34  
open/close active

SE 2-terminal 30/34 only close active

SE 2-terminal 30/34 only open active





**delay left leaf** (⊙ opening delay) | **delay right leaf** (⊙ closing delay)

- **opening delay:** Leaf opens after the adjusted delay time.
- **closing delay:** Leaf closes after the adjusted delay time.

**delay time left | delay time right** ⊙ 2s (factory setting)

- **0–10s delay time adjustable:** Indicates the delay time at opening or closing.

**speed**

- **fast** = 11s/90°   ○ **slow** = 25s/90°   ○ **medium** = 18s/90°

**soft stop** ⊙ 2s (factory setting)

- **0–10s adjustable:** Indicates the duration of the soft stop.

**ARS response time** ⊙ 0,40s (factory setting)

- **0,15–0,95s ARS Ansprechzeit einstellbar:** Indicates the time amount, in which the automatic reversal system activates. Low value means high sensitivity.

## operating mode

## program settings

**operating mode**

- **impulse mode:** Impulse for gate movement necessary.
- **automatic closing adjustable between 1–255s:** the gate closes automatically after the set time has elapsed.

**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 Position.

**Automatic mode**

- **complete/partial opening**
- **only complete opening (both leaves)**
- **only partial opening (only closing delayed leaf)**

## lights / lamps

## program settings

**Prewarning OPEN**

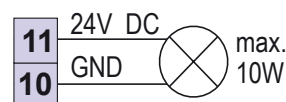
- **switched off**
- **1–30s adjustable:** before each opening movement the flashing light is activated for the adjusted time.

**Prewarning CLOSE**

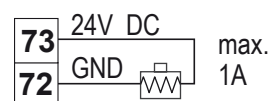
- **switched off**
- **1–30s adjustable:** before each closing movement the flashing light is activated for the adjusted time.

**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**

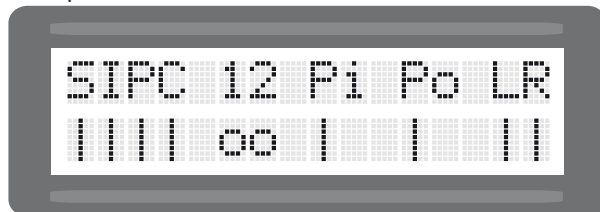
- **not active**
- **0,5–3s adjustable:** Only with an activated electric lock the gate performs a short closing movement to ease the unlocking. Reverse stroke is only carried out in opening movement.



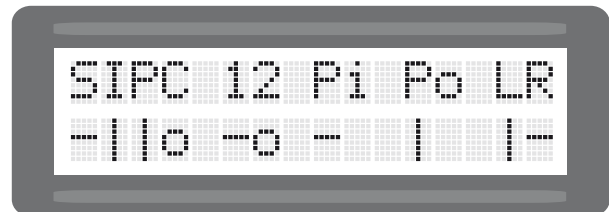
## status display

<b>S</b>	stop switch		status: not triggered
<b>I</b>	impulse switch		status: triggered
<b>P</b>	partial opening switch (or SE 2)		status: safety contact edge not connected or defect
<b>C</b>	close switch (or SE 1)		status: safety contact edge or photocells are deactivated in menu
<b>1</b>	safety contact edge SE 1		
<b>2</b>	safety contact edge SE 2		
<b>Pi</b>	photocell inside		
<b>Po</b>	photocell outside		
<b>L</b>	left motor		motor connected
<b>R</b>	right motor		motor missing
			motor unidentified

examples:



All inputs are okay.  
SE 1 and SE 2 deactivated in menu.  
Left and right are motor connected.



Stop switch triggered.  
Impulse and partial opening switch not triggered.  
Close switch deactivated in menu.  
SE 1 and inner photocell triggered.  
SE 2 deactivated in menu.  
Outer photocell not triggered.  
Left motor connected. Right motor missing.

## delete position

- ⊙ **NO**
- **YES:** The current end positions are deleted and redetermined after an impulse.

## factory setting

- ⊙ **NO**
- **YES**



The factory settings of the individual menu selections are marked with ⊙ in this manual.

## software version

- ➞ shows the softwareversion

## serial number

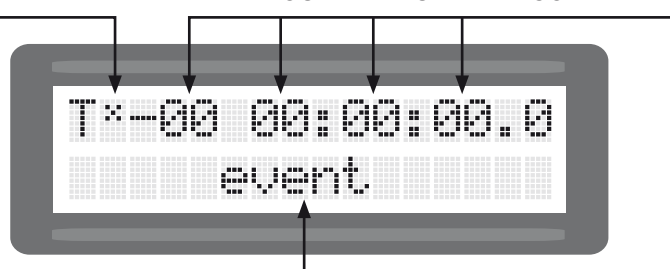
- ➞ shows the serial number

## protocol

- ➞ shows the log list: All events that take place are logged in this list - the individual entries in the log list can be viewed with the + and - buttons:

The start and end of each log is marked with \*

Elapsed time since the last event:  
DAYS HOURS : MINUTES : SECONDS



Type of event

error	possible reasons	solution
no reaction to impulse	no power supply	check the power supply
	display: STOP -button triggered	check if stop-button is connected correctly or linked
relays switch on the control board, but motor does not run	connection between motor and control board defective	check the supply of the motor
gate opens, but doesn't close	photocells are interrupted	check positioning and function of photocells
	ARS triggered	Unlock the operator by emergency release and check for an easy gate movement or increase ARS response time in menu
no reaction of radio receiver	wrong or no antenna connected	check connection of antenna
	transmitter not programmed into receiver	program transmitter into receiver according to manual

**declaration of conformity:**

TOUSEK Ges.m.b.H., Zetschegasse 1, 1230 Vienna, declares that the ST 24 control unit complies with all of the technical regulations applicable to the product within the scope of the following directives:

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

Electromagnetic Compatibility 2014/30/EU, including changes.

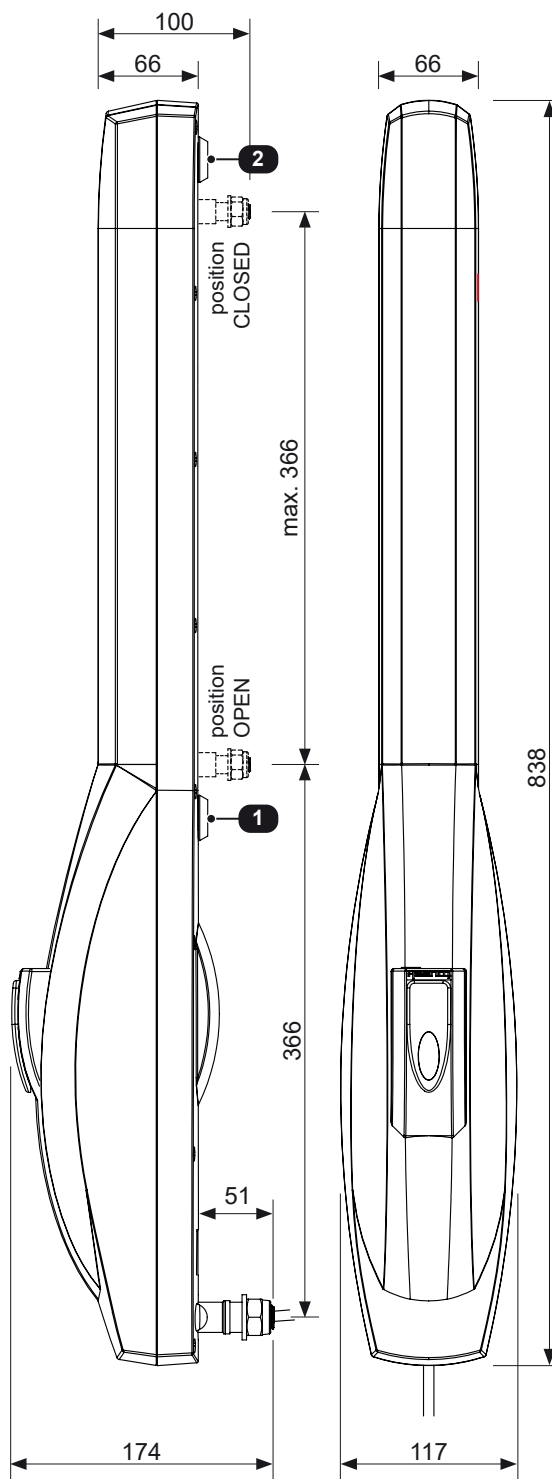
When developing their products, the manufacturer reserves the right to change technical data and features without prior notice.

October 2019

## SONIC 24

- measures in mm

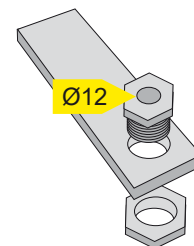
- (1) Internal limit stop for gate endposition OPEN.  
 (2) Internal limit stop for gate endposition CLOSE.



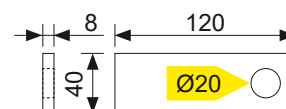
front welding part:



with cap:



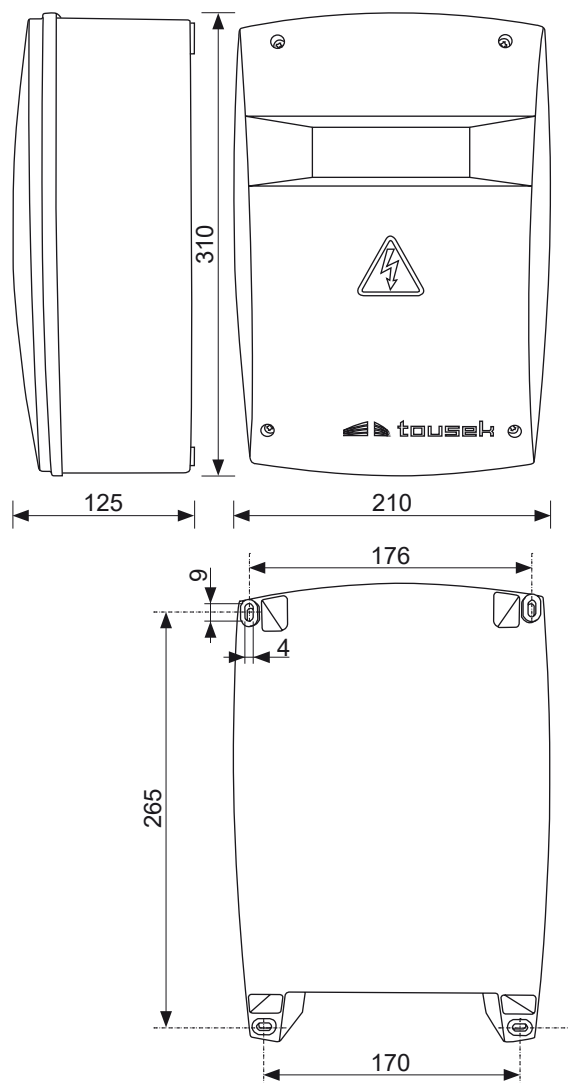
rear welding part:



Measures and technical modifications are subject to change!

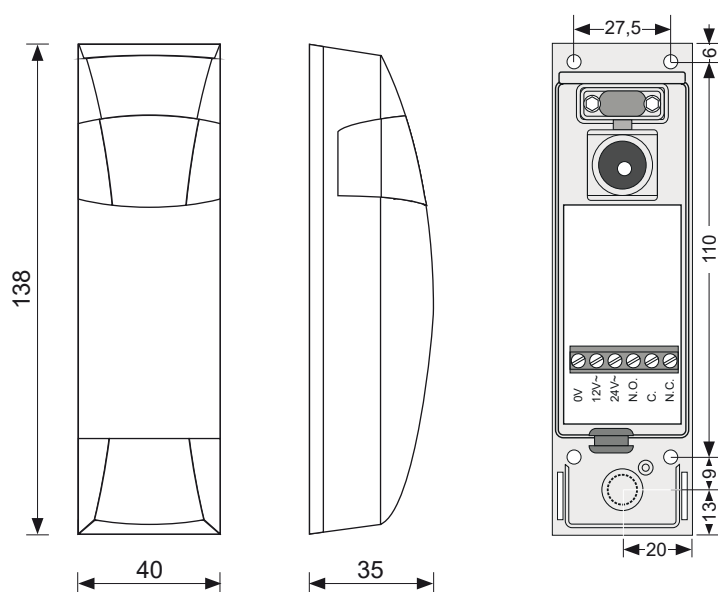
### control unit ST 24

- measures in mm

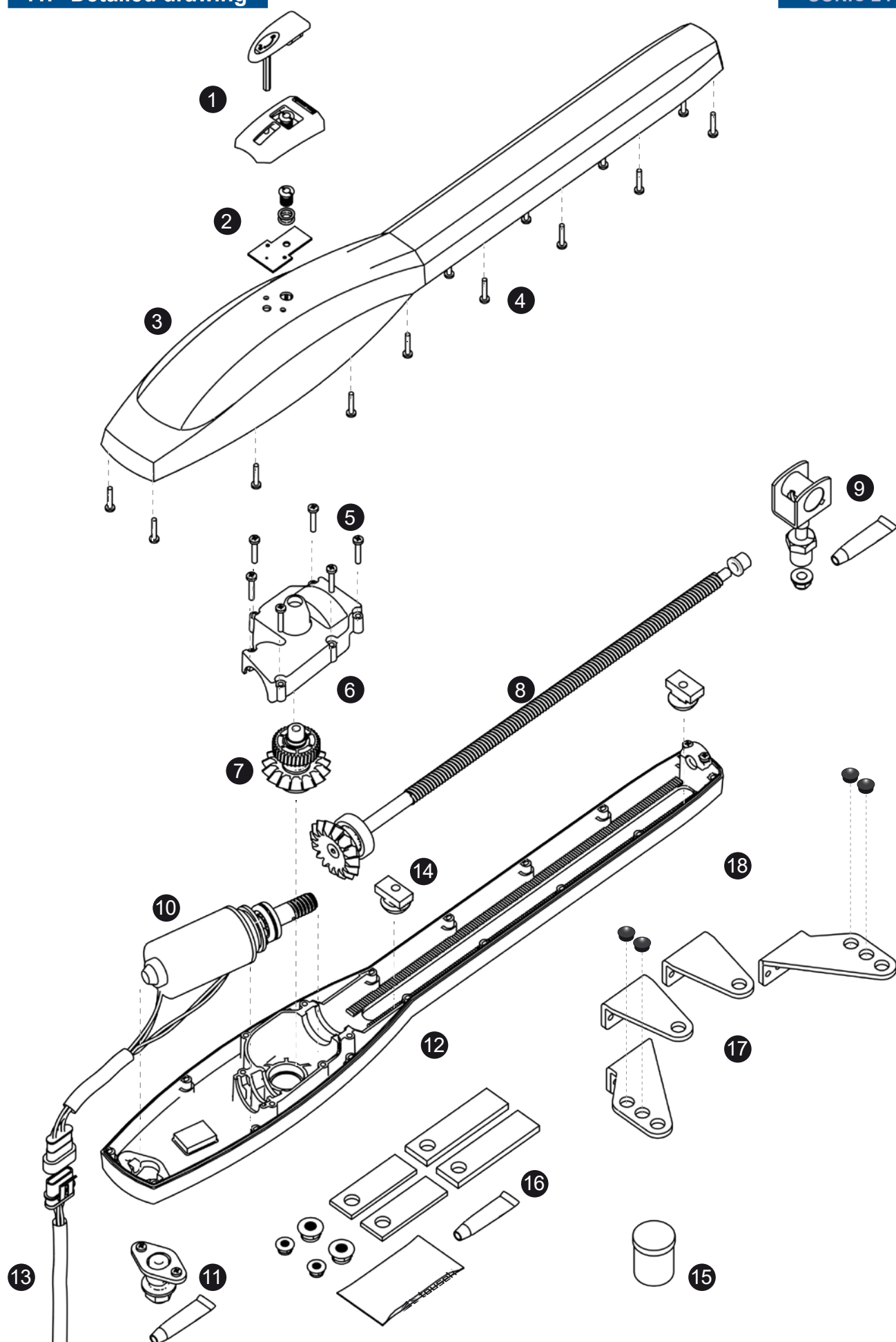


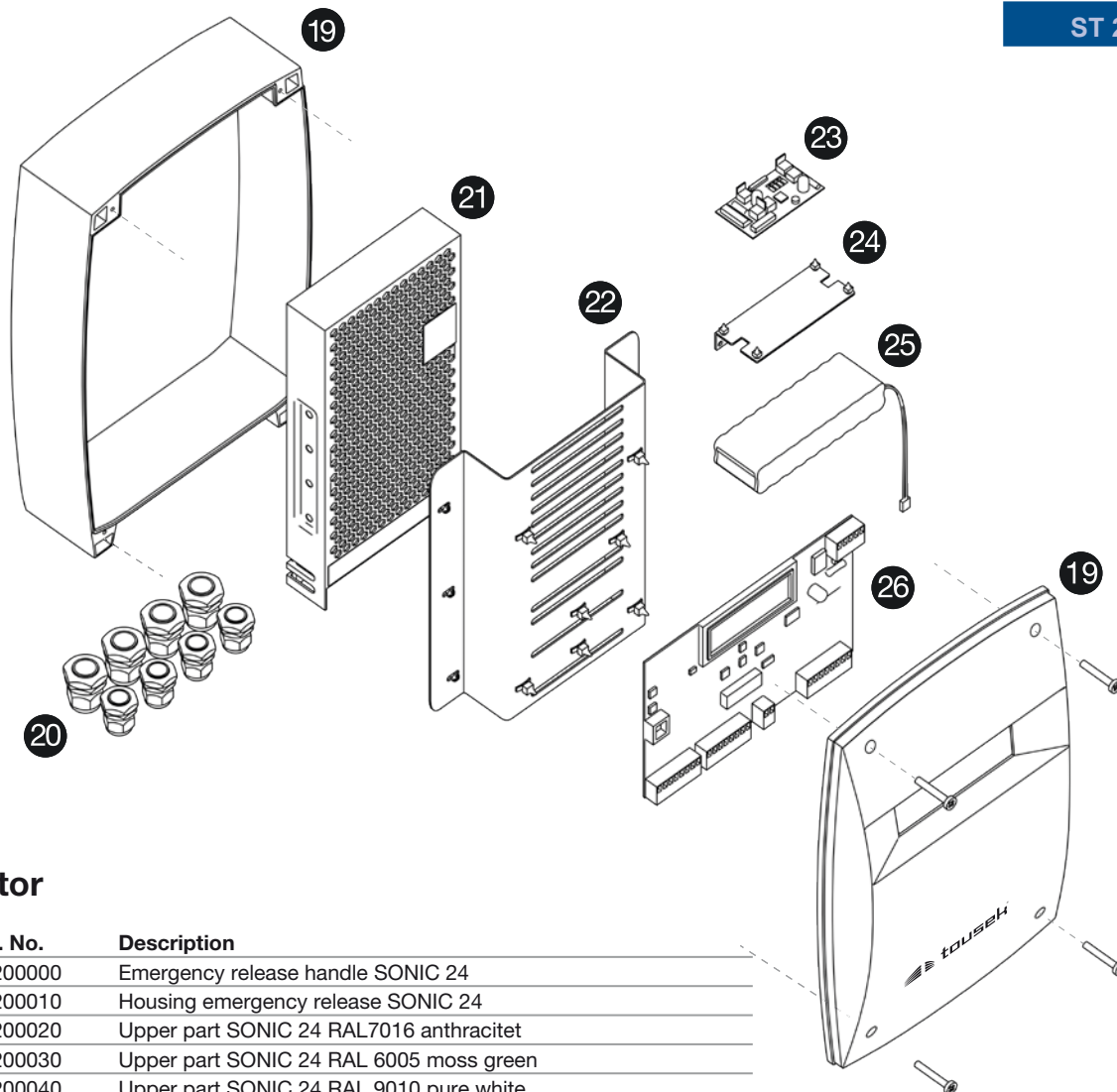
### photocell LS 180

- measures in mm



Measures and technical modifications are subject to change!





## Operator

No.	Art. No.	Description
1	17200000	Emergency release handle SONIC 24
2	17200010	Housing emergency release SONIC 24
3	17200020	Upper part SONIC 24 RAL7016 anthracitet
3	17200030	Upper part SONIC 24 RAL 6005 moss green
3	17200040	Upper part SONIC 24 RAL 9010 pure white
4	17200050	Screw set for upper part SONIC 2
5	17200060	Screw set for gear cover SONIC 24
6	17200070	Gear box cover SONIC 24
7	17200080	Gear shaft SONIC 24 incl. bevel and worm gear and bearing
8	17200090	Spindle SONIC 24 including bearing and bevel gear
9	17200100	Fork SONIC 24.2 complete including grease tube
10	17200110	Motor SONIC 24 incl. bearing and worm shaft
11	17200120	Bolt drive suspension SONIC 24.2 including grease tube
12	17200130	Lower part SONIC 24 RAL7016 anthracite incl. motor support
13	17200140	Cable for SONIC 24 incl. plug
14	11260660	Internal limit stops SONIC 24
15	17200150	Spindle and gear grease SONIC 24 100g
16	60006	Mounting material SONIC 24.2
17	14110230	Motor consoles (brackets) SET screwable for SONIC 24.2
18		incl. 4 rubber plugs (Art. No. 88810620) for the unused holes of the motor consoles

## Control unit

No.	Art. No.	Description
19	12140220	Control unit housing ST24
20	18200000	Accessories, PG gland set
21	18200010	Switching power supply ST24.2
22	18200020	Mounting plate for print ST24 and for power supply unitl
23	18200030	Charging board for battery for ST24.22
24	18200040	Battery for ST24.2
25	18200050	Angle for charging board and battery ST24.2
26	12112450	Control board ST24.2 868 MHz for SONIC 24



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Tel: +43/ 1/ 667 36 01  
Fax: +43/ 1/ 667 89 23  
Email: info@tousek.at





## 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:

#### Swing gate operator SONIC 24

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 60335-1  
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, Austria**

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, 08. 10. 2019

## 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:

## **tousek PRODUCTS**

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

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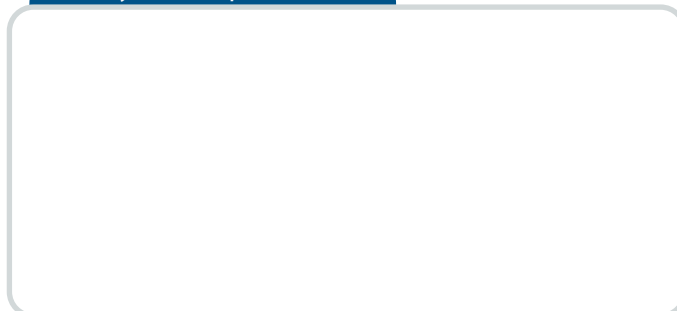
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**tousek**  
EN\_SONIC-24\_07  
28. 10. 2021



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We reserve the right to change dimensions and/or technical specifications without prior notice. Claims resulting from misprints or errors cannot be accepted.

