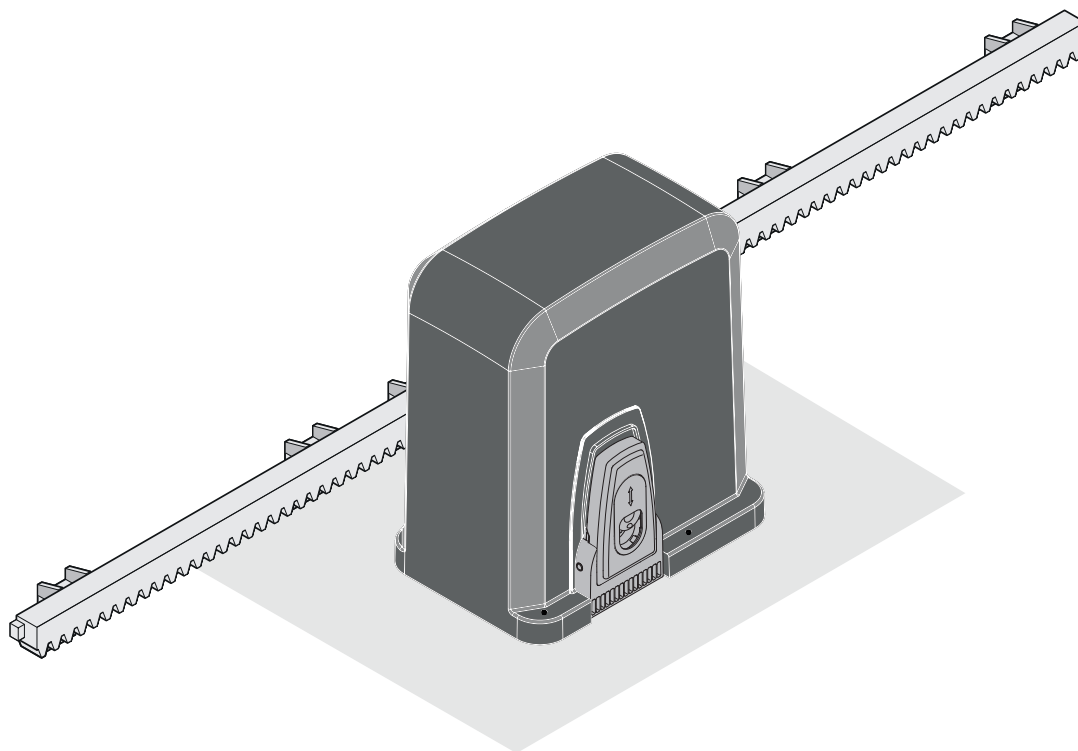




EN TRANSLATION OF THE ORIGINAL INSTALLATION AND OPERATING MANUAL

Sliding gate operator

STArter S2

STArter S2+

Download the current manual:



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Dear customer, Congratulations on your purchase of a product of **SOMMER Antriebs- und Funktechnik GmbH**. This product has been developed and manufactured under high standards of quality and with reference to ISO 9001. Our passion for the product is just as important to us as the needs and requirements of our customers. We place particular emphasis on the safety and reliability of our products.

Read this installation and operating manual carefully and follow all instructions. This will ensure that you can install and operate the product safely and optimally. If you have any questions, please contact your specialist retailer or installer.

All our products are intended for use by persons of all genders, even where this is not specifically stated.

Warranty

The warranty complies with statutory requirements. The contact person for warranties is the specialist retailer. The warranty is only valid in the country in which the operator was purchased. There is no warranty for consumables such as batteries, accumulators and fuses as well as light bulbs. This also applies for wear parts. The operator is only designed for a limited frequency of use. More frequent use leads to increased wear.

Contact data

If you require after-sales service, spare parts or accessories, please contact your specialist retailer or installer.

Feedback on this Installation and Operating Manual

We have tried to make the Installation and Operating Manual as easy as possible to follow. If you have any suggestions as to how we could improve it or if you think more information is needed, please send your suggestions to us:



+49 (0) 7021 8001-403



doku@sommer.eu

Service

If you require service, please contact us on our service hotline (fee required) or see our web site:



+49 (0) 900 1800-150

(0.14 euros/minute from landline telephones in Germany, mobile prices may vary)

www.sommer.eu/de/kundendienst.html

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1. About this Installation and Operating Manual

1.1 Storage and circulation of the Installation and Operating Manual

Read this Installation and Operating Manual carefully and completely before installation, commissioning and operation and also before removal. Observe all warnings and safety instructions.

Keep this Installation and Operating Manual accessible to all users at all times at the place of use. A replacement for the installation and operating manual can be downloaded from **SOMMER** at:

www.sommer.eu

During the transfer or resale of the operator to third parties, the following documents must be passed on to the new owner:

- EC Declaration of Conformity
- handover protocol and inspection book
- this Installation and Operating Manual
- proof of regular maintenance, testing and care
- documents recording retrofitting and repairs

1.2 Important for translations

The original installation and operating manual was written in German. The other available languages are translations of the German version. You can get the original installation and operating manual by scanning the QR code.



<http://som4.me/orig-starter-s2>

For other language versions, see:
www.sommer.eu

1.3 Description of the product type

The operator has been constructed according to state-of-the-art technology and recognised technical regulations and is subject to the Machinery Directive 2006/42/EC. The operator is fitted with a radio receiver. Optionally available accessories are also described. The version can vary depending on the type. This means the use of accessories can vary.

1.4 Target groups of the Installation and Operating Manual

The installation and operating manual must be read and observed by everyone assigned with one of the following tasks or using the device:

- unloading and in-house transport
- unpacking and installation
- initial operation
- setting
- usage
- maintenance, testing and care
- troubleshooting and repairs
- disassembly and disposal

1.5 Explanation of symbols and notes

The warnings in this installation and operating manual are structured as follows.

 Signal word	
 Hazard symbol	Type and source of hazard
	Consequences of the hazard
	► Preventing/avoiding the hazard

The hazard symbol indicates the hazard. The signal word is linked to a hazard symbol. The hazard is classified into three classes depending on its danger:

DANGER

WARNING

CAUTION

There are three different classifications of hazards.

 DANGER	
 Hazard symbol	Describes an immediate danger that leads to serious injury or death.
	Describes the consequences of the danger to you or other persons.
	► Follow the instructions for avoiding or preventing the danger.

 WARNING	
 Hazard symbol	Describes a potential danger that may lead to fatal or serious injury.
	Describes the possible consequences of the danger to you or other persons.
	► Follow the instructions for avoiding or preventing the danger.

 CAUTION	
 Hazard symbol	Describes a potentially dangerous situation
	Describes the possible consequences of the danger to you or other persons.
	► Follow the instructions for avoiding or preventing the danger.

1. About this Installation and Operating Manual

The following symbols are used for notes and information:



NOTE

- Provides additional information and useful notes on correct use of the operator without endangering persons.

If it is not observed, property damage or faults in the operator or gate may occur.



INFORMATION

- Provides additional information and useful tips. Functions for optimum usage of the operator are described.

The following symbols are used in the figures and text.



Continue reading the Installation and Operating Manual for more information.



Disconnect the operator from the mains voltage



Connect the operator to the mains voltage



Factory setting, as-delivered state depending on version



Setting options via DIP switches



Setting options via SOMLink



Operator components must be disposed of properly



Old accumulators and batteries must be disposed of properly

1.6 Special warning symbols and mandatory signs

To specify the source of danger more precisely, the following symbols are used together with the above-mentioned hazard symbols and signal words. Follow the instructions to prevent a potential hazard.



Danger due to electric current!



Danger of falling!



Danger due to falling parts!



Danger of entrapment!



Danger of crushing and shearing!



Danger of tripping and falling!



Danger due to optical radiation!

The following mandatory signs are used for the respective actions. The requirements described must be complied with.



Wear personal safety glasses



Wear a personal safety helmet



Wear personal safety gloves

1.7 Information regarding the depiction of text

1. Stands for directions for an action
⇒ Stands for the results of the action

Lists are shown as a list of actions:

- List 1
- List 2

1, A Item number in the figure refers to a number in the text.



Important text items, for example in directions for actions, are emphasised in **bold** type.

References to other chapters or sections are in **bold** type and set in "quotation marks".

1.8 Intended use of the operator

The operator is intended exclusively to open and close gates. Any other use does not constitute intended use. The manufacturer accepts no liability for damage resulting from use other than intended use. The user bears the sole responsibility for any risk involved. It also voids the warranty.

Any changes to the operator must be made with original accessories from **SOMMER** only and only to the extent described. For more information on accessories, see:



<https://downloads.sommer.eu/>

1. About this Installation and Operating Manual

Gates automated with this operator must comply with all valid international and domestic standards, directives and regulations in their currently valid version. These include EN 12604 and EN 13241.

The operator may only be used:

- if the EC Declaration of Conformity has been issued for the gate system
- if the CE mark and the type plate for the gate system have been attached to the gate
- if the handover protocol and the inspection book have been completed and are available
- if the installation and operating manuals for the operator and the gate are present
- as specified in this Installation and Operating Manual
- in good technical condition
- with attention to safety and hazards by trained users

After installation of the operator, the person responsible for the installation of the control unit must complete an EC Declaration of Conformity for the gate system in accordance with Machinery Directive 2006/42/EC and apply the CE mark and a type plate to the gate system. This also applies if the operator is retrofitted to a manually operated gate. In addition, a handover protocol and an inspection book must be completed.

The following are available:



<http://som4.me/konform>

- EC Declaration of Conformity
- handover protocol for the operator

1.9 Improper use of the operator

Any use that deviates from or any use beyond that described in “**1.8 Intended use of the operator**” on page 5 is deemed to be improper. The user bears the sole responsibility for any risk involved.

The manufacturer's warranty will be voided by:

- damage caused by improper use
- use with defective parts
- unauthorised modifications to the operator
- modifications and non-approved programming of the operator and its components

The gate must not be part of a fire protection system, an escape route or an emergency exit. Installation of the operator will prevent automatic closing.

Observe the local building regulations.

The operator may not be used in:

- areas with explosion hazard
- very salty air
- aggressive atmosphere, including chlorine

1.10 Qualifications of personnel

Qualified specialist for installation, commissioning and disassembly

This Installation and Operating Manual must be read and complied with by a **qualified specialist** who installs or performs maintenance on the operator.

In accordance with EN 50110-1, all work on the electrical system and live parts must be performed by a **trained electrician**.

The installation, initial operation and disassembly of the operator may only be performed by a qualified specialist. A qualified specialist is a person commissioned by the installer.

The qualified specialist must be familiar with the following standards:

- EN 13241 Doors and gates - Product standard
- EN 12604 Doors and gates - Mechanical aspects - Requirements and test methods
- EN 12453: Safety in use of power-operated doors 2017 (Plc)

When all work has been completed, the **qualified specialist** must:

- issue an EC Declaration of Conformity
- attach the CE mark and the type plate to the door system

Instructing the user and handover of documents

The **qualified specialist** must instruct the user:

- on the operation of the operator and its dangers
- on the handling of the manual emergency release on regular maintenance, testing and care which the user can carry out

The qualified specialist must inform the user which work may only be carried out by a qualified specialist:

- installation of accessories
- settings
- regular maintenance, testing and care
- troubleshooting

1. About this Installation and Operating Manual

1.11 Information for the user

The user must ensure that the CE mark and the type plate have been attached to the gate system.

The following documents for the gate system must be handed over to the user:

- EC Declaration of Conformity
- handover protocol and inspection book
- the installation and operating manuals for the operator and the gate

The user is responsible for:

- keeping this Installation and Operating Manual to hand and easily accessible at all times at the place of use
- the intended use of the operator
- ensuring that the operator is in good condition
- instructing all users how to use the operator, the hazards involved and in the operation of the emergency release
- regular maintenance, testing and care
- troubleshooting

The operator must not be used by persons with restricted physical, sensory or mental capacity or who lack experience and knowledge. All users must be specially instructed and have read and understood the Installation and Operating Manual.

Children must never play with or use the operator, even under supervision. Children must be kept clear of the operator. Handheld transmitters or other command devices must never be given to children. Handheld transmitters must be stored in such a way that unauthorised or accidental operation is prevented.

The user must observe the accident prevention regulations and the applicable standards. The guideline "Technical regulations for workplaces ASR A1.7" of the German committee for workplaces (ASTA) is applicable for commercial use. The guidelines described must be observed and complied with. In other countries, the user must comply with the applicable national regulations.

2. General safety instructions

2.1 Basic safety instructions for operation

The operator must not be used by persons with restricted physical, sensory or mental capacity or who lack experience and knowledge. All users must be specially instructed and have read and understood the Installation and Operating Manual.

Children must never play with or use the operator, even under supervision. Children must be kept clear of the operator. Handheld transmitters or other command devices must never be given to children. Handheld transmitters must be stored in such a way that unauthorised or accidental operation is prevented.

Danger if not observed!

Serious injury or death may result if safety instructions are not observed.

- ▶ It is imperative to comply with all safety instructions!
-

Danger due to electric current!

Contact with live parts may result in electric current flowing through the body. Electric shock, burns, or death may result.

- ▶ All work on electrical components must be carried out by qualified personnel!
 - ▶ Disconnect or de-energise the mains plug before working on the device!
 - ▶ If an accumulator is used, disconnect it from the operator!
 - ▶ Check that the device is disconnected from the voltage supply!
 - ▶ Secure it against being switched back on!
 - ▶ Before inserting the mains power plug, ensure that the mains voltage corresponds with the voltage listed on the operator type plate.
 - ▶ All electrical wires must be fitted tightly and secured against shifting.
 - ▶ In case of a three-phase current connection, make sure that the direction of rotation is clockwise.
 - ▶ Installations with a fixed mains connection require an all-phase mains circuit breaker with appropriate fuses.
 - ▶ Regularly check power cables and wires for insulation defects or cracks. If a fault is detected, take the system out of operation immediately and repair the damage.
 - ▶ Before switching on for the first time, make sure that all plug-in terminals are in their correct positions.
-

Danger due to use of the operator with incorrect settings or when it is in need of repair!

If the operator is used despite incorrect settings or if it is in need of repair, severe injury or death may result.

- ▶ The operator may only be used with the required settings and in the proper condition.
 - ▶ Have faults repaired professionally without delay.
-

Danger caused by hazardous substances!

Improper storage, use or disposal of accumulators, batteries and operator components pose a risk to the health of humans and animals.

- ▶ Store accumulators and batteries out of the reach of children and animals.
 - ▶ Keep batteries and accumulators away from chemical and thermal influences.
 - ▶ Do not recharge batteries and defective accumulators.
 - ▶ All components of the operator, including old accumulators and batteries, must be disposed of correctly and not with household waste.
-

Danger caused by components projecting into publicly accessible areas!

Parts must not project into public roads or footpaths. This also applies while the gate is moving. Persons and animals may be seriously injured.

- ▶ Keep public roads and footpaths clear of projecting parts.
-

Danger due to being pulled in!

Persons or animals in the movement area of the gate may be trapped and pulled along with the gate. Severe or fatal injuries may result.

- ▶ Keep clear of the movement area of the gate.
-

Danger of crushing and shearing!

If the gate moves and there are persons or animals in the movement area, crushing and shearing injuries may be caused by the mechanism and safety edges of the gate.

- ▶ Only operate the gate when you have a direct view of the movement area.
- ▶ The danger zone must be visible during the entire gate operation.
- ▶ Never enter the range of movement of the gate.
- ▶ Keep persons and animals away from the danger zone.
- ▶ Never reach into moving mechanical components while the gate is moving.
- ▶ Always keep the moving gate in sight.
- ▶ Do not pass through the gate until it has been fully opened.
- ▶ Store the handheld transmitter so that unauthorised or unintended operation is impossible.

2. General safety instructions

- ▶ The installation of a photocell is mandatory for operation with automatic closing.
- ▶ STArter S2: No active safety contact strip on the main closing edge necessary. Passive rubber profile sufficient.
- ▶ STArter S2+: All closing edges must be secured with active safety contact strips.

Danger due to optical radiation!

Looking into the beam of a bright LED for prolonged periods can cause temporary irritation of the eyes. Serious or fatal accidents can occur as a result.

- ▶ Never look directly into an LED.

Risk of eye injury!

Chips flying when drilling may cause serious injuries to eyes and hands.

- ▶ Wear safety glasses when drilling.

Risk of hand injury!

Rough metal parts may cause abrasions and cuts when picked up or touched.

- ▶ Wear safety gloves when working on sharp-edged objects or rough surfaces.

2.2 Additional safety information for the radio remote control

Follow the basic safety instructions listed below.

Danger of crushing and shearing!

If the gate is not visible and the radio remote control is operated, crushing and shearing injuries to persons or animals may be caused by the mechanism and safety edges of the gate.

- ▶ In particular when operating control elements such as the radio remote control, all danger zones must be visible during the entire gate operation.
- ▶ Always keep the moving gate in sight.
- ▶ Keep persons and animals away from the danger zone.
- ▶ Never reach into moving parts.
- ▶ Do not drive through the gate until it has been fully opened.
- ▶ Store the handheld transmitter so that unauthorised or unintended operation is impossible.
- ▶ Keep handheld transmitters out of the reach of children, persons with mental disabilities and animals.

2.3 Information on operation and remote control

The user of the radio system is not protected against interference due to other telecommunications equipment or devices. This includes radio-controlled systems that are licensed to operate in the same frequency range. If significant interference occurs, please contact your appropriate telecommunications office which has radio interference measuring equipment or radio location equipment.



NOTE

- Dispose of all components in accordance with local or national regulations.
- Objects must not be in the range of movement of the gate.

2.4 Simplified Declaration of Conformity

SOMMER Antriebs- und Funktechnik GmbH hereby declares that the radio system (STArter S2) complies with Directive 2014/53/EU. The full text of the EU Declaration of Conformity for the radio system can be found at:



som4.me/mrl

3. Description of function and product

3.1 Operator and accessories

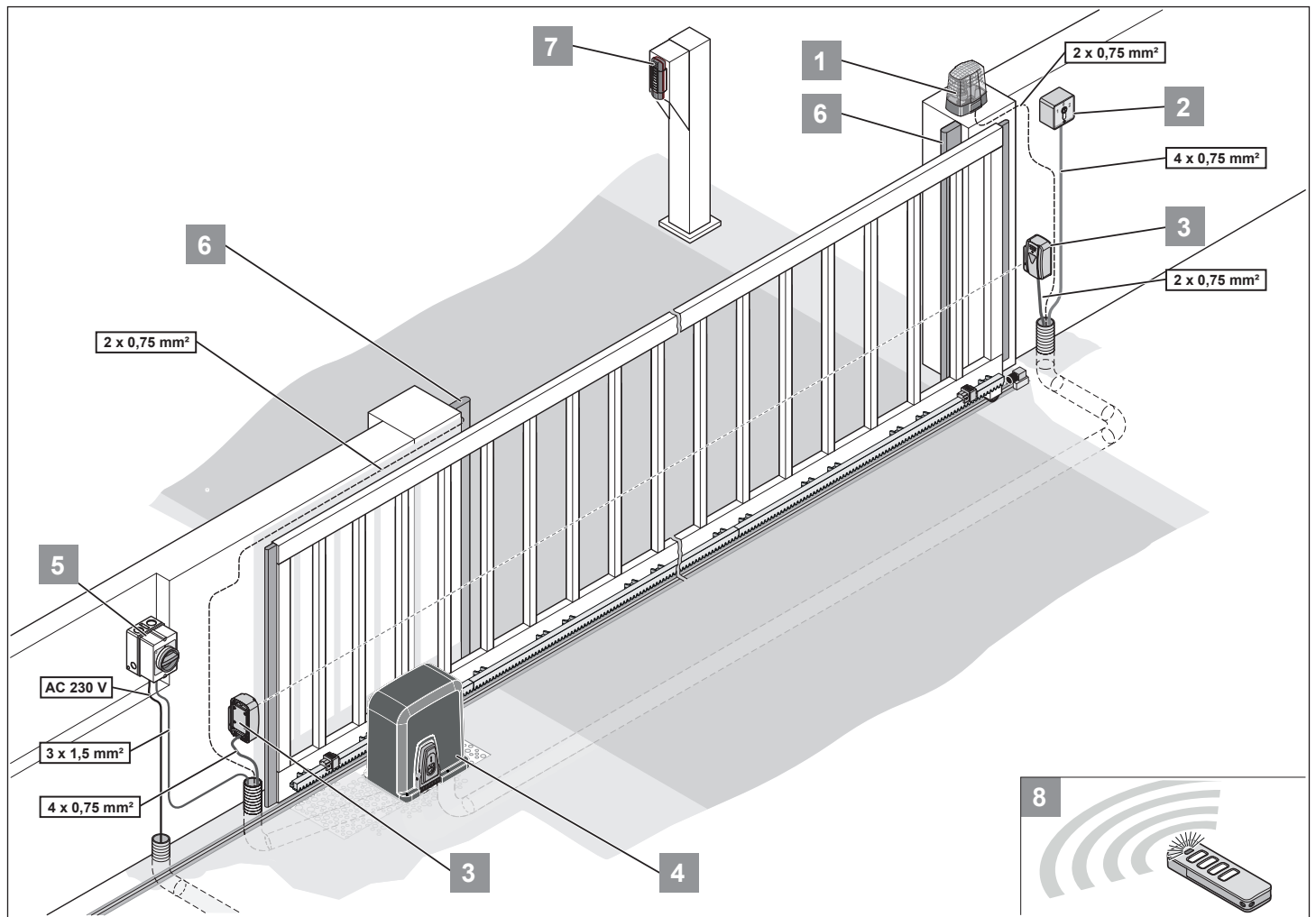


Fig. Gate structure with operator

- 1) Warning light
- 1) Key switch (1 or 2 contacts)
- 2) Photocell (2- or 4-wire)
- 3) Operator with control unit
- 4) Main switch
- 5) Safety contact strip
- 6) Telecody+
- 7) Handheld transmitter

3.2 Safety equipment

The operator stops and reverses slightly if it encounters an obstacle. This prevents injury and damage to property. The gate will be partially or completely opened, depending on the setting.

In the event of a power failure, the gate can be opened manually using an emergency release.

3.3 Product designation

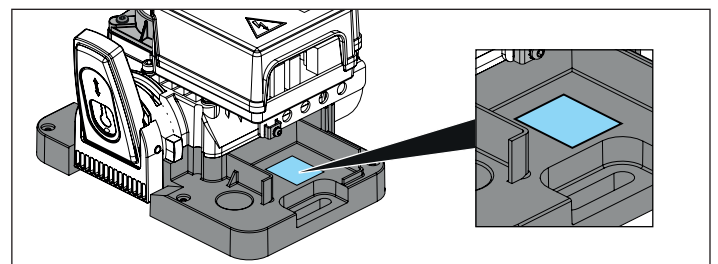


Fig. Operator with type plate and device specifications

The type plate includes:

- type designation
- Item Number
- date of manufacture with month and year
- serial number

In case of questions or service, please supply the type designation, the date of manufacture and the serial number.

3. Description of function and product

3.4 Scope of delivery, complete set

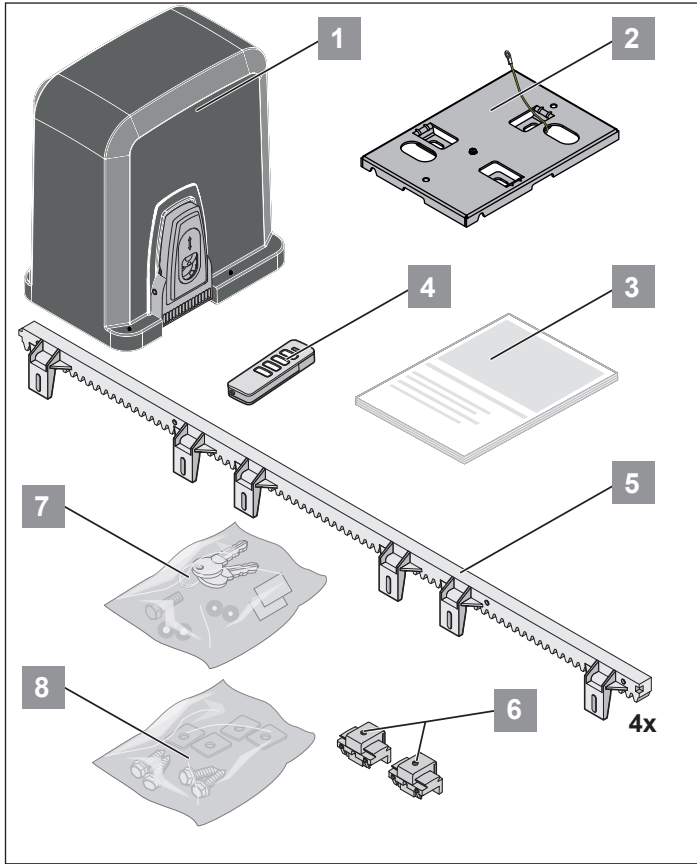


Fig. Scope of delivery, complete set

- 1) Sliding gate operator with control unit and radio receiver
- 1) Console
- 2) Installation and Operating Manual
- 3) Pearl Vibe handheld transmitter (preprogrammed)
- 4) 1 m rack, 4x
- 5) Limit stop with solenoid, 2x
- 6) Installation bag
- 6.1) Auxiliary mounting plate, 4x
- 6.2) Spring washer, 2x
- 6.3) Screw, 2x
- 6.4) Washer, 2x
- 6.5) Lock washer, 2x
- 6.6) Key, 2x
- 7) Installation bag
- 7.1) Screw, 24x
- 7.2) Washer, 24x

3.5 Scope of delivery, single operator

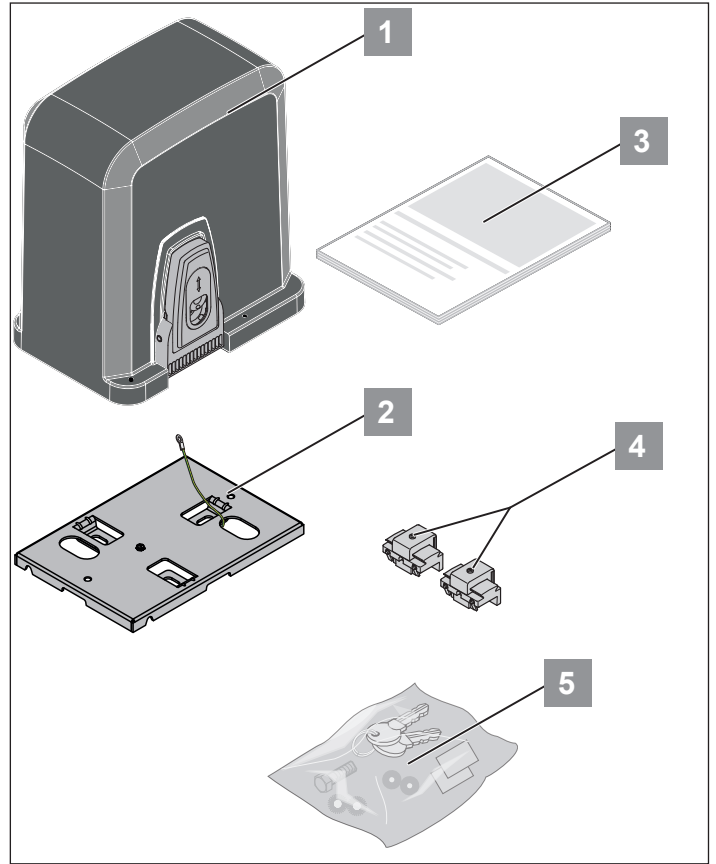


Fig. Scope of delivery, single operator

- 1) Sliding gate operator with control unit and radio receiver
- 1) Console
- 2) Installation and Operating Manual
- 3) Limit stop with solenoid, 2x
- 4) Installation bag
- 4.1) Auxiliary mounting plate, 4x
- 4.2) Spring washer, 2x
- 4.3) Screw, 2x
- 4.4) Washer, 2x
- 4.5) Lock washer, 2x
- 4.6) Key, 2x

When unpacking, make sure that all parts are included in the packages. The actual scope of delivery may vary depending on the specific version.

3. Description of function and product

3.6 Dimensions

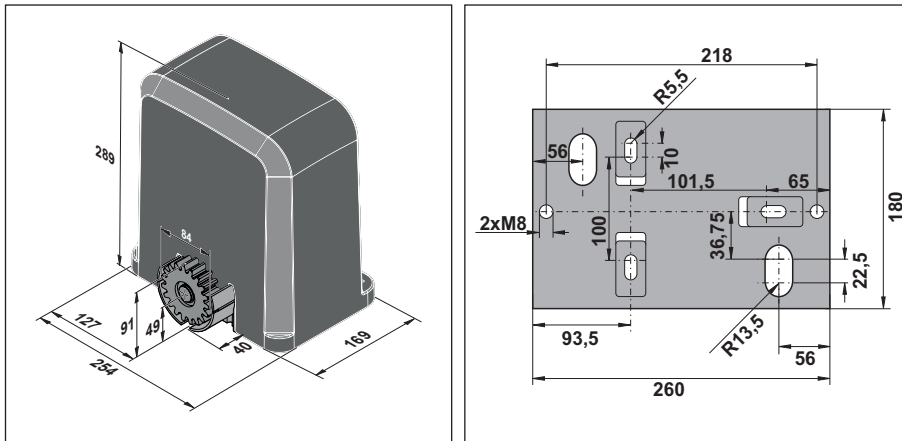


Fig. Dimensions (all dimensions are in mm)

3.7 Technical data

	STArter S2	STArter S2+
Rated voltage	220-240 V/AC	220-240 V/AC
Rated frequency	50–60 Hz	50–60 Hz
Operating temperature range	–20 to +50 °C	–20 to +50 °C
Protection class	IP54	IP54
Max. torque	11 Nm	11 Nm
Rated torque	3.3 Nm	3.3 Nm
Rated current consumption	0.4 A	0.4 A
Rated power consumption	60 W	60 W
Max. current consumption	1.2 A	1.2 A
Max. power consumption	210 W	210 W
Max. speed	190 mm/s	240 mm/s
Max. gate weight	300 kg	400 kg
Max. movement range	6000 mm	8000 mm
Inclination	-	-
Power consumption, stand-by	< 3 W	< 3 W
Weight	8 kg	8 kg
Duty cycle	S3 30 %	S3 30 %

* Depending on gate and the operator conditions

** Values apply without lighting

*** Reference value, depending on the gate construction

NOTE

- STArter S2: No active safety contact strip on the main closing edge necessary. Passive rubber profile sufficient.
- STArter S2+: All closing edges must be secured with active safety contact strips.

3. Description of function and product

3.8 Overview of connection options

Only SOMMER accessories may be used. Observe the corresponding instructions.
Accessories may only be installed and adjusted by qualified specialists. The use of accessories can vary depending on the type.

Accumulator	
Lock	
Memo	•
USART	•
Senso	
Buzzer	•
Laser	
Motion	
for OSE/8k2	•
Wicket door contact	
Output 12 V, 100 mA	
DIP switches	4
Keypad	
Relay / Output OC	•
Pulse button	•
Button 2	•
Wallstation	•
Warning light, 24 V/3 W	•
2-/4-wire photocell	•

A maximum of 200 mA is available for external accessories.
The SOMlink is also available as an accessory. For further information on SOMlink, see **“6.7 SOMlink” on page 25**
For more information on accessories, see:



<https://downloads.sommer.eu>

4. Tools and protective equipment

4.1 Required tools and personal protective equipment

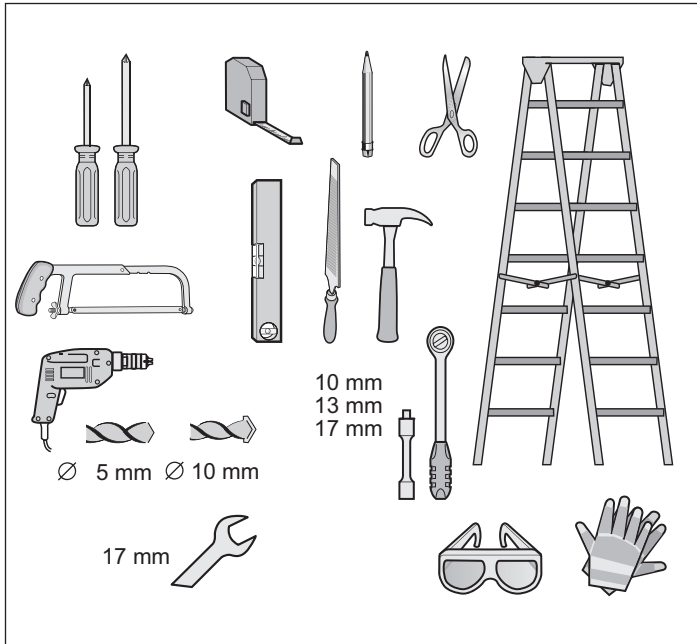


Fig. Recommended tools and personal protective equipment for installation

You will require the tools shown above to assemble and install the operator. Lay out the required tools beforehand to ensure fast and safe installation.

Wear your personal protective equipment. This includes safety glasses, safety gloves and a safety helmet.

4.2 Declaration of Installation

for installation of an incomplete machine in accordance with the Machinery Directive 2006/42/EC, Annex II, Part 1 B

SOMMER Antriebs- und Funktechnik GmbH

Hans-Böckler-Straße 21-27

D-73230 Kirchheim/Teck

Germany

hereby declares that the sliding gate operators

STArter S2/STArter S2+

have been developed, designed and manufactured in conformity with the:

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2014/35/EU
- Electromagnetic Compatibility Directive 2014/30/EU
- RoHS Directive 2011/65/EU

The following standards were applied:

EN ISO 13849-1, PL "C" Cat. 2 Safety of machines - Safety-related parts of controls

- Part 1: General design guidelines

EN 60335-1, Safety of electrical appliances/operators for gates where applicable

EN 61000-6-3 Electromagnetic compatibility (EMC) - interference

EN 61000-6-2 Electromagnetic compatibility (EMC) - interference resistance

EN 60335-2-95 General safety requirements for household and similar electrical appliances - Part 2: Particular requirements for operators for vertically moving garage doors for residential use

EN 60335-2-103 General safety requirements for household and similar electrical appliances - Part 2: Special requirements for operators for gates, doors and windows

The following requirements of Annex 1 of the Machinery Directive 2006/42/EC are met: 1.1.2, 1.1.3, 1.1.5, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.6, 1.3.1, 1.3.2, 1.3.4, 1.3.7, 1.5.1, 1.5.4, 1.5.6, 1.5.14, 1.6.1, 1.6.2, 1.6.3, 1.7.1, 1.7.3, 1.7.4

The special technical documentation was prepared in accordance with Annex VII Part B and will be submitted to regulators electronically on request.

www.sommer.eu

The incomplete machine is intended solely for installation in a gate system to form a complete machine as defined by the Machinery Directive 2006/42/EC. The gate system may only be put into operation after it has been established that the complete system complies with the regulations of the above EC Directives.

The undersigned is responsible for compilation of the technical documents.

Kirchheim/Teck,
14.07.2020



i.V.

Jochen Lude

Responsible for documents

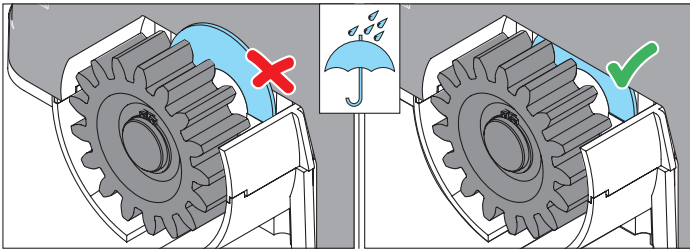
5. Installation

5.1 Installation preparations

- Remove or disable all locking devices (bars etc.) before installing the operator.
- The structure of the gate must be stable and suitable for the purpose.
- The gate must not have excessive lateral deviation throughout its range of movement.
- The wheels/bottom track and the roller/top guide must operate without excessive friction.
- End stops must be installed at the "gate OPEN and gate CLOSED" positions to prevent the gate from leaving its track.
- Install empty ducts at the base of the gate for the mains supply cable and the accessory cables (photocell, warning light, key switch etc.).
- Only use permissible mounting materials appropriate for the supporting surface.

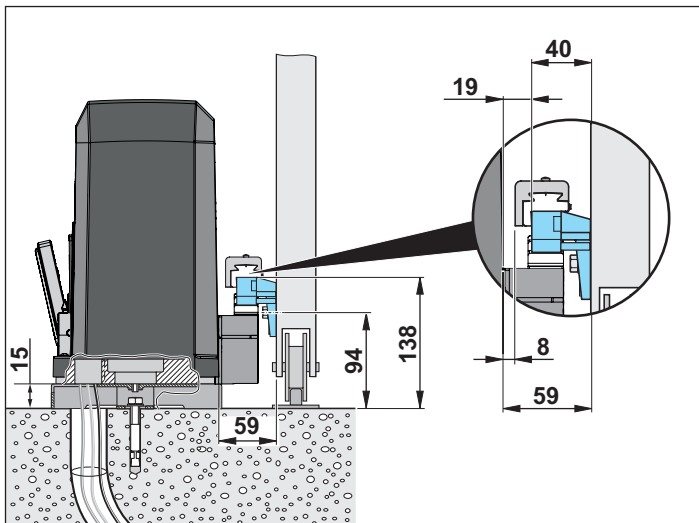
NOTE

- To prevent the ingress of water, the wiper must be located behind the cover, as shown.



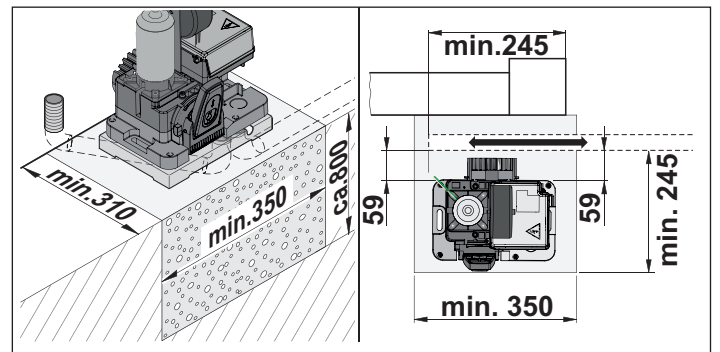
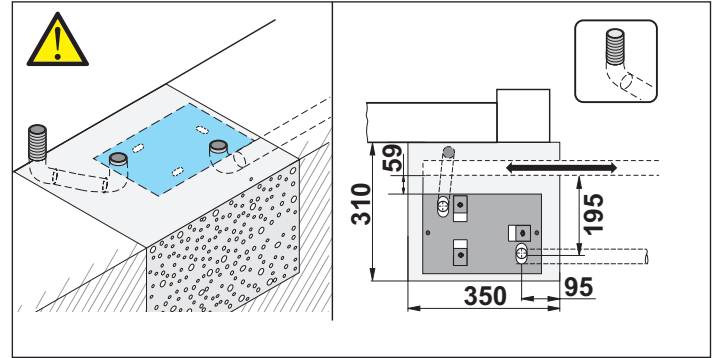
5.2 Installation on the ground

The operator may only be installed if the installation requirements and dimensions below are correct.



5.3 Foundation

- With cantilever gates, install the operator centrally between the moving blocks.
- The foundation must extend below the frost line (approximately 800 mm in Germany).
- The foundation must be cured and horizontal.
- Foundation dimensions as shown.



5. Installation

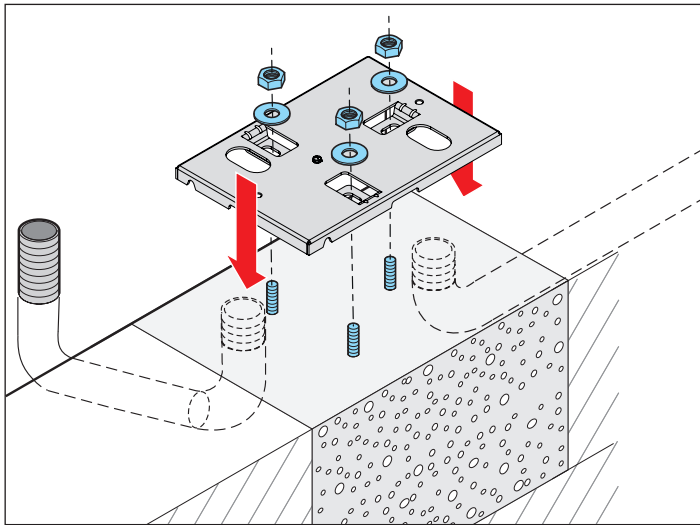
5.4 Important notes and information

In particular, please observe and comply with the following warnings, notes and information to ensure safe installation.

- During installation, observe all valid standards, e.g. EN 12604, EN 12605.
- Only use permissible mounting materials appropriate for the supporting surface.

5.5 Installing the console

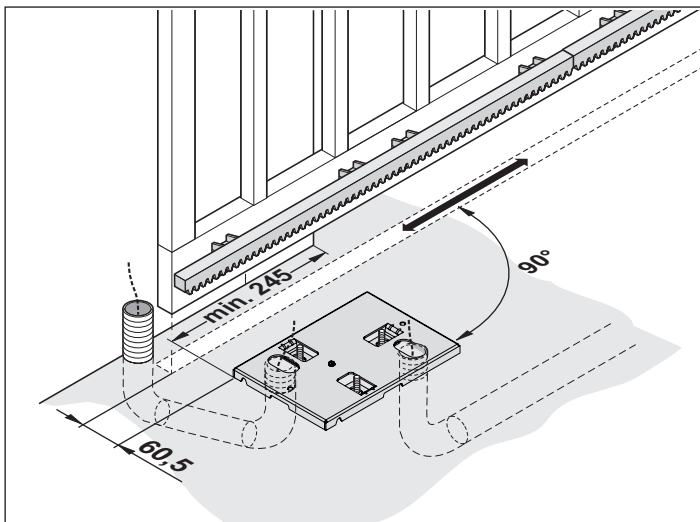
1. Check the scope of delivery.
2. Measure and mark drill holes in the foundation.



3. Drill holes.
4. Insert anchor fittings.
5. Screw down the console.

NOTE

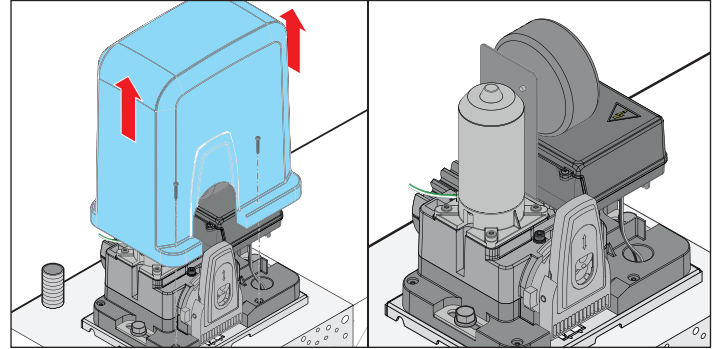
- Always note dimensions and angles! See “7.2 Installation location” on page 26



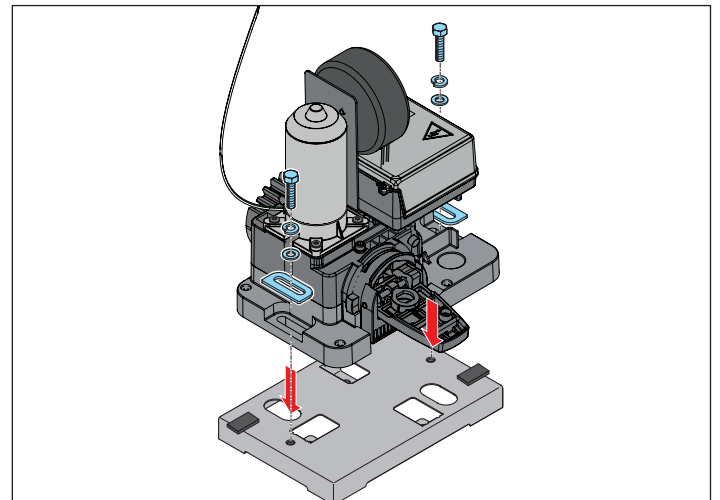
6. Note the dimensions of the console and cable ducts/tubes for the mains connection and accessories (e.g. photocell) during excavation. See “5.3 Foundation” on page 15

7. Check the dimensions and the horizontal position of the console. Screw down or concrete in cable ducts/tubes and console.

5.6 Installing operator on console



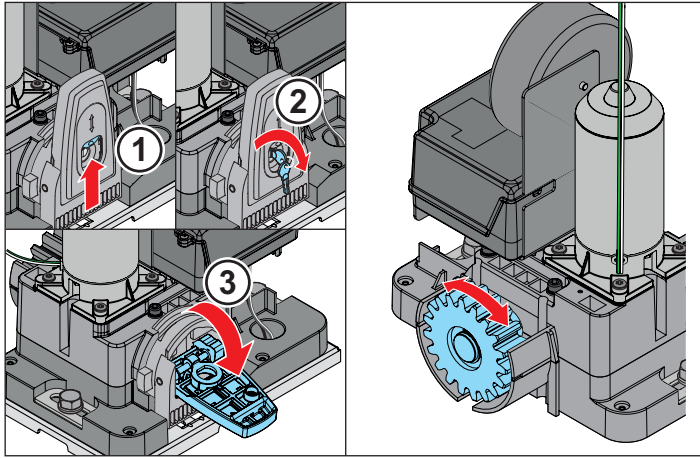
8. Unscrew the two screws and remove the cover.
9. Place operator on console, pull existing wires through the cable insert.



10. Screw operator to console. Use the auxiliary mounting plates (30 x 20 x 1.5 mm) to set a distance of 1.5 mm between operator and console. This allows optimum adjustment of the backlash.

5. Installation

5.7 Unlocking the operator



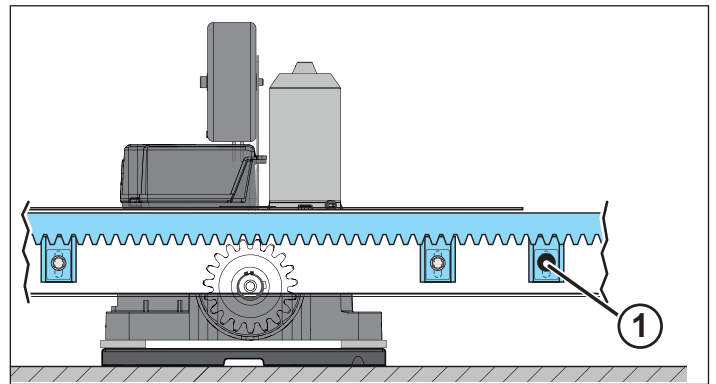
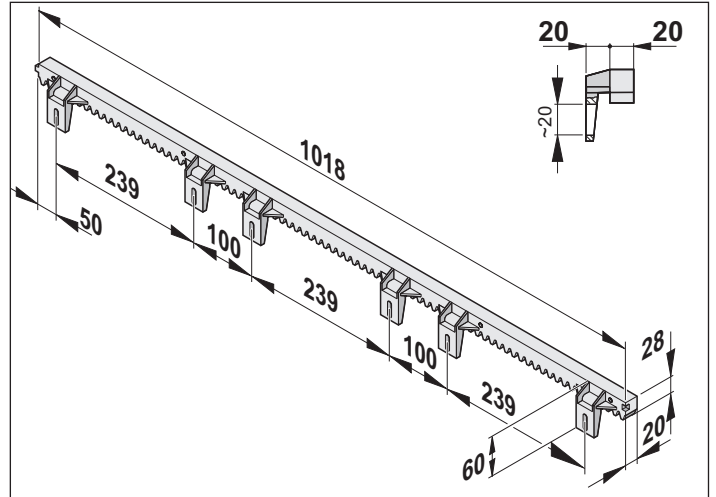
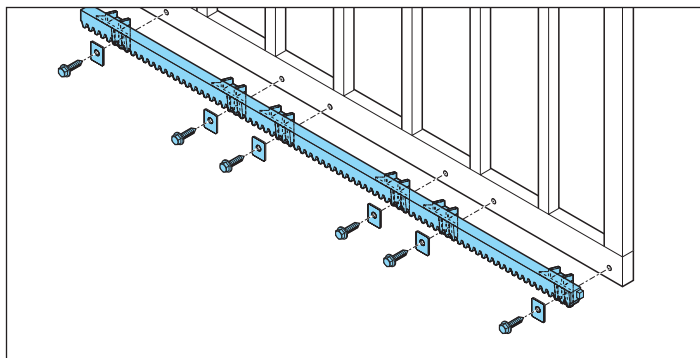
11. Open protective cover (1).
12. Insert key (2) and turn it clockwise.
13. Fold lever (3) to the outside.
⇒ Operator is released and the gate can be moved manually.

5.8 Installing the racks

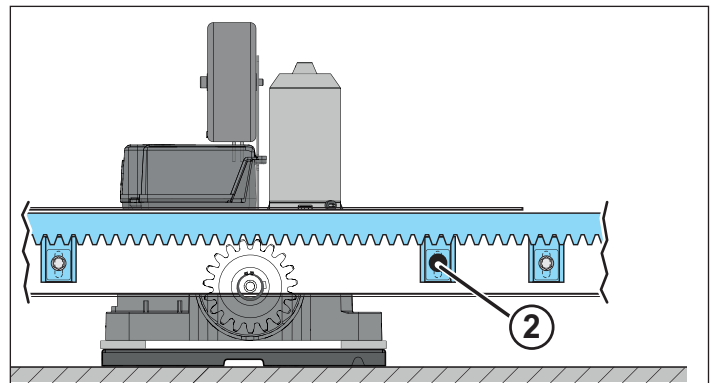


INFORMATION.

- The complete set contains 4 racks, each 1 m long. Contact your specialist retailer if you require more racks.
- Steel racks must have a minimum width of 12 mm. Narrower steel racks may damage the gears.
- The minimum distance between rack and pinion must be approx. 1.5 mm.
- The rack must not exert any pressure on the pinion in any position of the gate, as otherwise, the gears will be damaged.
- The holes must always be marked near the pinion.



1. Before marking the first hole, open the gate completely by hand.
2. Position the rack on the pinion and align it horizontally with a spirit level.
3. Mark the first hole, drill it and fasten.



4. Push the gate in gate CLOSE direction until the next drilling point is positioned in accordance with the illustration and mark the next hole.
5. Repeat until all drill holes are marked.
6. Drill holes and fasten rack.

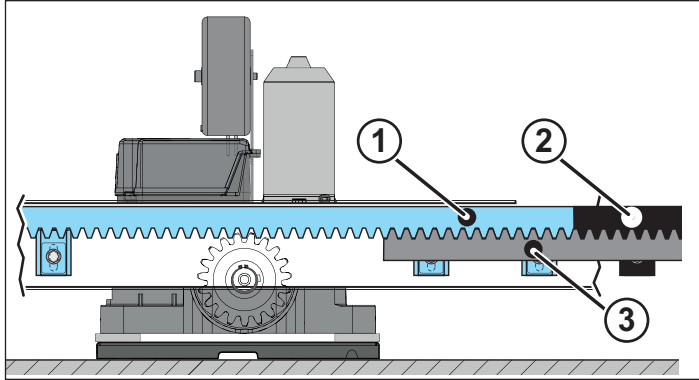
5. Installation

Installing additional racks

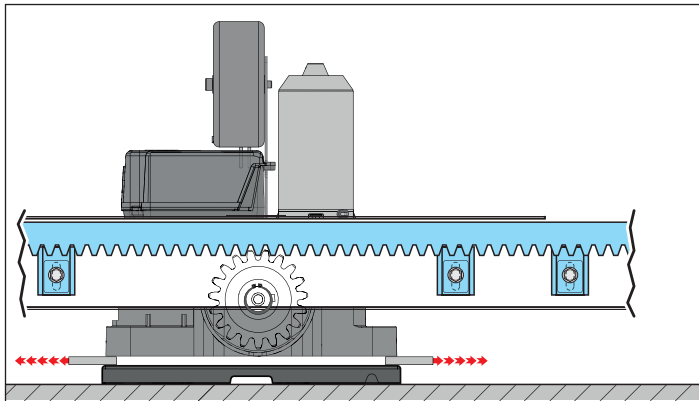


INFORMATION.

First, mark the two outer holes and drill. Fasten rack temporarily and mark the remaining holes. Then remove the rack again and drill the remaining holes. The rack can then be finally bolted in position.



1. Position second rack (2) flush with the first rack (1) and hold another rack (3) against them from below so that the teeth of the additional rack (3) mesh with the teeth of the two top racks (1 and 2). This will ensure that the second rack (2) is accurately fitted.
2. Drill holes and fasten rack.
3. If additional racks are required, proceed as for installation of the second rack until all racks have been installed.



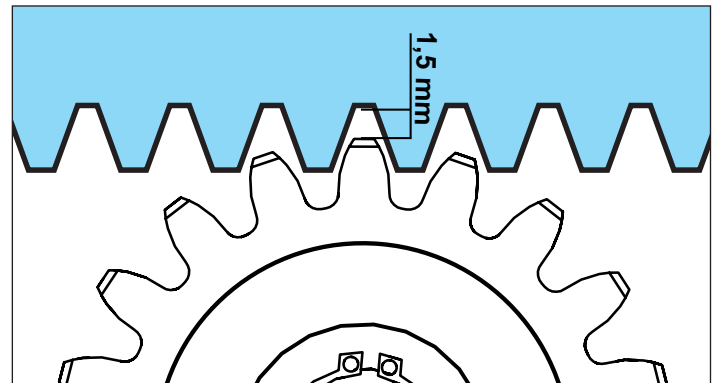
4. Remove the auxiliary mounting plates.
⇒ Installation of the operator is complete.

5.9 Adjusting the backlash



INFORMATION.

- Correct adjustment of the backlash compensates for minor unevenness and protects the gears.
- The weight of the gate must never rest on the motor shaft or pinion.
- The backlash between the racks and the pinion must be approx. 1.5 mm.



6. Electrical connection

6.1 Mains connection

Electrical connection must be performed by a **trained electrician**. Local and national installation regulations (e.g. VDE) must be observed.

In particular, observe the warnings below.

DANGER



Danger due to electric current!

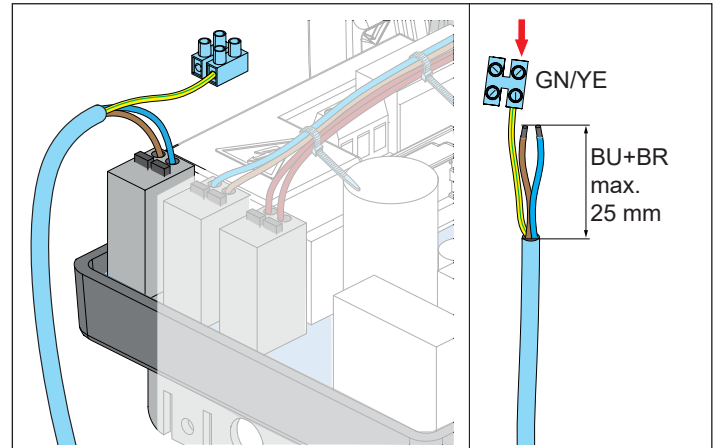
Contact with live parts may result in electric current flowing through the body. Electric shock, burns or death will result.

- All work on electrical components must be carried out by a **trained electrician**.
- Before supplying mains power to the operator for the first time, ensure that the voltage of the power source matches the voltage listed on the operator type plate.
- Do not connect the operator to the mains voltage until installation is complete.
- Disconnect the mains plug before working on the operator.
- If an accumulator is connected, disconnect it from the operator.
- Check that the operator is not live.
- Secure the operator against being switched back on.
- Control or regulating units in a fixed position must be mounted within sight of the gate and at a height of at least 1.5 m.
- The maximum cable length for connected accessories is 30 m.

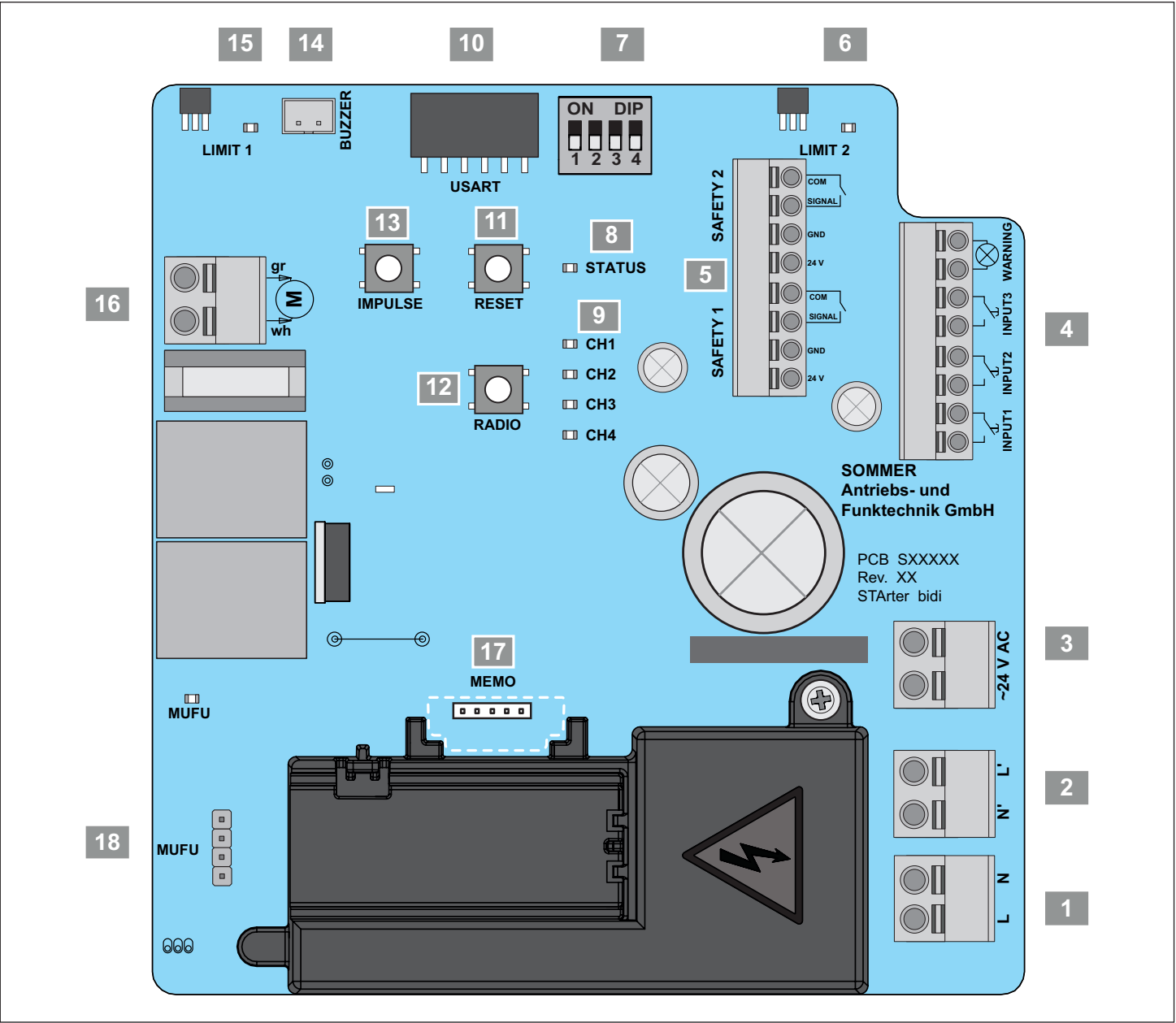


INFORMATION

- The contacts of all devices to be connected externally must be safely isolated from the mains voltage supply in accordance with IEC 60364-4-41.
- Wiring for external devices must be installed in accordance with IEC 60364-4-41.
- All electrical wiring must be firmly secured to prevent displacement.
- The mains connection is direct.
- The sheath on the power cord of the fixed connection must not be stripped further than absolutely necessary; a max. of 25 mm for the L and N strands. The green/yellow PE strand should be somewhat longer and, as it is not required, should be correctly insulated.



6. Electrical connection



6.2 Connection options

1

2-pin terminal block (green)

Mains connection

220-240 V/AC, 50-60 Hz
L + N
Separate earth clamp

Permissible cable cross-sections: 1.5 mm²-4 mm²

2

2-pin terminal block (black)

Primary side transformer

220-240 V/AC, 50-60 Hz

 Prewired

6. Electrical connection

3 2-pin terminal block (orange)

Secondary side transformer

24 V/AC



Prewired

4 8-pin terminal block (green)

Command device

INPUT1 Pulse button / Wallstation

potential-free



Pulse mode OPEN/STOP/CLOSE



Defined OPEN

INPUT2 Pulse button

potential-free



Lighting function (MUFU)*



Partial opening 1



Defined CLOSE

*Depending on the SOMlink setting

INPUT3 Pulse button

potential-free



STOP button



Partial opening 2



Timer/alarm

Stop button (normally closed contact)

Partial opening button

Warning light connection

24 V/DC, max. 3 W



Blinks during movement



Continuous light /pre-warning time

5 8-pin terminal block (red)

Safety

Safety 1



Direction of action gate CLOSE



Direction of action gate OPEN

Safety

Safety 2



Direction of action gate OPEN



Direction of action gate CLOSE

Optional connections:

Optical safety contact strip (OSE)

• +24 V = brown

• SIGNAL = green

• COM = white

with status LEDs, orange

Electrical safety contact strip 8k2

Any polarity

• SIGNAL

• COM

with status LEDs, orange

Two-wire photocell

24 V/DC, max. 100 mA

Any polarity

• Signal

• COM

with status LED, orange

Max. installation height: 300 mm



Partial reversion



Full reversion

4-wire photocell

• 24 V/DC, max. 100 mA

• GND

• Signal

• COM

with status LED, orange

Max. installation height: 300 mm



Partial reversion



Full reversion

6. Electrical connection

16 2-pin terminal block (green)

Motor connection

- 24 V/DC, gn
- wh

6.3 Slots for accessories

10 USART slot (serial interface)

Connection, e.g. for home automation module (HomeLink)

Optional accessories

14 BUZZER slot

Terminal for warning or alarm buzzer

Optional accessories



Alarm buzzer



Programmable via SOMlink

17 MEMO slot

Memory extension

for 450 transmitter commands

Optional accessories



Programmable for handheld transmitter management via Codemaster+

18 MUFU connection

Relay

(changeover contact, NC/NO, potential-free)

Allowable contact load:

Max. 5 A, 250 V/AC / max. 5 A, 24 V/DC

Optional accessories

Output OC

Max. 750 mA, 24 V/DC

Optional accessories



Pulse (1 second) at motor start



Programmable via SOMlink

6.4 Operating, adjustment and display elements

6 Red LED (End LIMIT 2)**



Gate OPEN end position



Gate CLOSE end position

15 Red LED (End LIMIT 1)**



Gate CLOSE end position



Gate OPEN end position

7 DIP switches 1-4

Selection switches for operating modes/special functions

See "10.1 DIP switches" on page 33

8 Green LED "STATUS"

"STATUS" display

9 Red LEDs, CH1-CH4

Display, radio channel

11 RESET button, green

Reset

12 "RADIO" button, red

Selection of radio channel

13 PULSE button, black

OPEN/STOP/CLOSE

*Depending on the SOMlink setting

** Via DIP switch 4, the installation position changes from left to right. The assignment of the reed sensors also changes correspondingly.

A maximum of 200 mA is available for external accessories.

6. Electrical connection

6.5 LED flash codes

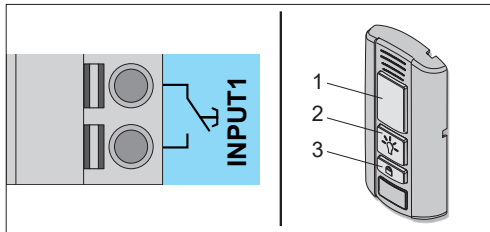
LED	Flash sequence	Comment
Status (green)		• Normal mode (LED blinks briefly every 2 seconds)
		• Programming readiness "Force and position values"
		• Programming readiness "Force values"
LIMIT 1 (red)	☐ OFF	• Gate is not in LIMIT 1 end position
	☒ ON	• Gate is in LIMIT 1 end position
LIMIT 2 (red)	☐ OFF	• Gate is not in LIMIT 2 end position
	☒ ON	• Gate is in LIMIT 2 end position
INPUT 1 (orange)	☐ OFF	• INPUT 1 deactivated or not actuated
	☒ ON	• INPUT 1 activated or actuated
INPUT 2 (orange)	☐ OFF	• INPUT 2 deactivated or not actuated
	☒ ON	• INPUT 2 activated or actuated
INPUT 3 (orange)	☐ OFF	• INPUT 3 deactivated or not actuated: Emergency STOP / Alarm actuated / triggered
	☒ ON	• INPUT 3 activated or actuated: Emergency STOP / Alarm not actuated
WARNING (orange)	☐ OFF	• No gate movement
	☒ ON	• Continuous light during gate movement
		• Normal mode (blinks while gate is moving) • Pre-warning time (blinks for set time before gate movement) • Interruption of a safety device during the movement • Programming mode activated
		• Drive direction display gate CLOSE
		• Drive direction display gate OPEN
		• Waiting for conformation of the end position in programming mode
		• Safety device not OK before movement • Interrupted safety device • Motor return from outside (e.g. attempted break-in)
		• Operator fault
		• Service required

6. Electrical connection

LED	Flash sequence	Comment
Safety 1 (orange)	□ OFF	• No safety device detected
	■ ON	• Safety device detected
	■ ■ ■ ■ ■ ■ ■ ■	• Safety device interrupted
Safety 2 (orange)	□ OFF	• No safety device detected
	■ ON	• Safety device detected
	■ ■ ■ ■ ■ ■ ■ ■	• Safety device interrupted
Multi-function relay, MUFU (green)	□ OFF	• Multi-function relay deactivated or Off
	■ ON	• Multi-function relay activated or On

6.6 Wallstation

Other functions are available with the Wallstation. For example, a travel command can be executed, the lighting can be switched on or off or the operator can be locked. The connection features a polarity-protected 2-wire bus.



Installing the Wallstation

See the separate instructions for the **"Wallstation"** for installation.

- The following conditions must be met for installation of the Wallstation:
 - a second separate access point
 - a suitable position at a minimum height of 1.5 m.
- Install the Wallstation.
- Firmly route the cable from the Wallstation to the operator and secure it to prevent displacement.
- Connect the Wallstation at "INPUT 1".

Functions of the buttons

- (1) Opening, stopping and closing the gate
- (2) "MUFU" slot, switch/partial opening
- (3) Locking or unlocking the operator

Opening, closing and stopping the gate

- Press the button (1) to open and close.
 - ⇒ The gate opens or closes depending on the starting position.
- Press button (1) during the opening or closing process.
 - ⇒ The gate stops.
- Press button (1) again.
 - ⇒ The gate moves into the respective starting position.

"MUFU" slot, switch/partial opening

This function depends on the corresponding SOMlink setting.

The button (2) lights up green when the Wallstation is ready for operation and the operator is not locked.

- Press the button (2).
 - ⇒ "MUFU" slot switches (gate moves to partial opening).

Locking or unlocking the operator

Locking the operator prevents unauthorised access, e.g. during your absence, or unintended operation of the handheld transmitter.

The following functions are deactivated in the factory settings when the lock button is activated:

- Radio (handheld transmitter)
- Command device (corded external button)

To lock

The button (2) on the Wallstation lights up green when the operator is unlocked. The button (2) lights up red when the operator has been locked by the Wallstation. If the gate was still open, it can be closed using the handheld transmitter. Only then are all operator functions locked.

- Press and hold the button (3) for at least 5 seconds with the gate closed.
 - ⇒ Button (2) blinks green.
 - ⇒ After 5 seconds, button (2) lights up red.
 - ⇒ Locking function activated.
 - ⇒ All the functions of the operator are locked.

To unlock

- Press the button (3) for at least 5 seconds.
 - ⇒ Button (2) blinks red.
 - ⇒ Button (2) lights up green.
 - ⇒ Locking function deactivated.
 - ⇒ All the functions of the operator are activated again.

6. Electrical connection

6.7 SOMlink

SOMlink makes it possible for qualified specialists to change many functions and settings of the control unit. These include operating parameters and convenient functions.

If you would like to make changes, contact your specialist dealer.



INFORMATION

SOMlink is a combination of an additional device and a web-based application for changing control unit functions. A WiFi-enabled device is required.

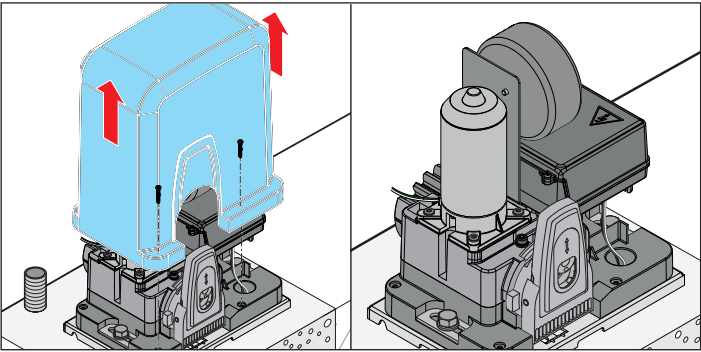


Since safety-relevant values can also be changed, SOMlink is only sold to qualified specialists.

- All changes to settings via the SOMlink are logged.

7. Initial operation

7.1 Removing the control unit housing

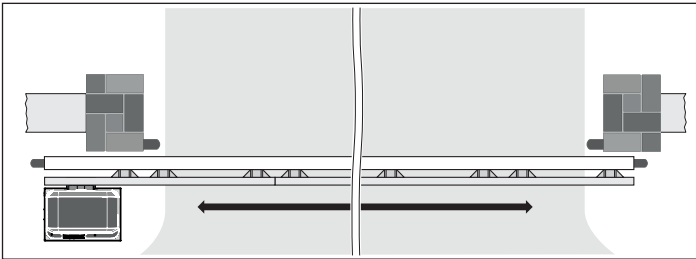


- Unscrew the two screws and remove the cover.

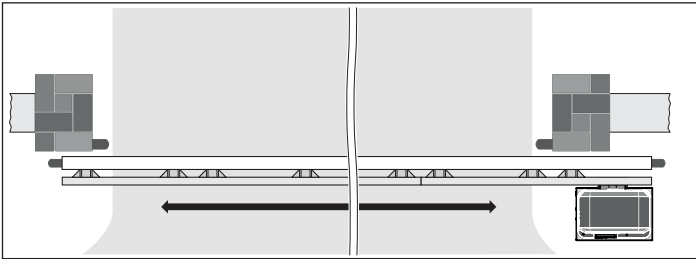
7.2 Installation location



Installation location DIN left



Installation location DIN right



	ON	OFF
	• DIN right: operator opens to the right	• DIN left: operator opens to the left

DANGER



Danger due to electric current!

Contact with live parts may result in electric current flowing through the body. Electric shock, burns, or death may result.

- ▶ Before supplying mains power to the operator for the first time, ensure that the voltage of the power source matches the voltage listed on the operator type plate.
- ▶ Read and observe the safety information and warnings starting on **Page 8**.

NOTE

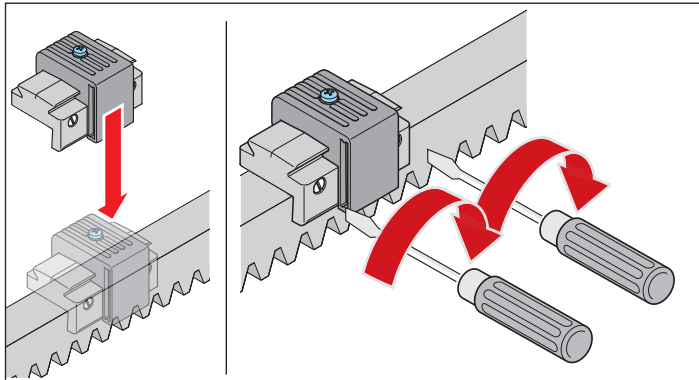
- ▶ Install safety devices before initial operation so that they are automatically detected when the mains voltage is applied.
- ▶ If safety devices are installed later, a corresponding Reset must be carried out; see “8.1 Carrying out a reset” on page 30.
- ▶ Document initial operation!

7.3 Connecting the mains power

1. Compare the existing voltage supply with the type plate.
2. Connect operator to the mains voltage source.
⇒ Switch on the fuse / main switch.

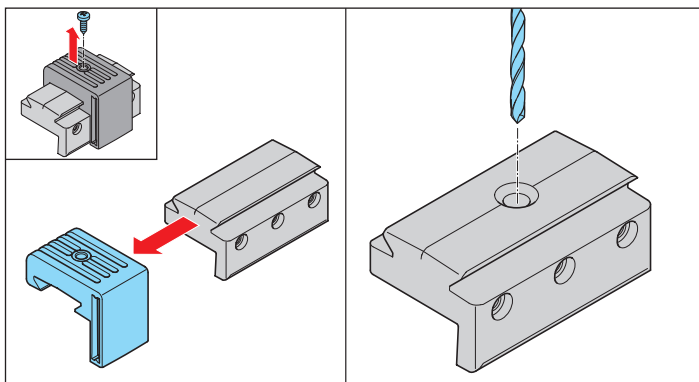
7. Initial operation

7.4 Installing the switching solenoid on the rack

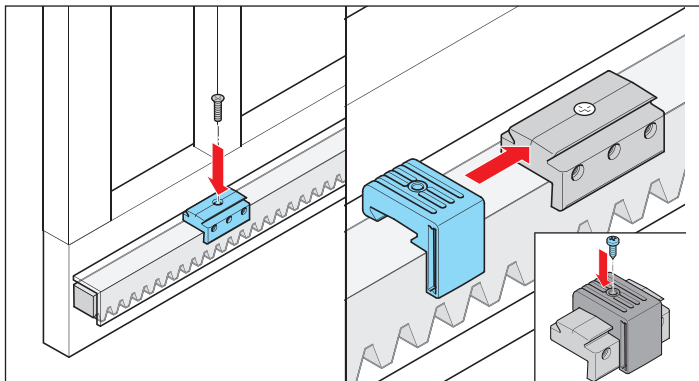


1. Place magnet holder on the rack at the respective end position (gate OPEN/CLOSE).
2. Tighten screws of the switching solenoid and fix switching solenoid in position on the rack.

7.5 Installing the switching solenoid on the concealed rack



1. Release the screw of the switching solenoid.
2. Pull switching solenoid off to the side.
3. Drill a hole in the centre of the magnet holder for screw connection to the rack and deburr the hole properly.

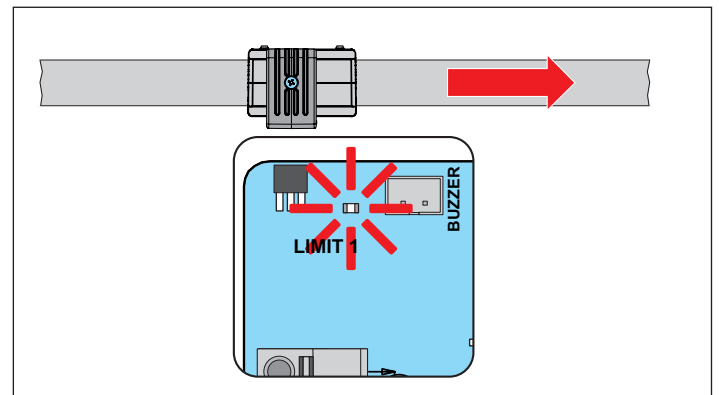


4. Screw magnet holder to the rack cover at the respective end position.
5. Slide the switching solenoid on again at the side, adjust and fix in position; see "7.8 Fine adjustment of the limit stops" on page 28.

7.6 Setting gate CLOSE end position

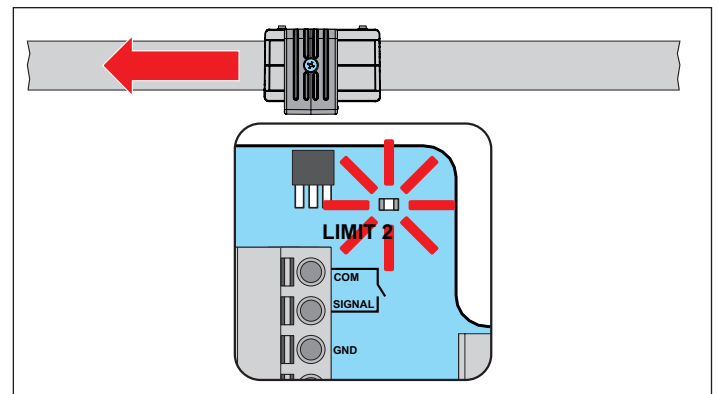


DIP switch 4 OFF. Installation location DIN left.



1. Push the gate to the gate CLOSE end position by hand.
2. Place limit stop solenoid on the rack and slide in the direction of the reed sensor until the reed sensor switches.
 ⇒ Operator left: Red LED LIMIT 1 lights up on the control unit.
 ⇒ Operator right: Red LED LIMIT 2 lights up on the control unit.
3. Using screws, fix limit stop solenoid in position on the rack.

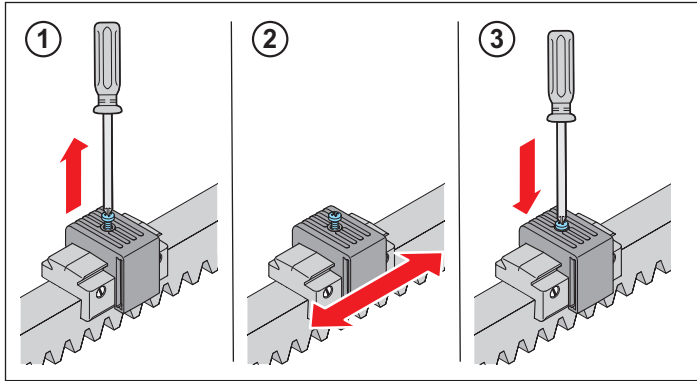
7.7 Setting gate OPEN end position



1. Push the gate by hand to the gate OPEN end position.
2. Place limit stop solenoid on the rack and slide in the direction of the reed sensor until the reed sensor switches.
 ⇒ Operator left: Red LED LIMIT 2 lights up on the control unit.
 ⇒ Operator right: Red LED LIMIT 1 lights up on the control unit.
3. Using screws, fix limit stop solenoid in position on the rack.

7. Initial operation

7.8 Fine adjustment of the limit stops



1. Release the screw of the switching solenoid.
2. Move the switching solenoid.
3. Tighten screw again.

7.9 Carrying out initial operation

Before initial operation, carefully read through the rest of this chapter in its entirety, to ensure that the following process is carried out safely and smoothly.

WARNING



Danger of entrapment!

If the force setting is too high, persons or animals in the movement area of the gate may be trapped and pulled along with the gate. Severe injuries or death may result.

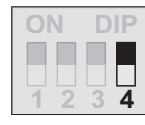
- ▶ The force setting is relevant to safety and must be carried out by a trained specialist.
- ▶ You must proceed with extreme caution if you check and if necessary adjust the force setting.
- ▶ The operator may only be operated if a non-hazardous force value has been set.
- ▶ The force setting must be low enough to ensure that there is no risk of injury.



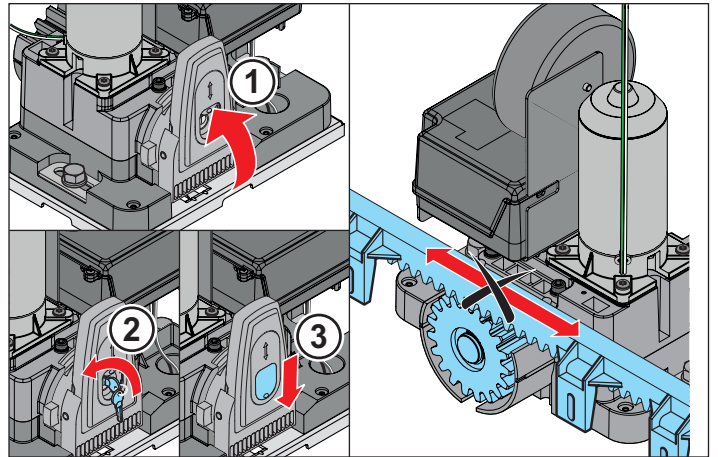
INFORMATION.

- The force setting must be checked after installing the operator; see **"11.1 Testing obstacle detection"** on page 36
- The operating forces can be modified and adjusted with SOMlink and a WiFi-enabled device.
- Obstacle recognition has not yet been coordinated with the gate, and the operator is in the programming phase.
- On the STArter S2+, all closing edges must be secured with active safety contact strips.

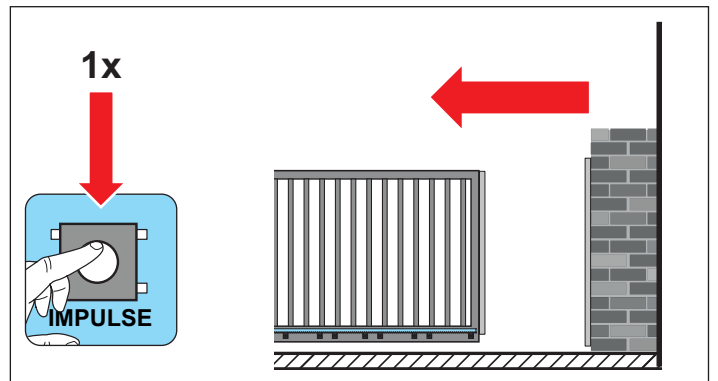
1. Set the desired opening direction via DIP switch 4:

	ON	OFF 
	• DIN right: operator opens to the right	• DIN left: operator opens to the left

2. Compare the existing voltage supply with the type plate.
3. Connect operator to the mains voltage.
⇒ "STATUS" LED blinks green.
4. Check the setting of the limit stop solenoids by opening and closing the gate by hand.
⇒ In the end position, the corresponding LED (LIMIT 1 or LIMIT 2) lights up red.
5. Move operator to centre position.
6. Lock the operator.



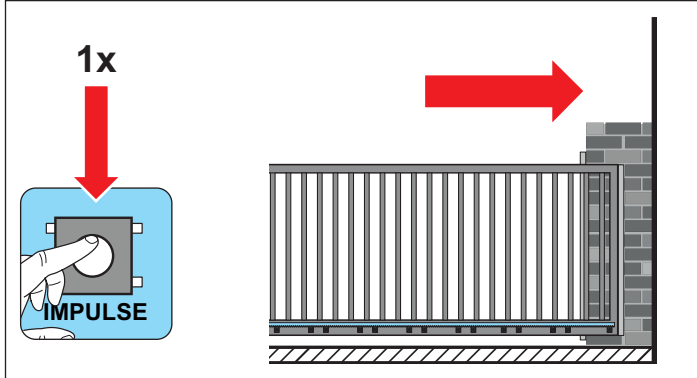
7. Fold lever (1) upwards.
8. Insert key (2) and turn it anti-clockwise.
9. Close protective cover (3).
⇒ Operator is locked, and the gate can no longer be moved by hand.



10. Press the "PULSE" button.
⇒ After the operator has been connected to the power supply, its first movement after a pulse is always in gate OPEN direction.
⇒ "STATUS" LED blinks quickly.
⇒ LED for "WARNING" connection blinks.

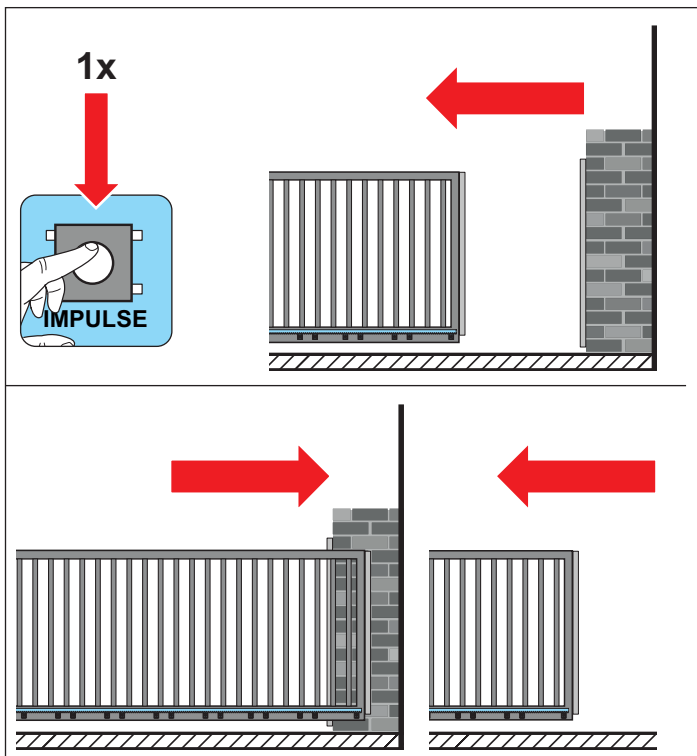
7. Initial operation

- ⇒ Operator moves slowly to the gate OPEN end position.
- ⇒ The operator stops automatically when the limit stop solenoid reaches the reed sensor for the gate OPEN end position.
- ⇒ "STATUS" LED continues to blink.
- ⇒ LED for "WARNING" connection blinks in a changed sequence.



11. Press the "PULSE" button again.

- ⇒ "STATUS" LED blinks quickly.
- ⇒ LED for "WARNING" connection blinks.
- ⇒ Operator moves slowly to the gate CLOSE end position.
- ⇒ The operator stops automatically when the limit stop solenoid reaches the reed sensor for the gate CLOSE end position.
- ⇒ "STATUS" LED continues to blink.
- ⇒ LED for "WARNING" connection blinks in a changed sequence.



12. Press the "PULSE" button again.

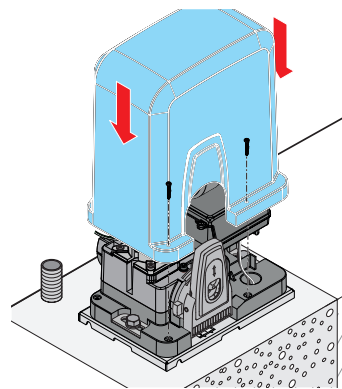
- ⇒ The operator starts its **automatic programming process**.
- ⇒ The operator moves to the gate OPEN end position again and programs the required operating force.
- ⇒ The operator moves to the gate OPEN end position again and programs the required operating force.
- ⇒ The operator moves to the gate OPEN end position again and stops in this position.
- ⇒ The "STATUS" LED goes out.
- ⇒ **Operator is programmed and ready for use.**



INFORMATION

Several programming runs may be necessary for heavy or stiff gates.

7.10 Fitting the control unit housing

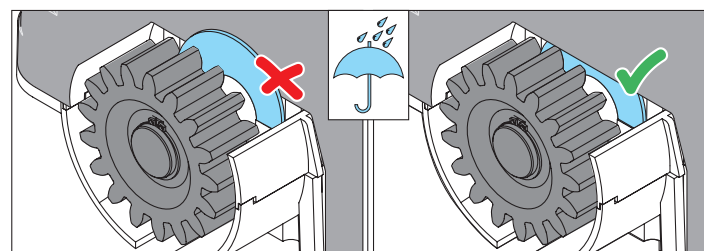


1. Attach the hood.
2. Fasten with the two screws.



NOTE

- To prevent the ingress of water, the wiper must be located behind the cover, as shown.



8. Reset

8.1 Carrying out a reset

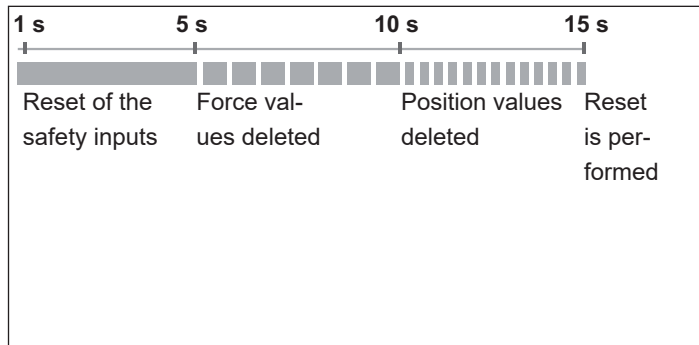


Fig. Overview of the time sequence of the "STATUS" LED when pressing the green Reset button

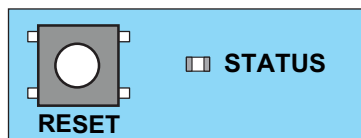


Fig. 1



INFORMATION



- A SOMlink and a WiFi-enabled device are required to reset all parameters to the factory settings.
- The DIP switches can only be manually reset.

Resetting the safety devices

1. Press the green Reset button for 1 second.
 - ⇒ Reset of the connected safety devices.
 - ⇒ Subsequently attached safety devices are detected.

Deleting the force values

1. Press the green Reset button for 5 seconds until the green "STATUS" LED blinks slowly.
 - ⇒ Force values are deleted.

Deleting force and position values

1. Press the green Reset button for 10 seconds until the green "STATUS" LED blinks quickly.
 - ⇒ Force and position values are deleted.

Resetting

1. Press the green Reset button for 15 seconds until the green "STATUS" LED goes out.
 - ⇒ Reset has been performed.

9. Radio remote control

9.1 Explanation of the radio channels

LED	Radio channel	Setting/function
1	CH1	Pulse mode
2	CH2	Lighting function / MUFU or partial opening 1*
3	CH3	Defined OPEN or partial opening 2*
4	CH4	Defined CLOSE

*Depending on the DIP switch/SOMlink setting

9.2 Selection of the radio channels

LED	1 x	2 x	3 x	4 x
CH1				
CH2				
CH3				
CH4				

- Press the "RADIO" button repeatedly to select the required radio channel.

9.3 Programming the transmitter

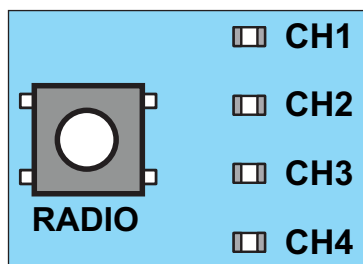


Fig. "RADIO" button



INFORMATION

- If no transmission command is received within 30 seconds of pressing the "RADIO" button, the radio receiver switches to normal mode.

- Press the desired button on the transmitter until the previously selected LED (CH1, CH2, CH3 or CH4) goes out.
⇒ LED goes out - programming is complete.
⇒ The transmitter has transferred the radio code to the radio receiver.
- Repeat the above steps to program additional transmitters.

If the memory capacity has been reached

A total of 40 handheld transmitter commands are available for all channels. If an attempt is made to program additional transmitters, the red LEDs of radio channels CH1-4 blink. If more memory positions are needed, see the following section "Information on Memo".

9.4 Information on Memo

The memory capacity can be extended to 450 handheld transmitter commands using the optional Memo accessory part. When plugging in the Memo, all available transmitters are transferred from the internal memory to the Memo and stored there. The Memo must remain on the control unit. No more transmitters are then stored in the internal memory. Stored transmitters cannot be transferred from the Memo back to the internal memory.

All radio channels, including the memory of the Memo, can be deleted; see **"Deleting all radio channels in the receiver" on page 32**.

The Memo can also be used for transmitter management with Codemaster+.



INFORMATION

- Only delete a Memo on which data has been stored on a new operator or via Codemaster+. Otherwise, all stored transmitters of an operator are deleted and must be reprogrammed.

9.5 Cancelling programming mode

- Press the "RADIO" button until all LEDs are off or make no input for 30 seconds.
⇒ Programming mode is cancelled.

9.6 Deleting a transmitter button from the radio channel

- Press the "RADIO" button repeatedly to select the required radio channel.
Press and hold the "RADIO" button for 15 seconds.
⇒ The LED flashes after 15 seconds.
- Release the "RADIO" button.
⇒ The radio receiver is now in deletion mode.
- Press the transmitter button for which the command is to be deleted in the radio channel.
⇒ The LED goes out.
⇒ The deletion procedure is ended.

Repeat the process for additional transmitter buttons as required.

9. Radio remote control

9.7 Deleting a transmitter completely from the receiver

1. Press and hold the "RADIO" button for 20 seconds.
 - ⇒ The LED flashes after 15 seconds.
 - ⇒ After another 5 seconds, the flash sequence changes to blinking.
 2. Release the "RADIO" button.
 - ⇒ The radio receiver is now in deletion mode.
 3. **Press any button on the transmitter that is to be deleted.**
 - ⇒ The LED goes out.
 - ⇒ The deletion procedure is ended.
 - ⇒ The transmitter is deleted from the radio receiver.
- Repeat the process for additional transmitters as required.

9.8 Deleting a radio channel in the receiver

1. Press the "RADIO" button repeatedly to select the required radio channel.
 - Press and hold the "RADIO" button for 25 seconds.
 - ⇒ The LED flashes after 15 seconds.
 - ⇒ After another 5 seconds, the flash sequence changes to blinking.
 - ⇒ After another 5 seconds, the LED of the selected radio channel remains steady.
2. Release the "RADIO" button.
 - ⇒ The deletion procedure is ended.
 - ⇒ All programmed transmitters on the selected radio channel are deleted from the radio receiver.

9.9 Deleting all radio channels in the receiver

1. Press and hold the "RADIO" button for 30 seconds.
 - ⇒ The LED flashes after 15 seconds.
 - ⇒ After another 5 seconds, the flash sequence changes to blinking.
 - ⇒ After another 5 seconds, the LED of the selected radio channel remains steady.
 - ⇒ After another 5 seconds, all LEDs light up.
2. Release the "RADIO" button.
 - ⇒ All LEDs go out after 5 seconds.
 - ⇒ All programmed transmitters are deleted from the receiver.
 - ⇒ Receiver is completely deleted; this also applies if the Memo is plugged in.

9.10 Programming a second handheld transmitter by radio (HFL)

Prerequisites for programming by radio:

- A handheld transmitter must already be programmed on the radio receiver.
- The handheld transmitters used must be identical. If handheld transmitter (A) is a Pearl Vibe, handheld transmitter (B) must also be a Pearl Vibe. The button assignment of handheld transmitter (A) is transferred to the new handheld transmitter (B) that is to be programmed.
- The already-programmed transmitter and the new transmitter to be programmed must be situated within the range of the radio receiver.

Example:

1. Button 1 has been programmed to radio channel 1 and button 2 to radio channel 2 by handheld transmitter (A).
 - ⇒ The newly programmed handheld transmitter (B) adopts the button assignment of handheld transmitter (A): Button 1 on radio channel 1, button 2 on radio channel 2.

Restrictions

The following settings are **not** possible:

- This function is not possible with the Pearl Twin handheld transmitter.
- Targeted programming of a selected handheld transmitter button to a radio channel.

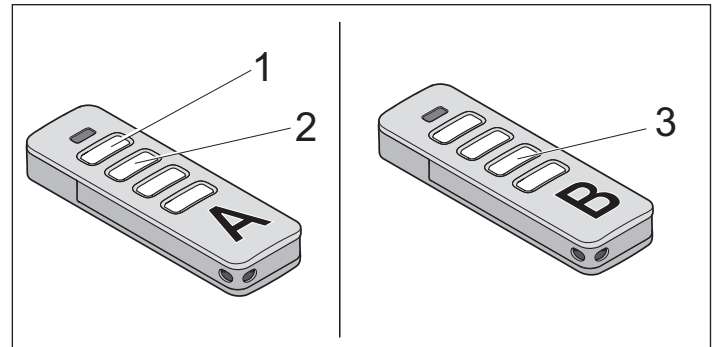


Fig. 1

1. Press buttons 1 and 2 of a programmed handheld transmitter (A) for 3–5 seconds until the LED on the handheld transmitter briefly lights up.
 - ⇒ The operator lighting LEDs blink.
2. Release buttons 1 and 2 of handheld transmitter (A).
 - ⇒ If a radio command is **not** transmitted within another 30 seconds, the radio receiver switches over to normal mode.
3. Press any button, e.g. (3) on the new handheld transmitter (B) to be programmed.
 - ⇒ The LEDs of the operator lighting remain steady.
 - ⇒ Second handheld transmitter has been programmed.

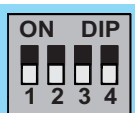
10. DIP switches and operating modes

10.1 DIP switches

→ NOTE

- Do not use a metal object to set the DIP switches, because this may damage the DIP switches or the circuit board.

Use a suitable tool, for example a flat, thin plastic object, to set the DIP switches.

	ON	OFF 
1	Automatic closing function activated	Automatic closing function deactivated
2	Partial opening 1 activated	Lighting function / MUFU active* Partial opening 1 deactivated
3	Partial opening 2 activated	Partial opening 2 deactivated
4	DIN right: operator opens to the right	DIN left: operator opens to the left

* SOMlink settings, e.g. timer mode, are necessary in order to use the multi-function relay.

10.2 Operating modes

Setting automatic closing function / defining basic values

When automatic closing is activated, the gate is opened by a pulse. The gate moves to the gate OPEN end position. The gate closes automatically after the hold open time. With the factory settings, the gate also closes automatically from the positions OPEN end position, partial opening 1 and partial opening 2 when the automatic closing function is activated.

WARNING



Risk of injury during automatic closing!

Automatically closing gates can injure people or animals in the movement area of the gate when the gate is closing. This may cause serious or fatal injury.

- ▶ Always keep the moving gate in sight.
- ▶ Keep persons and animals clear of the range of movement of the gate.
- ▶ Never put your hand near the gate when it is moving or near moving parts.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ The safety inputs must not be bridged.

→ NOTE

- ▶ Objects must not be in the range of movement of the gate.



INFORMATION

- The gate opens completely if it hits an obstacle.
- Operation with automatic closing must comply with EN 12453. This is a legal requirement. National regulations must be observed in non-European countries.
- A photocell must be connected in gate CLOSE direction.

- Close the gate.
- Set DIP switch 1 to "ON" position.
- The set hold open time of the gate is 60 seconds. Every new command within these 60 seconds restarts the hold open time. If button 1 on the transmitter is pressed, the gate moves to gate OPEN end position. The gate movement cannot be stopped with the transmitter.
- After 60 seconds, the gate closes automatically. The closing movement can be stopped by a command with the transmitter.
⇒ Gate opens completely after reversal of direction.
- The gate starts the closing process again after 60 seconds.

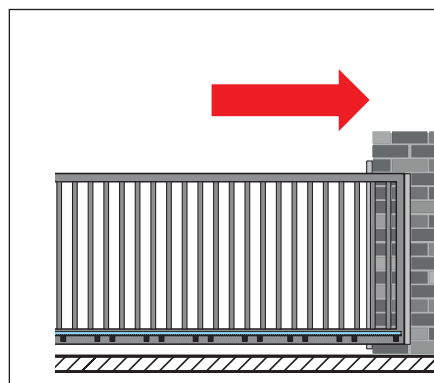
10. DIP switches and operating modes

⇒ Gate CLOSE.

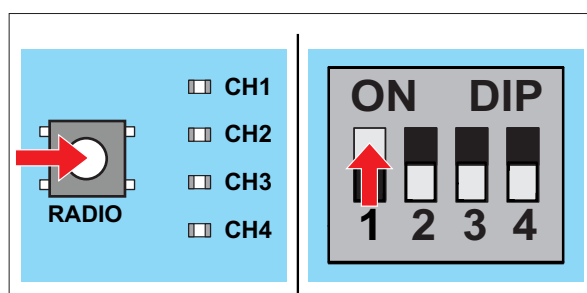
i INFORMATION

- The factory setting is fully automatic closing with a pre-set hold open time of 60 seconds from the end positions gate OPEN, partial opening 1 and partial opening 2.
- The hold open time can be changed manually or via SOMlink.
- When driving through, the photocell is activated and the hold open time is shortened to 5 seconds.
- The following settings for automatic closing are also possible via SOMlink:
 - Semi-automatic closing function
 - Pre-warning time (The progress of the pre-warning time is displayed by the blinking warning light).

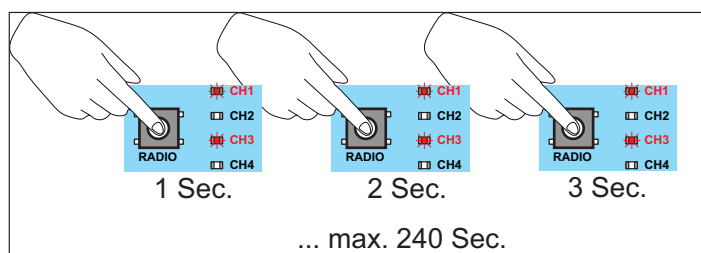
10.3 Setting the hold open time manually



1. Close the gate.



2. First, **press and hold** the "RADIO" button. With the button pressed, set DIP switch 1 to "ON" position.
⇒ LEDs CH1 + CH3 and CH2 + CH4 light up alternately in pairs for one second in each case. With each alternation, the hold open time is extended by one second.



3. Count off the hold open time by counting the alternations of the LEDs. Release the "RADIO" button when the desired duration has been reached.

10. DIP switches and operating modes

10.4 Setting partial opening



INFORMATION

- The specified partial opening can be approached from any position.

Setting partial opening 1

This function allows you to set a desired partial opening. The gate then does not open completely, but only to the set gate position.

Example:

A gate system can be opened to allow a person to pass through. The partial opening function can be used via radio CH2 or the wired pulse transmitter INPUT2; see “**6.2 Connection options**” on page 20.

1. Close the gate completely up to the gate CLOSE end position.
2. Press the "RADIO" button repeatedly to select radio channel CH2 and program the partial opening function to the desired transmitter button.
3. Set DIP switch 2 to "ON".
4. Press the desired transmitter button for partial opening 1.
⇒ The gate moves in gate OPEN direction.
5. When the gate reaches the desired partial opening position, press the transmitter button again.
⇒ The gate stops at the desired position.

Deleting partial opening 1

1. Set DIP switch 2 to "OFF".
2. Open the gate completely up to the gate OPEN end position.
⇒ Partial opening is deleted.

To program a new partial opening position, see “**10.4 Setting partial opening**” on page 35.

Setting partial opening 2

This function allows you to set a further partial opening position.

Example:

A gate system can be opened to allow a person to pass through (partial opening 1) and to allow a person with, for example, a motorcycle, to pass through (partial opening 2). Partial opening 2 can be used via radio CH3 or the wired pulse transmitter (INPUT3); see “**6.2 Connection options**” on page 20.

1. Close the gate completely up to the gate CLOSE end position.
2. Press the "RADIO" button repeatedly to select radio channel CH3 and program the partial opening function to the desired transmitter button.
3. Set DIP switch 3 to "ON".
4. Press the desired transmitter button for partial opening 2.
⇒ The gate moves in gate OPEN direction.
5. When the gate reaches the desired position for partial opening 2, press the transmitter button again.
⇒ The gate stops at the desired position.

Deleting partial opening 2

1. Set DIP switch 3 to "OFF".
2. Open the gate completely up to the gate OPEN end position.
⇒ Partial opening is deleted.

To program a new partial opening position, see “**10.4 Setting partial opening**” on page 35.

10.5 Break-in protection

If an attempt is made to open the gate by force, an acoustic warning signal is output for the duration of 30 seconds if a Buzzer configured as an alarm buzzer is plugged in to the corresponding slot.

If a warning light is connected, this also begins to blink.

Alarm blinking pattern:



11. Final test/handover

11.1 Testing obstacle detection



INFORMATION

- After installation of the operator, the person responsible for installation must complete an EC Declaration of Conformity for the gate system in accordance with Machinery Directive 2006/42/EC and apply the CE mark and a type plate. This documentation and this installation and operating manual must be handed over to the user. This also applies if the operator is retrofitted to a manually operated gate.
- If a photocell is interrupted, the gate reverses in soft run.
- If an obstacle is encountered, the operator stops and reverses fully or partially, depending on the setting and operating mode.
See **"10.1 DIP switches" on page 33**

The force settings must be tested with a force measurement device. Then, additional safety equipment such as photocells or safety contact strips must be tested for perfect functioning. If the gate hits an obstacle, it must reverse

immediately. If this is not the case, a reset must be performed; see **"8.1 Carrying out a reset" on page 30**. The positions and the forces must be reprogrammed.



INFORMATION

- The operating forces can be modified and adjusted with SOMlink and a WiFi-enabled device.

After successful testing of the force settings, the obstacle detection and the functions, the qualified specialist must attach the CE mark and type plate to the gate.

11.2 Handover of the gate system

The qualified specialist must instruct the user:

- on the operation of the operator and its dangers
- on the handling of the manual emergency release
- on regular maintenance, testing and care which the user can carry out; see **"Maintenance and care" on page 40**
- on the troubleshooting measures which the user can carry out; see **"Troubleshooting" on page 41**

The user must be informed about which work may only be performed by a qualified specialist:

- installation of accessories
- settings
- regular maintenance, testing and care, except that described in Chapter **"Maintenance and care" on page 40**
- troubleshooting, except that described in Chapter **"Troubleshooting" on page 41**
- repairs

The following documents for the gate system must be handed over to the user:

- the installation and operating manuals for the entire gate system
- inspection book
- EC Declaration of Conformity
- handover protocol for the control unit/operator



<http://som4.me/konform>

12. Operation

DANGER



Danger due to electric current!

Contact with live parts may result in electric current flowing through the body. Electric shock, burns, or death may result.

- Before switching on the mains power, ensure that the mains voltage corresponds with the voltage listed on the operator type plate.
- Read and observe the safety information and warnings starting on **Page 8** !

WARNING



Danger caused by young children operating the gate!

If the gate system is operated by young children, there is a danger of them or other persons being trapped under the gate. Severe or fatal injuries may result.

- Command devices in a fixed position must be installed at a height of at least 1.5 m.



Danger of crushing and shearing!

If the gate moves and there are persons or animals in the movement area, crushing and shearing injuries may be caused by the mechanism and safety edges of the gate.

- Only operate the gate when you have a direct view of the movement area.
- The danger zone must be visible during the entire gate operation.
- Always keep the moving gate in sight.
- Keep persons and animals away from the danger zone.
- The installation of a photocell is mandatory for operation with automatic closing.

NOTE

- Objects must not be in the range of movement of the gate.



INFORMATION

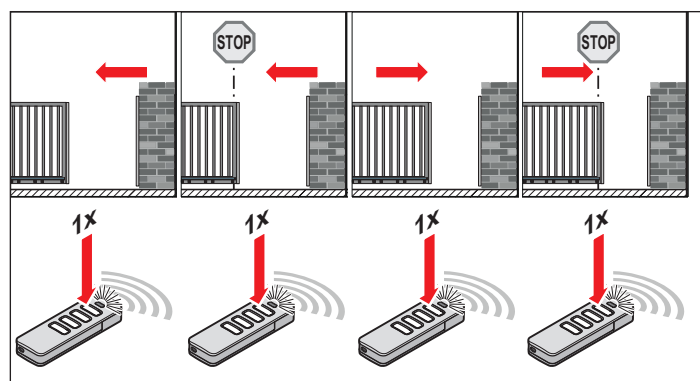
- Keep this installation and operating manual accessible to all users at the place of use.

12.1 Overview of gate movements

The figures show the sequence of movements of the gate. The prerequisite for button assignment is that the gate system is programmed; see **"7.9 Carrying out initial operation"** on **page 28**.

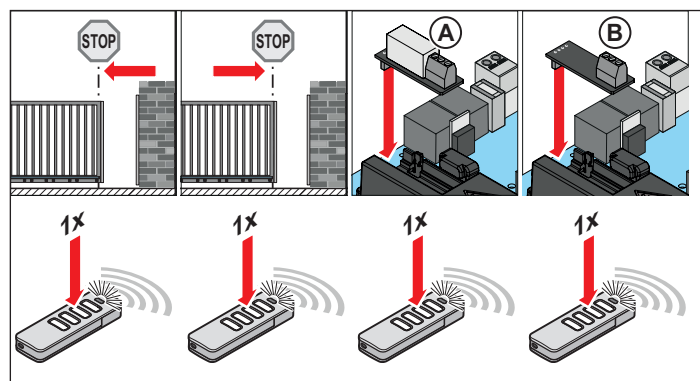
All functions can be programmed for all buttons. The button assignment shown here serves as an example.

Button 1 (CH1)



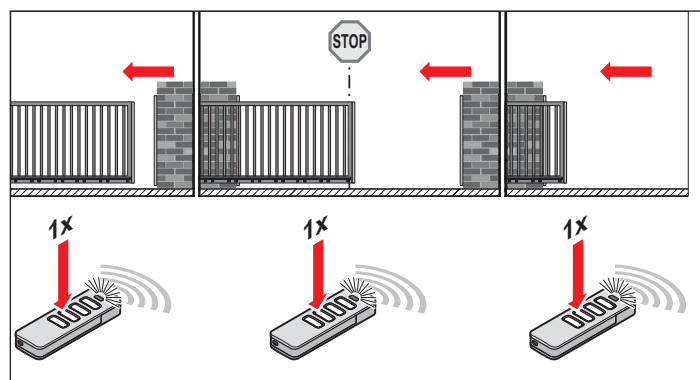
Pulse mode OPEN, STOP, CLOSE, STOP

Button 2 (CH2)



Partial opening 1 or lighting function / MUFU (depending on DIP switch and SOMlink setting)

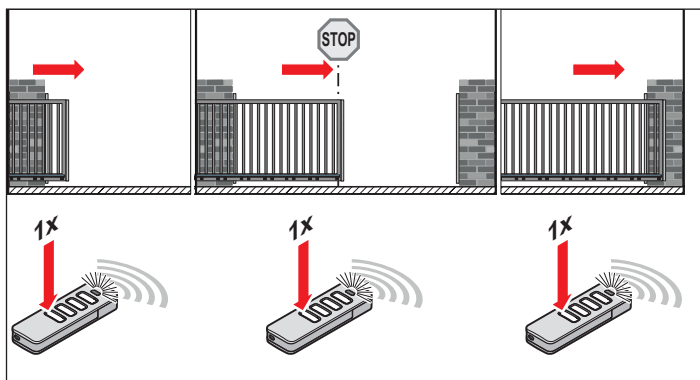
Button 3 (CH3)



Partial opening 2 or defined OPEN (depending on DIP switch setting)

12. Operation

Button 4 (CH4)



Defined CLOSE

12.2 Obstacle detection

The operator stops and reverses if it encounters an obstacle. This prevents injury and damage to property. The gate will be partially or completely opened, depending on the setting. The partial reversion is pre-set at the factory.



INFORMATION

- Reversing: The operator stops when it hits an obstacle. The gate then moves slightly in the opposite direction to release the obstacle. In the automatic closing function, the gate opens completely.

The following safety devices are installed to detect obstacles:

- photocell (object protection)
- safety contact strips (personal protection)
- obstacle recognition of the operator (personal protection)

See also Chapter "Troubleshooting" on page 41

12.3 Operation after a power failure

The programmed run times and all other values remain saved in the event of a power failure. After the power supply has been restored, the first movement of the operator after a pulse is always gate OPEN. The gate moves the entire way into the gate OPEN end position.

12.4 Function of the emergency release

In the event of a power failure, the gate can be opened and closed manually from the inside using the emergency release.

The gate can be unlocked in any gate position. To lock it, the gate must be moved back and forth slightly.



NOTE

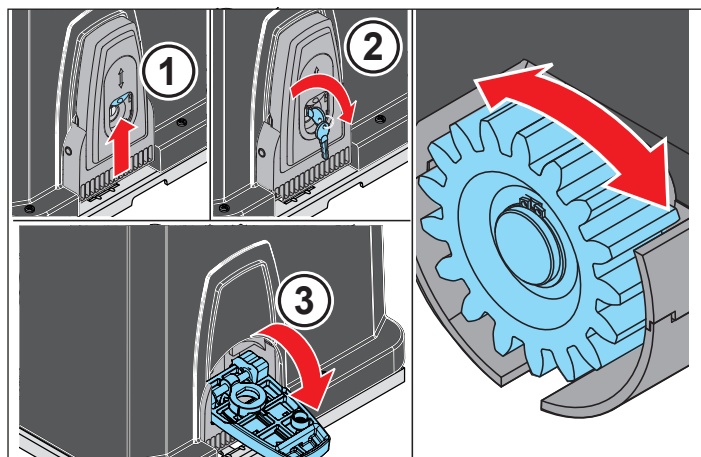
- The emergency release is only suitable for opening or closing the gate in emergencies. The emergency release is not suitable for regular opening and closing. This could cause damage to the operator and gate. The emergency release must only be used in emergencies such as a power failure.



INFORMATION

- The function of the emergency release must be checked above all in the gate CLOSE end position. Unlocking must be possible.
- It can be locked and released in any gate position.
- The emergency release must be easy to operate in all necessary positions.

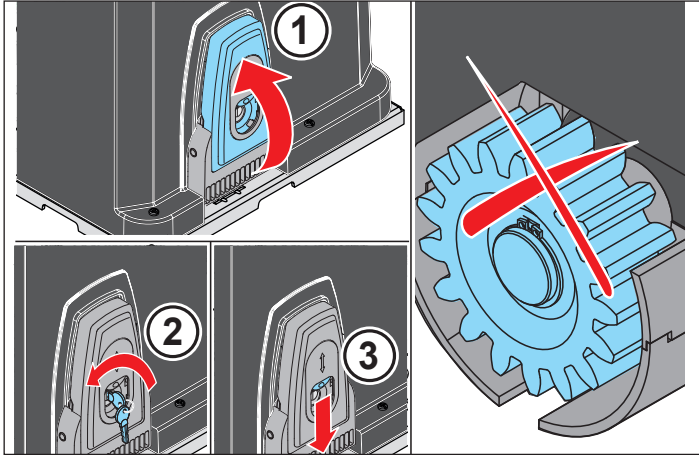
Unlocking



1. Open protective cover (1).
 2. Insert key (2) and turn it clockwise.
 3. Fold lever (3) to the outside.
- ⇒ Operator is released and the gate can be moved manually

12. Operation

Locking



1. Fold lever (1) upwards.
2. Insert key (2) and turn it anti-clockwise.
3. Close protective cover (3).
⇒ Operator is locked, and the gate can no longer be moved by hand.



INFORMATION

- Keep the key accessible to all users at all times at the place of use.
- Label the key accordingly.

13. Maintenance and care

⚠ DANGER



Danger due to electric current!

Contact with live parts may result in electric current flowing through the body. Electric shock, burns, or death may result.

- ▶ Before inserting the mains plug, ensure that the mains voltage corresponds with the voltage listed on the operator type plate.
- ▶ Read and observe the safety information and warnings starting on **Page 8** !

⚠ WARNING



Danger of crushing and shearing!

If the gate moves and there are persons or animals in the movement area, crushing and shearing injuries may be caused by the mechanism and safety edges of the gate.

- ▶ Only operate the gate when you have a direct view of the movement area.
- ▶ The danger zone must be visible during the entire gate operation.
- ▶ Always keep the moving gate in sight.
- ▶ Keep persons and animals away from the danger zone.
- ▶ Never stand under the opened gate.
- ▶ The installation of a photocell is mandatory for operation with automatic closing.

➡ NOTE

- Objects in the movement area of the gate may be jammed and damaged. Objects must not be in the range of movement of the gate.
- The use of unsuitable cleaning agents may damage the surface of the operator. Use only suitable cleaning agents.

i INFORMATION

- Keep this installation and operating manual accessible to all users at the place of use.

13.1 Maintenance schedule

How often?	What?	How?
Once a month	• Test the emergency release	See "Function of the emergency release" on page 38
	• Test obstacle detection	• See "Obstacle detection" on page 38
	• Test the photocell	• Interrupt the active photocell while the gate is closing. The gate must stop and open slightly. If automatic closing is activated, the gate opens completely. • Clean the photocell; see "Cleaning the photocell" on page 40
Once a year	• Test the gate and all moving parts	• As directed by the gate manufacturer

13.2 Cleaning the photocell

➡ NOTE

- Do not change the position of the photocell when cleaning it.

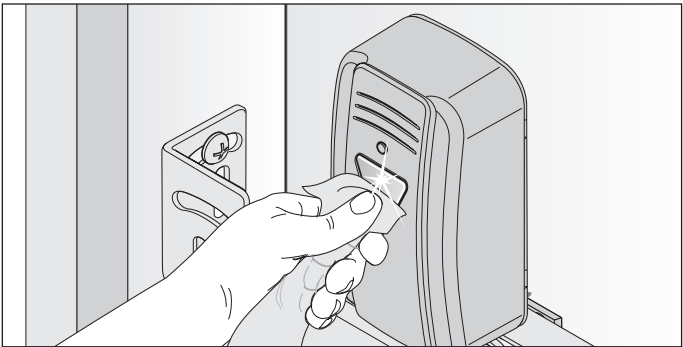


Fig. 1

- Clean the housing and reflectors of the photocell with a damp, lint-free cloth.

14. Troubleshooting

DANGER



Danger due to electric current!

Contact with live parts may result in electric current flowing through the body. Electric shock, burns, or death may result.

- ▶ Before inserting the mains plug, ensure that the mains voltage corresponds with the voltage listed on the operator type plate.
- ▶ Read and observe the safety information and warnings starting on **Page 8**.

Preparing for troubleshooting

The following guide to troubleshooting lists potential problems and their causes and information on correcting them. In some cases, other chapters and sections with a more detailed description are referenced. You will be prompted to call a **qualified specialist** if this is required. Work on the electrical system and live parts must be performed by a **trained electrician**.

14. Troubleshooting

14.1 Troubleshooting table

The flash sequence provides information on malfunctions for technicians, end customers and telephone support.

In normal mode

Flash sequences	Possible cause	Corrective action
Normal mode 	• Programming mode activated • Pre-warning time activated • Function for HFL activated	• none, for information
	• Interruption of a safety device during the movement	• Remove obstacle

In the event of faults

Flash sequences	Possible cause	Corrective action
Requirement  Operator expects a command	• Waiting for a conformation during the position programming movement of gate CLOSE end position	• Confirmation of position programming run or • Sluggish point during programming; see "Carrying out initial operation" on page 28
Alarm  A process has triggered a fault	• Photocell or safety device not OK before movement • Dead man movement, safety device not OK • Motor return from outside (e.g. due to attempted break-in)	• Check photocell and realign if necessary • If necessary, have components replaced by a qualified specialist • Have it checked by a qualified specialist • For information
Service  A process has triggered a fault	• Service required (service days, service cycles have been reached) • Motor temperature is too high (overheating) • Programming of difficult positions in case of reversing with no visible cause. The complete distance is traversed from end position to end position (dead man by radio, under direct view only)	• Have the service performed by a qualified specialist • Allow motor to cool • For information
Fault  Operator or parts of the operator faulty	• Self-test of electronics • Blockage detection • Limit stop does not operate (e.g. wire break, limit stop fault) • Run time exceeded • Error during plausibility test of Memo	• Have it checked and, if necessary, components replaced by a qualified specialist • Have cable connections checked by a qualified specialist and, if necessary, have components replaced • Movement range too long, operator manually released • Have it checked and, if necessary, components replaced by a qualified specialist

14. Troubleshooting

14.2 Troubleshooting table

Problem	Possible cause	Test/check	Remedy
The operator only functions in one direction of travel	• Photocell and safety device interrupted	• Check photocell and safety devices	• Remove obstacle • The photocell must be aligned • If necessary, have it checked and replaced by a qualified specialist
	• Automatic closing function activated	• Wait to see whether the operator starts automatically after 60 seconds	• Automatic closing function deactivated • Have the cause corrected by a trained electrician
	• Operating mode defined opening/closing selected	• Check operating mode (radio channels)	• Adjust operating mode; see "9.1 Explanation of the radio channels" on page 31
Operator cannot be operated with the command device.	• No power	• Check power supply	• If necessary, replace fuse • Set main switch to "ON" again
	• The operator was unlocked by the emergency release mechanism	• Check that the gate can be moved manually	• Lock the operator
	• Command device incorrectly connected to the operator	• Check function of operator with a transmitter	• Check wiring and correct if necessary
	• Operator defective	• Operator cannot be started with the transmitter or the connected command device	• Have operator repaired or replaced by a qualified specialist
	• Electrical supply voltage outside the approved range	• Have the mains voltage checked by a trained electrician	• Have the cause corrected by a trained electrician
Operator cannot be operated with the transmitter	• Transmitter not programmed	• "RADIO" LED does not light up when the transmitter is operated	• Programme transmitter
	• Battery in the transmitter is flat		• Replace the battery of the transmitter
	• Transmitter defective	• LED on transmitter does not light up	• Replace transmitter
	• Emergency STOP switch has tripped	• Check emergency STOP switch	• Release the emergency STOP switch
Transmitter cannot be programmed.	• Memory full	• All four LEDs for radio blink cyclically for about 3 seconds	• Memory full; see Chapter "9.4 Information on Memo" and "9.6 Deleting a transmitter button from the radio channel"
	• Transmitter not SOMloq2-compatible		• Replace transmitter with a SOMloq2-compatible transmitter
	• Incorrect radio frequency		• Replace transmitter with a transmitter with the correct frequency
	• Programming of the radio code locked by SOMlink		• Have transmitter programmed by a specialist
	• Memo generated via Codemaster+		• Have transmitter programmed by a specialist
MEMO Identifier error	• Incorrect Memo	• All four LEDs for radio blink cyclically for a short time and then go out for a long time. The operator lighting flashes 4 times short and 4 times long.	• Disconnect operator from the voltage supply, unplug Memo, re-supply operator with power
MEMO device type error	• System error	• All four LEDs blink cyclically for a long time and then go out for a short time. If voltage is present, the operator lighting blinks an additional four times.	• Memo can be deleted via the "RADIO" button; see "Deleting all radio channels in the receiver" on page 32

14. Troubleshooting

Problem	Possible cause	Test/check	Remedy
The operator stops during opening/closing and moves about 10 cm in the opposite direction	• Gate has detected an obstacle	• Check whether there are any obstacles in the movement range of the gate.	• Remove obstacle • If necessary, have gate mechanism checked and set by a qualified specialist
	• Photocell/safety device was interrupted		• Remove obstacle
	• Photocell/safety device defective or misaligned		• Align photocell and safety device • Check wiring • If necessary, have defective photocell replaced
Photocell/safety device do not work	• Photocell/safety device was retrofitted		• Reset safety devices (press Reset button <1 second); see "8.1 Carrying out a reset" on page 30
	• Photocell/safety device incorrectly connected	• Check wiring	• Correct
	• Photocell/safety device defective		• Have safety device replaced
	• Direction of action of the photocell/safety device reversed		• Change wiring or have it changed by a specialist via SOMlink

15. Taking out of operation, storage and disassembly

15.1 Important notes and information

Disassembly of the operator may only be performed by a **qualified specialist**.

DANGER



Danger due to electric current!

Contact with live parts may result in electric current flowing through the body. Electric shock, burns, or death may result.

- ▶ Read and observe the safety information and warnings starting on **Page 8**.

Other dangers!

Some of the dangers which arise during installation also apply during disassembly!

- ▶ Re-read and observe the safety information and warnings in the following chapters:
 - **"General safety instructions" on page 8**
 - **"Required tools and personal protective equipment" on page 14**
 - **"Installation" on page 15**
 - **"5. Installation"**
 - **"Electrical connection" on page 19**

15.2 Taking out of operation and disassembly

The operator and its accessories must be disconnected from the power supply when taking them out of operation or during disassembly.

1. Turn off the voltage supply to the operator.
Then check that the equipment is disconnected from the power supply and secure it against being switched on again.
2. Disassembly is carried out in reverse order of installation.

15.3 Storage

Store the operator components as follows:

- in enclosed, dry rooms so that they are protected from moisture
- at a storage temperature from -25 °C to $+65\text{ °C}$
- secure to prevent falling
- leave room for unhindered passage

NOTE

- Improper storage may damage the operator.
The operator must be stored in closed and dry rooms.

15.4 Disposal of waste

Observe the instructions for disposal of the packaging, the components, the batteries and, where applicable, the accumulator; see **"Basic safety instructions for operation" on page 8**.

WARNING



Danger of hazardous substances!

Improper storage, use or disposal of accumulators, batteries and operator components pose a risk to the health of humans and animals.

- ▶ Store accumulators and batteries out of the reach of children and animals.
- ▶ Keep batteries and accumulators away from chemical and thermal influences.
- ▶ Do not recharge batteries and defective accumulators.
- ▶ All components of the operator, including old accumulators and batteries, must be disposed of correctly and not with household waste.

NOTE

- Dispose of all components in accordance with local and national regulations to avoid environmental damage.



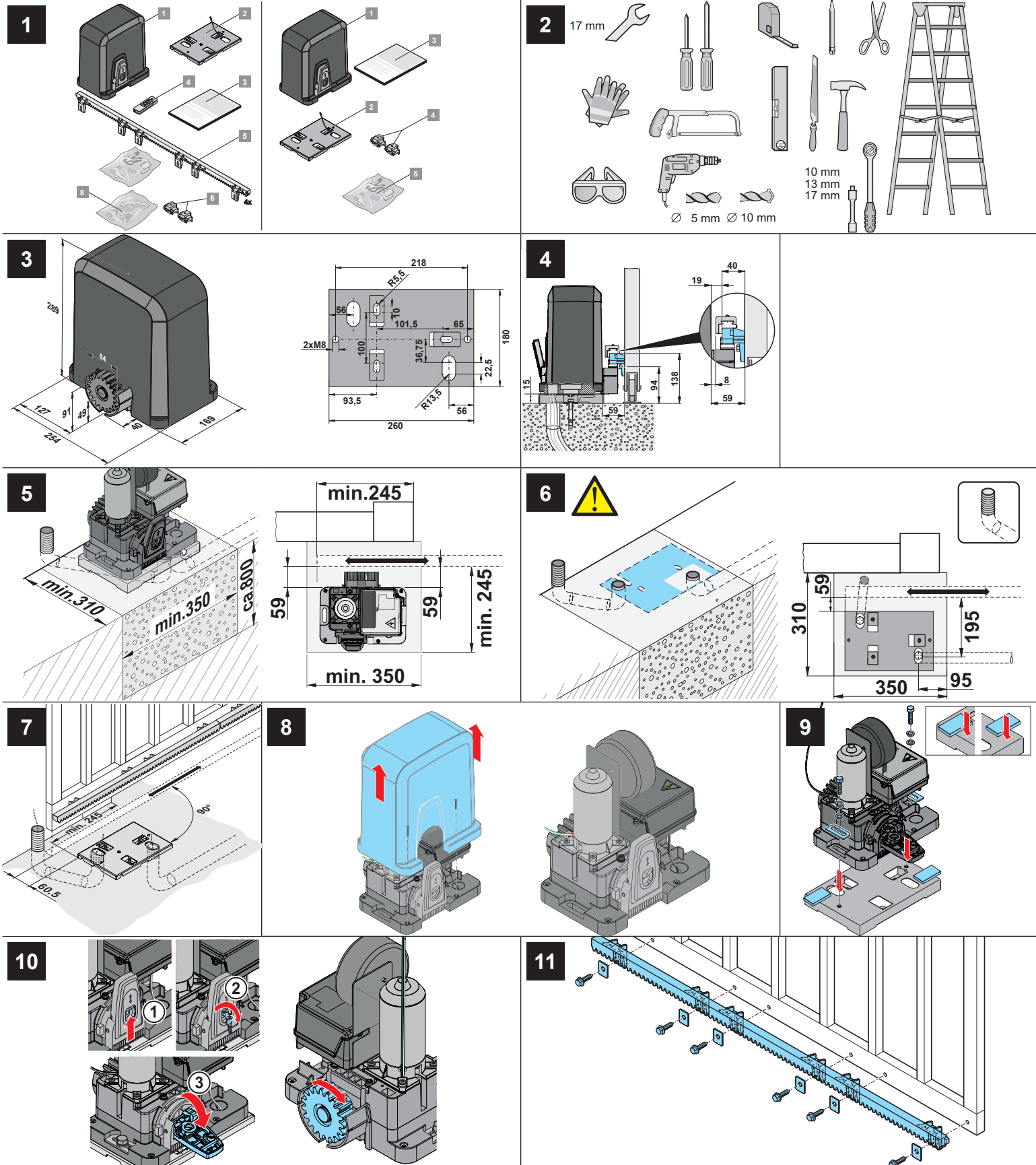
INFORMATION

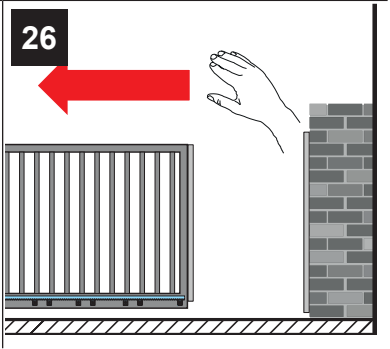
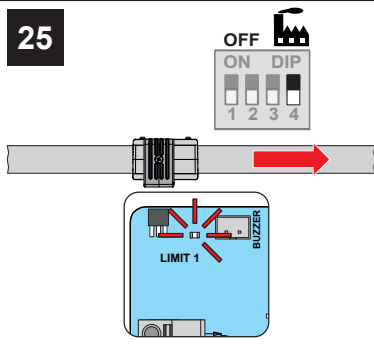
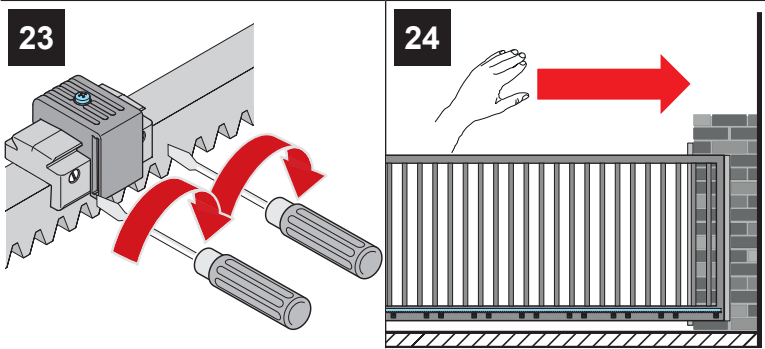
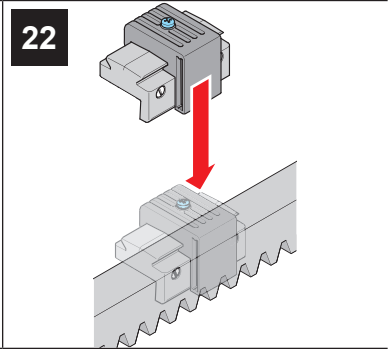
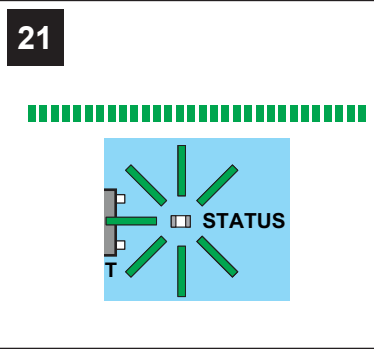
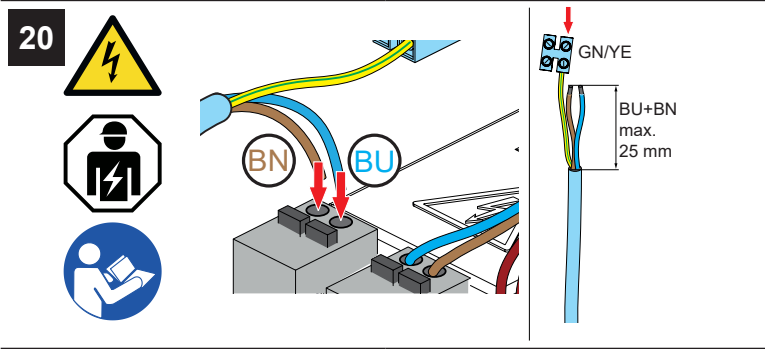
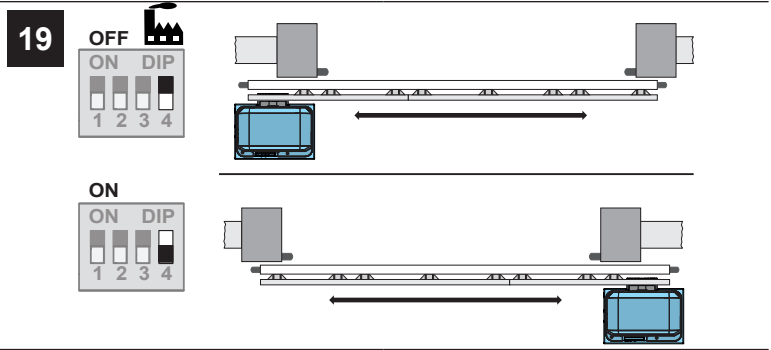
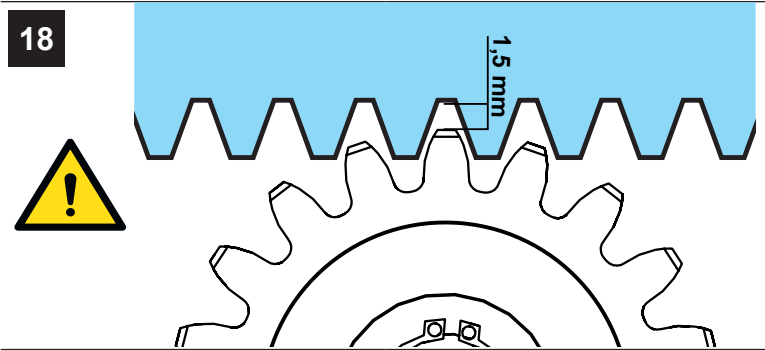
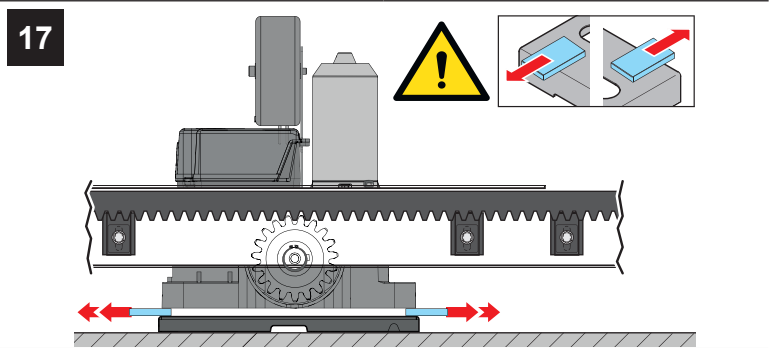
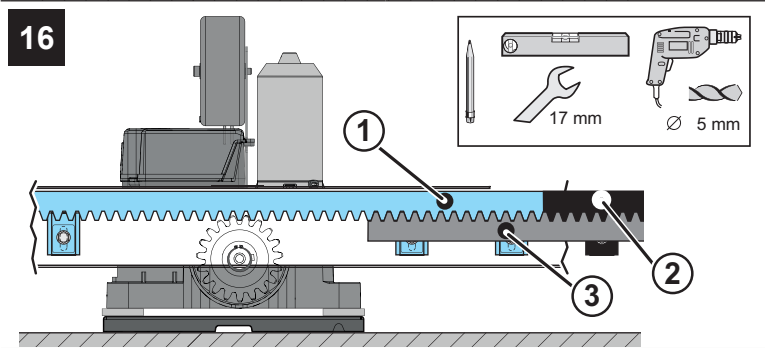
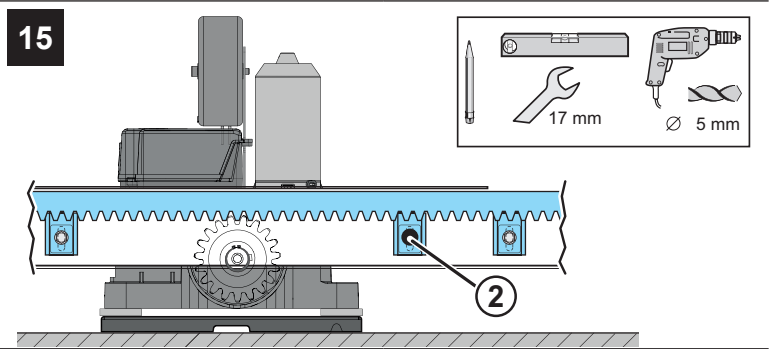
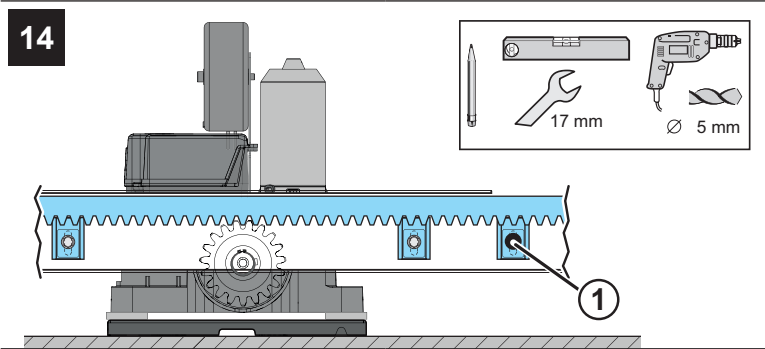
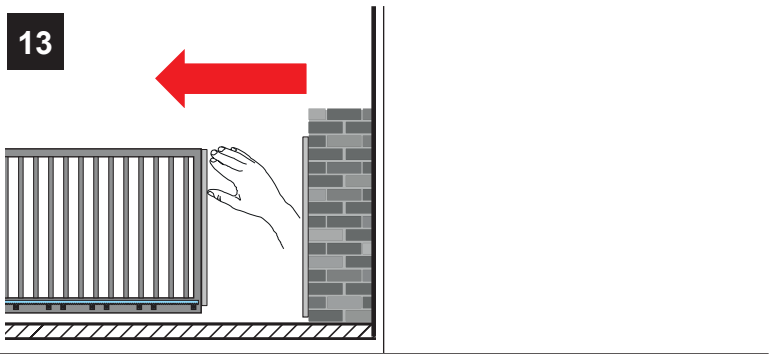
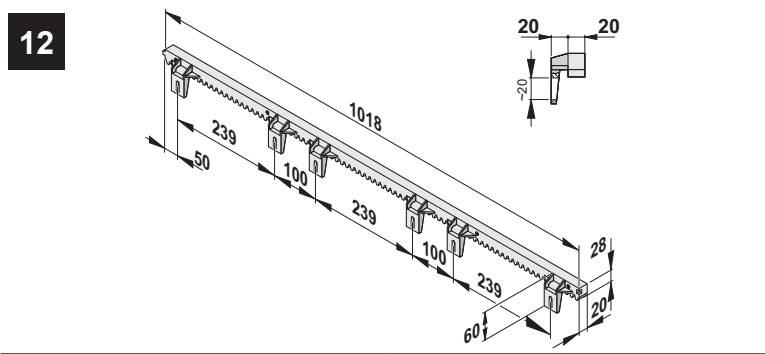
- Operator components that have been taken out of service as well as old accumulators and batteries must not be disposed of with household waste. Components which are no longer in use, old accumulators and batteries must be disposed of properly. The local and national regulations must be observed.

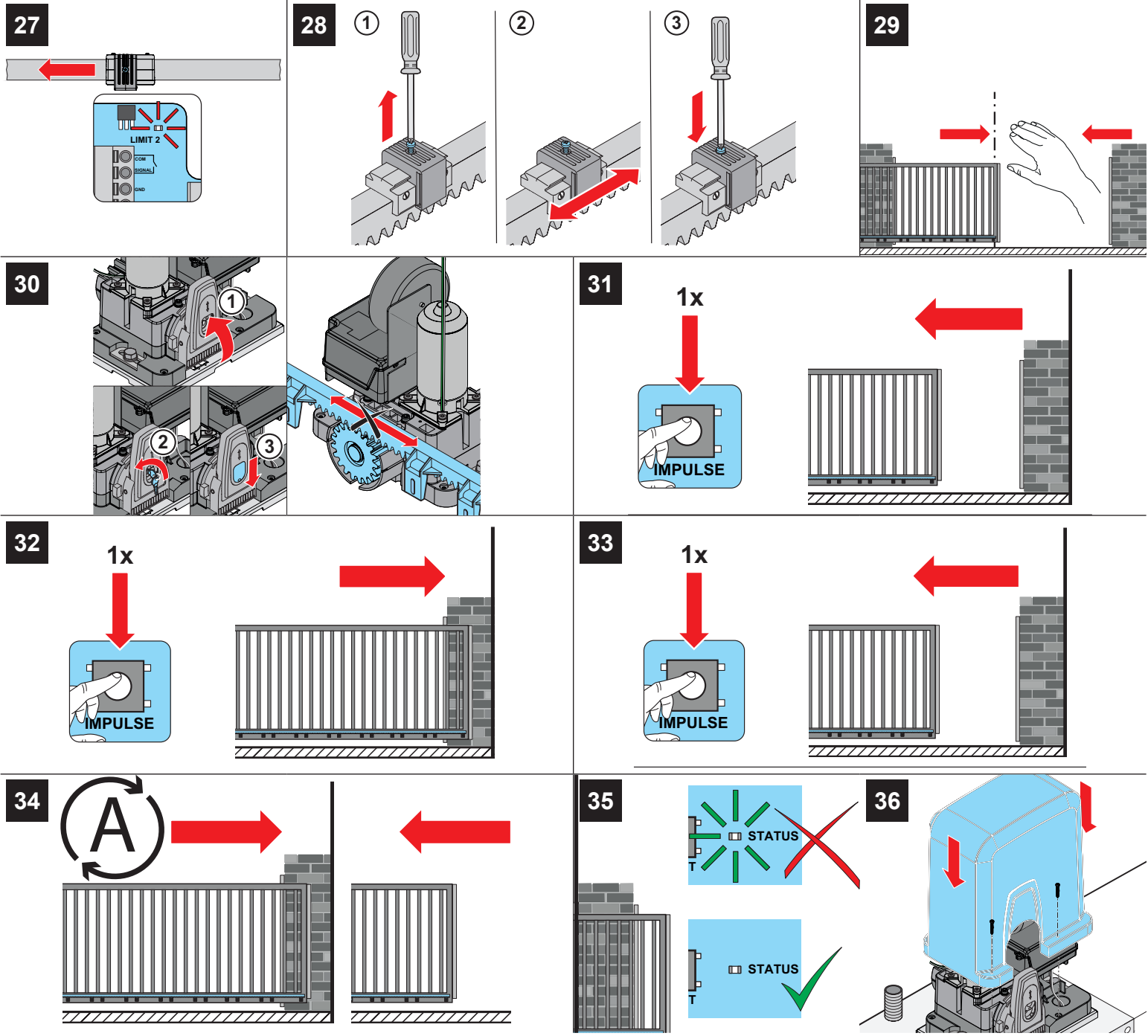


16. Brief instructions

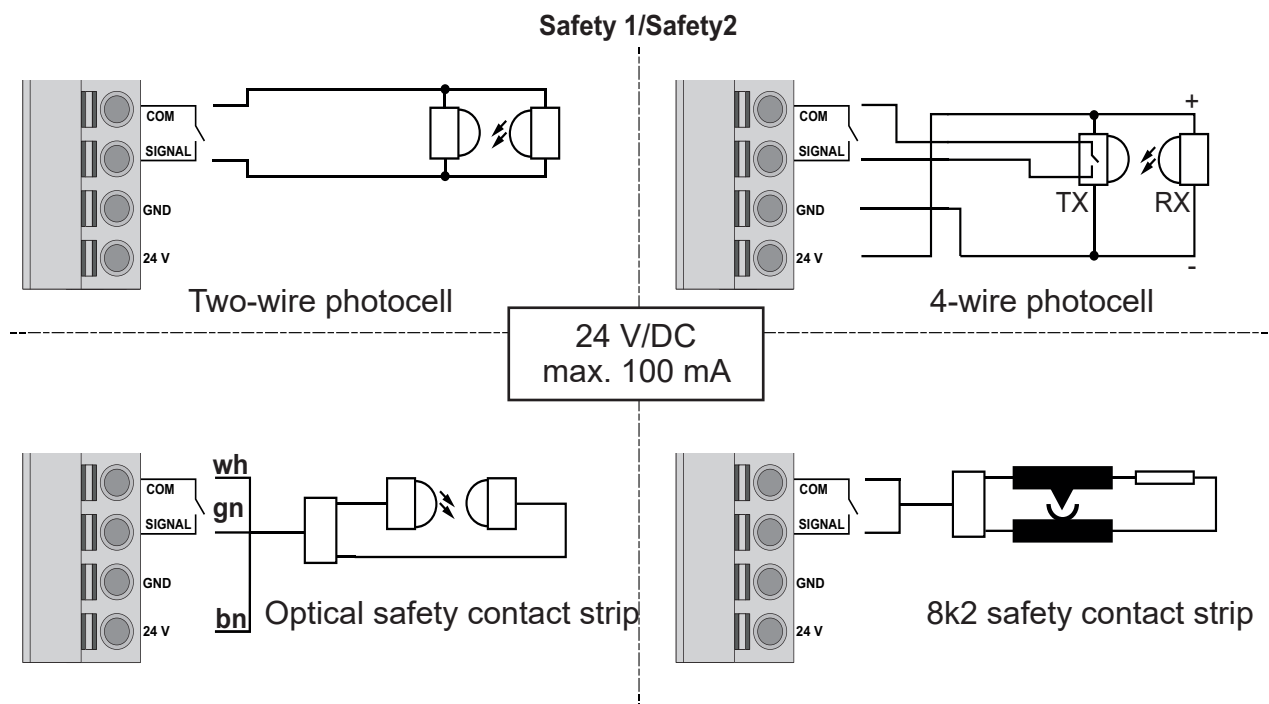
The brief instructions do not replace the installation and operating manual.
Read this Installation and Operating Manual carefully and, most importantly, observe all safety instructions and warnings.
This will ensure that you can install the product safely and optimally.







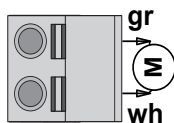
17. Connection overview



Direction of action Safety1: Gate CLOSE / Safety2: Gate OPEN

Programmable via SOMlink

Motor**

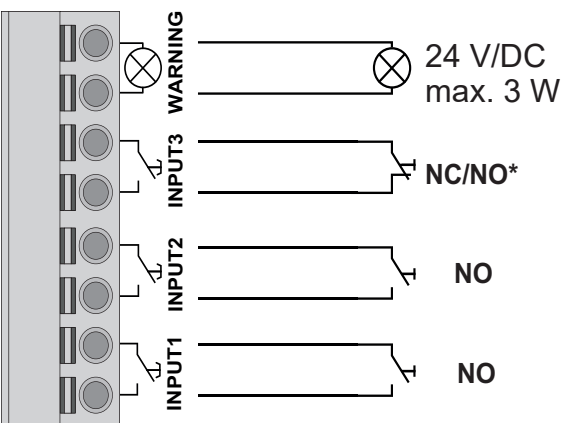


Warning light

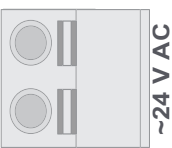
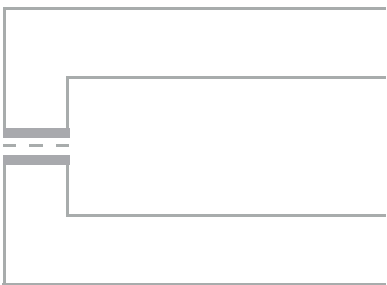
Pulse button/Stop button

Pulse button

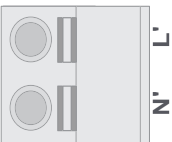
Pulse button



Transformer

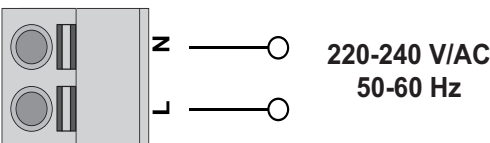


Secondary side transformer**



Primary side transformer**

Mains connection



* NC for Stop button / NC for Pulse button

** Prewired at the factory

18. Overview of DIP switches

	ON	OFF 
1	Automatic closing function activated	Automatic closing function deactivated
2	Partial opening 1 activated	Lighting function / MUFU active* Partial opening 1 deactivated
3	Partial opening 2 activated	Partial opening 2 deactivated
4	DIN right: operator opens to the right	DIN left: operator opens to the left

* SOMlink settings, e.g. timer mode, are necessary in order to use the lighting function / MUFU.

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