

EN TRANSLATION OF THE ORIGINAL INSTALLATION AND OPERATING MANUAL

Swing gate operator twist AM



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 the product safely and optimally and operate it properly. If you have any questions, please contact your specialist retailer or installer.

Information on the operator:

Serial No.: See the title page of the installation and operating manual (if applicable warranty label).

Year of manufacture: from 03/2015

Information on the installation and operating manual

Version of the installation and operating manual:

twist-AM_46830V001_222018_0-DRE_Rev-D_EN

Warranty

The warranty complies with statutory requirements. The contact person for warranties is the qualified dealer. 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 safety products 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 qualified 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:



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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 land line 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. Follow 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 Antriebs- und Funktechnik GmbH** 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-twist-am-revc>

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 EC Machinery Directive (2006/42/EC). The operator is fitted with a radio receiver. Optionally available accessories are also described. The actual scope of delivery deviates from this.

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:

- 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 warning symbols and notes

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



Hazard symbol



Signal word

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.

1. About this installation and operating manual



DANGER

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

Describes a potential danger of serious injury or death

Describes the potential consequences of the danger to you or other persons.

- ▶ Follow the instructions for avoiding or preventing the danger.



CAUTION

Describes a potential danger of a hazardous situation

Describes the potential consequences of the danger to you or other persons.

- ▶ Follow the instructions for avoiding or preventing the danger.

The following symbols are used for notes and information:



NOTE

Describes additional information and useful notes for correct use of the operator without endangering persons.

If it is not observed, property damage or faults to the operator or door may occur.



INFORMATION

Describes additional information and useful tips.

Functions for optimum usage of the operator are described.



INFORMATION

This symbol indicates that all operator components that have been taken out of service must not be disposed of with household waste, as they contain hazardous substances. The components must be disposed of correctly at an authorised recycling centre. The local and national regulations must be observed.



INFORMATION

This symbols indicates that all old accumulators and batteries must not be disposed of with household waste. Old accumulators and batteries contain hazardous substances. These must be disposed of properly at municipal collection points or in the containers provided by dealers. The local and national regulations must be observed.

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.



Symbol refers to factory settings.



Symbol refers to a WiFi-enabled device, such as a smartphone.



Symbol refers to a period of time, e.g. 30 seconds

1.6 Special warnings, hazard signs 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.

1. About this installation and operating manual



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.

- ▶ Installation, testing and replacement of electrical components may only be carried out by a **trained electrician**.



WARNING

Danger due to hot parts!
After frequent operation, the motor and control unit may become hot. If the cover is removed and hot parts are touched, they may cause burns.

- ▶ Allow the operator to cool down before removing the cover.



WARNING

Danger due to projecting parts!
Parts must not project into public roads or footpaths. This also applies while the gate is moving. Persons or animals may be seriously injured.

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



WARNING

Risk of eye injury!
Chips flying when drilling may cause serious injuries to eyes and hands.

- ▶ Wear safety glasses.



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.

- ▶ Never put your hand near the gate or near moving parts when the gate is moving.



CAUTION

Risk of injury to hands!
Rough metal parts may cause abrasions and cuts when picked up or touched.

- ▶ Wear safety gloves.



WARNING

Danger of tripping and falling!
Unsafely positioned parts such as packaging, operator parts or tools may cause trips or falls.

- ▶ Keep the installation area free of unnecessary items.



CAUTION

Risk of injury to feet!
Falling parts can cause foot injuries.

- ▶ Wear safety shoes.




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.

1. About this installation and operating manual

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 **SOMMER** accessories only and only to the extent described.

Gates automated with this operator must comply with all valid international and domestic standards, directives and regulations. These include EN 12604, EN 12605 and EN 13241-1.

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
- 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.

1.9 Improper use of the operator

Any other use or additional use that has not been described in Chapter 1.8 constitutes improper use. The user bears the sole responsibility for any risk involved.

The manufacturer's warranty will be voided by:

- damage caused by other use and 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 and smoke protection system, an evacuation path or an emergency exit that automatically closes the gate in the event of fire.

Installation of the operator will prevent automatic closing.

1.10 Qualifications of personnel

People under the influence of drugs, alcohol, or medications that can influence their ability to react may **not** work on the operator.

After installation of the operator, the person responsible for the installation of the operator 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, the handover protocol and the inspection book must be completed.

The following is available:

- EC Declaration of Conformity
- handover protocol for the operator



<http://som4.me/konform>

Trained qualified specialist for installation, commissioning and disassembly

This installation and operating manual must be read, understood and complied with by a qualified specialist who installs or performs maintenance on the operator. Work on the electrical system and live parts may be performed only by a **trained electrician** in accordance with EN 50110-1.

The installation, commissioning and disassembly of the operator may only be performed by a qualified specialist. The qualified specialist must be familiar with the following standards:

- EN 13241-1 Doors and gates - Product standard
- EN 12604 Doors and gates - Mechanical aspects - Requirements
- EN 12605 Doors and gates - Mechanical aspects - Test methods
- EN 12445 and EN 12453 - Safety in use of power-operated doors

1. About this installation and operating manual

A qualified specialist is a person commissioned by the installer. 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 user must be informed that other users must be instructed on the operation of the operator, its dangers as well as the handling of the manual emergency release.

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

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

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

1.11 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 must always keep this installation and operating manual at the place of use, ready for consultation and accessible to all users.

The user is responsible for:

- the intended use of the operator
- its good condition
- instructing all users how to use the gate system and in the associated hazards
- operation
- maintenance, inspection and care by a qualified specialist
- troubleshooting and repair by a qualified specialist

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 control devices must never be given to children.

The user will observe the accident prevention regulations and the applicable standards in Germany. In other countries, the user must comply with the applicable national regulations.

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.

This applies for the use in Germany. In other countries, the user must comply with the applicable national regulations.

2. General safety instructions

2.1 Basic safety instructions for operation

Follow the basic safety instructions listed below. 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 control devices must never be given to children. Handheld transmitters must be safely stored and protected against unintended and unauthorised use.



DANGER

Danger if not observed!
If safety instructions are not observed, serious injury or death may result.

- ▶ All safety instructions must be complied with.



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.

- ▶ Installation, testing and replacement of electrical components may only be carried out by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



DANGER

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.
- ▶ You must have faults repaired professionally without delay.



DANGER

Danger of hazardous substances!
Improper storage, use or disposal of accumulators, batteries or operator components are dangerous for the health of humans and animals. Serious injury or death may result.

- ▶ Accumulators and batteries must be stored out of the reach of children and animals.
- ▶ Keep accumulators and batteries away from chemical, mechanical and thermal influences.
- ▶ Do not recharge old accumulators and batteries.
- ▶ Components of the operator as well as old accumulators and batteries must not be disposed of with household waste. They must be disposed of properly.

2. General safety instructions



WARNING

Danger of crushing and shearing!

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

- ▶ Only use the operator when you have a direct view of the gate.
- ▶ All danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Store the handheld transmitter so that unauthorised or accidental operation, e.g., by children or animals, is impossible.
- ▶ Never stand inside the movement area of the opened gate.



INFORMATION

All operator components that have been taken out of service must not be disposed of with household waste, as they contain hazardous substances. The components must be disposed of correctly at an authorised recycling centre. The local and national regulations must be observed.



INFORMATION

Old batteries and accumulators must not be disposed of with household waste as they contain hazardous substances. These must be disposed of properly at municipal collection points or in the containers provided by dealers. National guidelines must be observed.



2.2 Additional safety information for the radio remote control

Follow the basic safety instructions listed below.



WARNING

Danger of crushing and shearing!

If the gate is not visible and the radio 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 like the radio control, all danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Store the handheld transmitter so that unauthorised or accidental operation, e.g., by children or animals, is impossible.
- ▶ Never stand inside the range of movement of the opened gate.



WARNING

Danger due to projecting parts!

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

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



NOTE

If the gate is not in view and the operator is actuated, 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.



NOTE

Dispose of all parts in accordance with local or national regulations to avoid environmental damage.

2. General safety instructions



NOTE

If the gate is not in view and the radio remote control is actuated, 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 user of the radio system is not protected from faults 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. You can find the EC Declaration of Conformity for the radio here:



<http://som4.me/konform-funk>

3. Description of function and product

3.1 The operator and its mode of operation

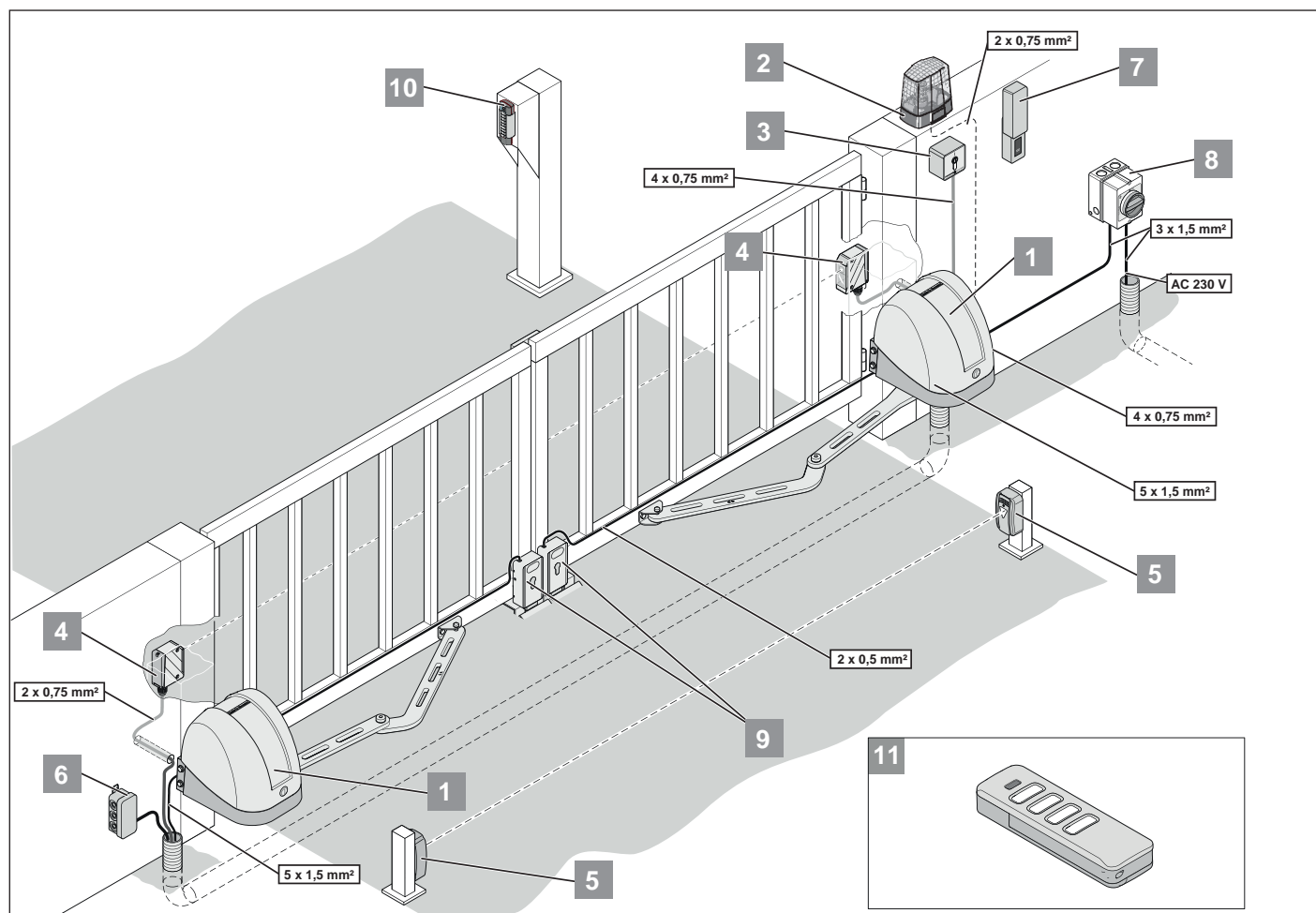


Fig. Application example

- 1) Operator (master gate operator, slave gate operator)
- 2) Warning light
- 3) Key switch (1- or 2-contact)
- 4) Exterior photocell
- 5) Interior photocell
- 6) Connecting cable set
- 7) ENTRAsys GD
- 8) Main switch (lockable)
- 9) Electric lock DC 24 V
A separate electric lock can be connected separately on each leaf.
- 10) Telecode
- 11) Handheld transmitter

1-leaf swing gates can be operated with the electrically powered operator and the integrated control unit (**master** gate operator). The operator can also be used on 2-leaf swing gates in combination with an additional operator without a control unit (**slave** gate operator). Optionally available accessories make it possible to adapt the operators to special characteristics of these gates. The operators can be controlled, for example, with a handheld transmitter.

The operator is mounted on the respective gate post and connected to the corresponding gate leaf with a hinged bracket. The rotating movement of the operator is transmitted to the gate leaf via the hinged bracket. With 2-leaf gates, the control unit ensures compliance with the correct order when opening or closing the gate leaves.

The operator is usually delivered in a set with a warning light. Accessories such as handheld transmitters and

3. Description of function and product

photocells are included in the scope of delivery. The set is suitable for installation on gate posts. The set for 2-leaf gates also contains a connection cable from operator to operator.

For more information on using the operator or accessories, contact your specialist dealer.

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.

If the power fails, the gate leaves can be unlocked and opened via an emergency release lever after opening the cover. For more information, contact your specialist dealer.

3.3 Product designation

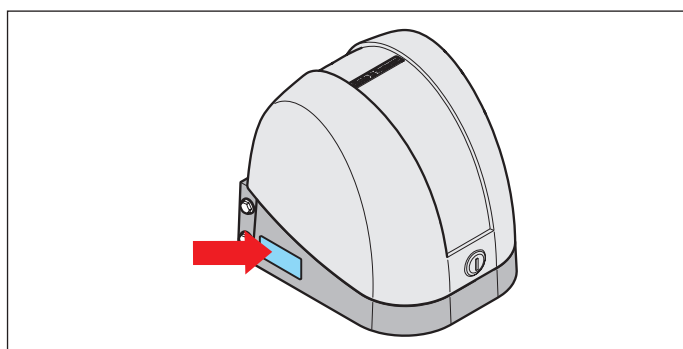


Fig. Type plate on the bottom section of the housing
The type plate includes:






- 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.

3.4 Explanation of tool symbols

Tool symbols

These symbols refer to the use of tools required for installation.

		Phillips screwdriver
		Allen wrench
		Fork or ring wrench
		Ratchet wrench

3. Description of function and product

3.5 Scope of delivery

Scope of delivery of set for 1-leaf gates

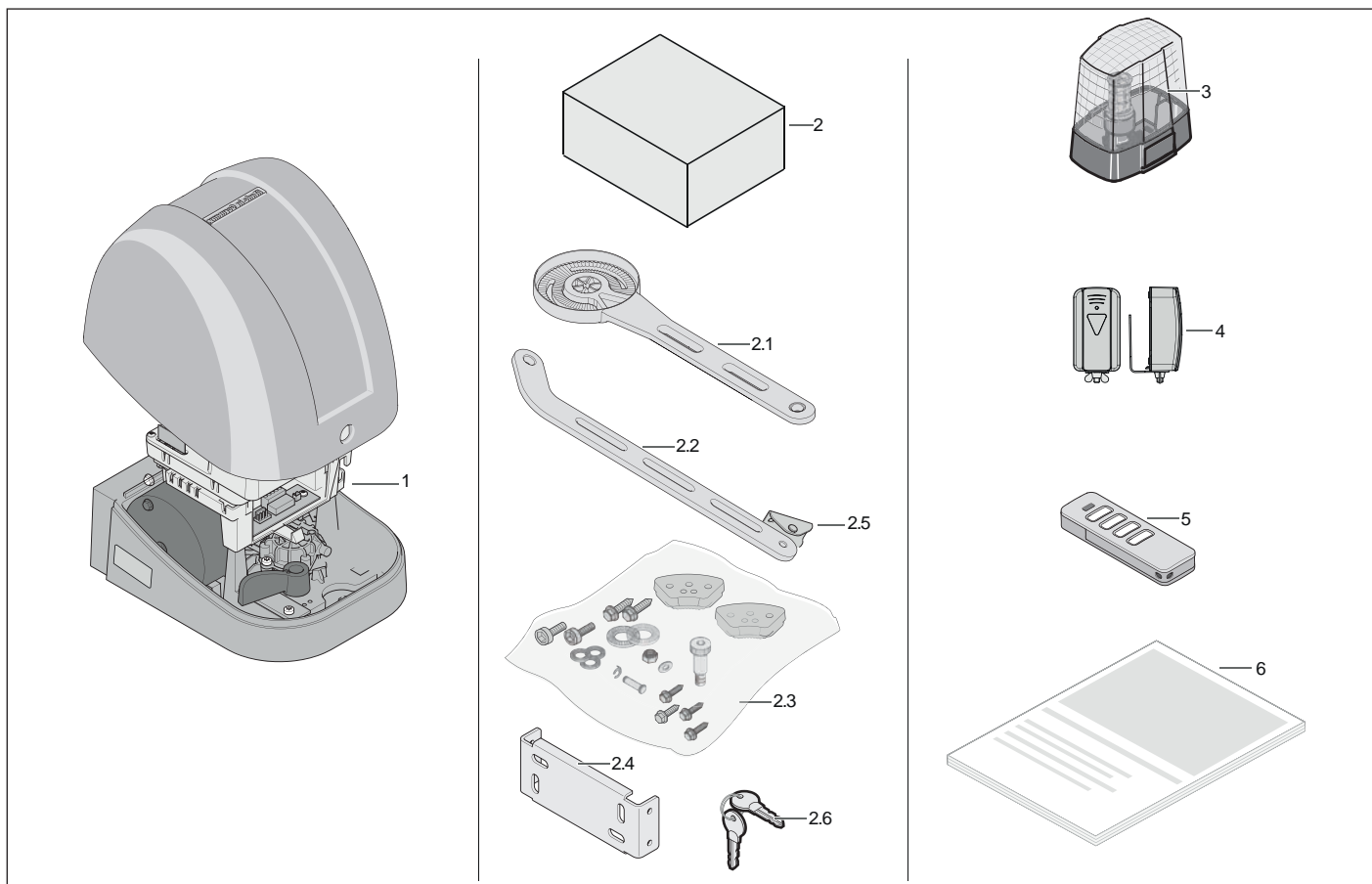


Fig. Scope of delivery for 1-leaf gates

- 1) Operator with control unit, 1 x **master** gate operator
- 2) Accessory box
- 2.1) Operator arm, L = 480 mm
- 2.2) Gate arm, L = 460 mm
- 2.3) Bag with mounting material
 - Blocking element, 2 x
 - Screw for blocking element, RIPP LOCK, M 8 x 20, 4 x
 - Washer, RIPP LOCK, d = 8 mm, 4 x
 - Screw, RIPP LOCK, M 10 x 35
 - Washer, RIPP LOCK, d = 10 mm
 - Fitting screw M 12
 - Washer M 12
 - Hexagonal nut, self-locking M 12
 - Connecting bolt
 - Safety bolt
 - Screw M 8 x 16, **self-tapping**, 4 x

- 2.4) Post fitting
- 2.5) Gate leaf fitting
- 2.6) Key, 2 x
- 3) Warning light, 24 V, 25 W
- 4) Photocell complete set
- 5) Handheld transmitter
- 6) Installation and Operating Manual



INFORMATION

Mounting material for installation on-site is not included in the scope of delivery. Select suitable mounting material for the respective subsurface.

3. Description of function and product

Scope of delivery of set for 2-leaf gates

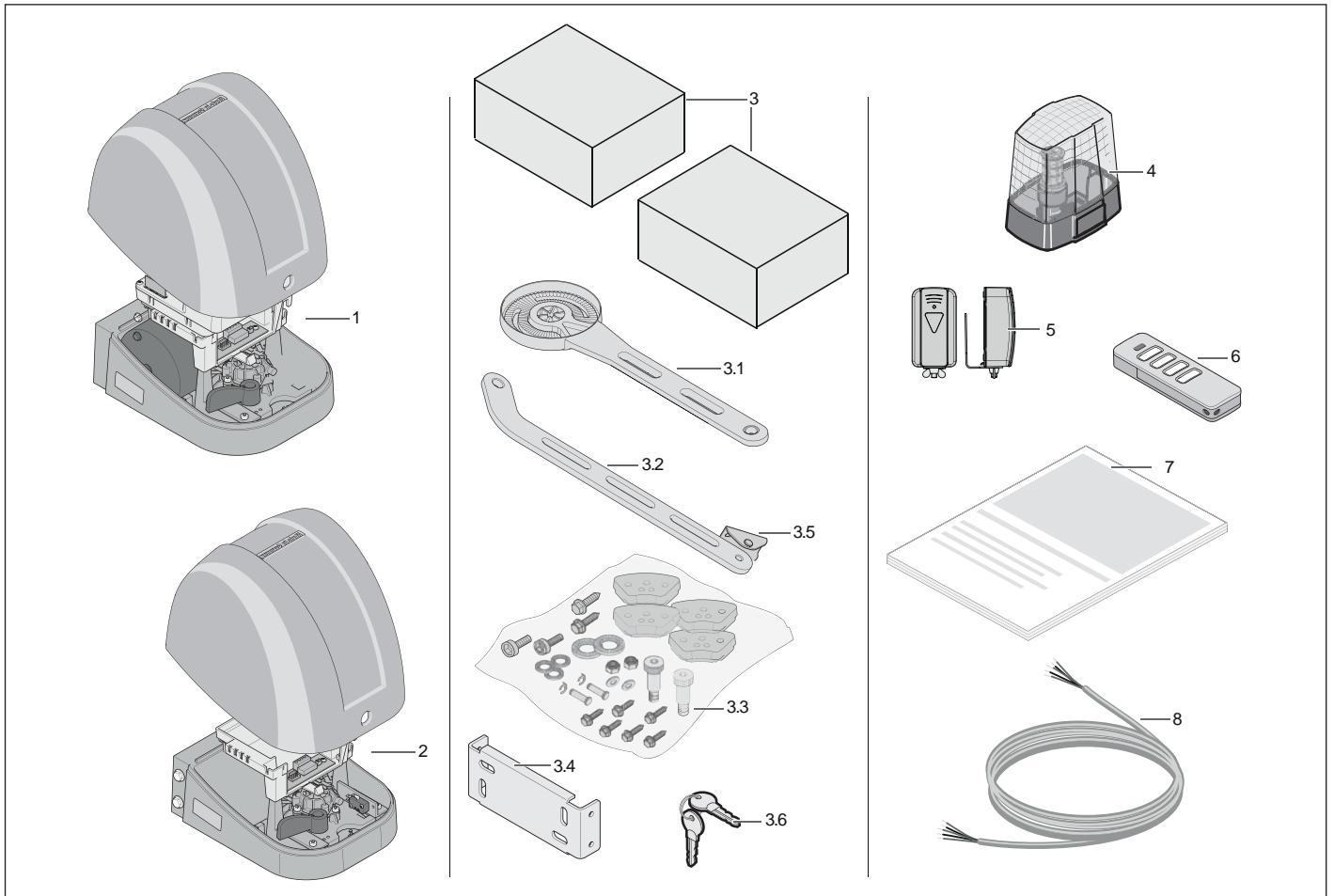


Fig. Scope of delivery for 2-leaf gates

- 1) Operator with control unit, 1 x **master** gate operator
- 2) Operator without control unit, 1 x **slave** gate operator
- 3) Accessory box, 2 x
- 3.1) Operator arm, L = 480 mm, 2 x
- 3.2) Gate arm, L = 460 mm, 2 x
- 3.3) Bag with mounting material
 - Blocking element, 4 x
 - Screw for blocking element, RIPP LOCK, M 8 x 20, 8 x
 - Washer, RIPP LOCK, d = 8 mm, 8 x
 - Screw, RIPP LOCK, M 10 x 35, 2 x
 - Washer, RIPP LOCK, d = 10 mm, 2 x
 - Fitting screw M 12, 2 x
 - Washer M 12, 2 x
 - Hexagonal nut, self-locking M 12, 2 x
 - Connecting bolt, 2 x

- Safety bolt, 2 x
 - Screw M 8 x 16, **self-tapping**, 8 x
- 3.4) Post fitting, 2 x
 - 3.5) Gate leaf fitting, 2 x
 - 3.6) Key, 2 x
 - 4) Warning light, 24 V, 25 W
 - 5) Photocell complete set
 - 6) Handheld transmitter
 - 7) Installation and Operating Manual
 - 8) Connecting cable set, length 12 m



INFORMATION

Mounting material for installation on-site is not included in the scope of delivery. Select suitable mounting material for the respective subsurface.

3. Description of function and product

Optional accessories

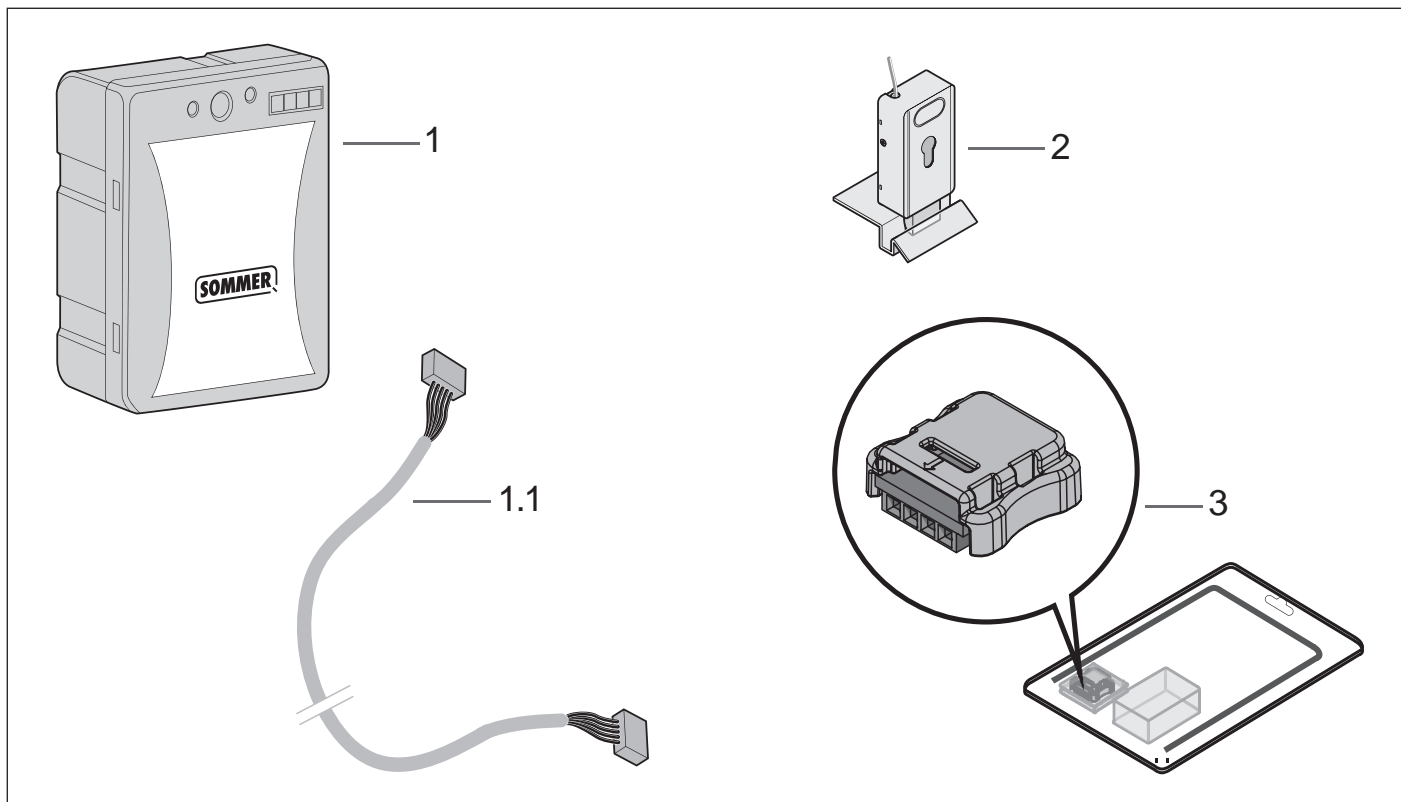


Fig. Optional accessories

- 1) Accumulator 24 V DC, 1.2 Ah
- 1.1) Connection cable for accumulator, L = 380 mm
- 2) Electric lock 24 V DC, optionally with cylinder
- 3) Memo, pluggable memory extension for radio receiver

When unpacking, make sure that all items are included in the packages. If anything is missing, contact your specialist dealer.

The actual scope of delivery may vary depending on the customer specifications or version.

3. Description of function and product

3.6 Technical data

	twist AM
Mains voltage	220 V - 240 V AC
Rated frequency	50/60Hz
Memory locations in radio receiver	40
Duty cycle	S3 = 15 %
Operating temperature	- 25 °C to + 65 °C
Emission value according to operating environment	< 50 dBA
IP protection class	IP44
IP-code	II
Max. angular velocity	approx. 11 °/s
Maximum torque per gate leaf	120 Nm
Rated torque per gate leaf	40 Nm
Rated power consumption per gate leaf	85 W
Rated current consumption per gate leaf	0.5 A
Power consumption in power-saving mode	> 0.5 W
Maximum gate weight per leaf	250 kg
Max. leaf length	2,500 mm
Gate inclination	0 %

3. Description of function and product

3.7 Overview of gate operator

The exterior views of the master gate operator and the slave gate operator are identical.

Master gate operator from outside

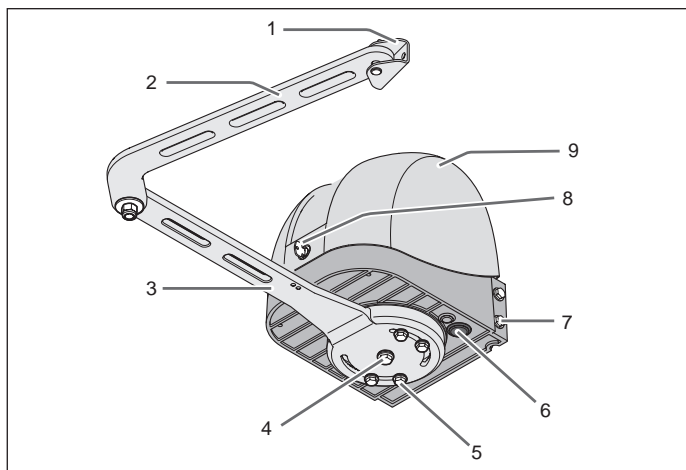


Fig. Exterior view of master gate operator, closed

- 1) Gate leaf fitting with connecting bolt and safety bolt
- 2) Gate arm
- 3) Operator arm
- 4) Screw, RIPP LOCK, M 10 x 35
- 5) Screws for blocking element, RIPP LOCK, M 8 x 20
- 6) Membrane bush
- 7) Screws M 8 x 16, self-tapping
- 8) Lever lock
- 9) Cover

Master gate operator from inside

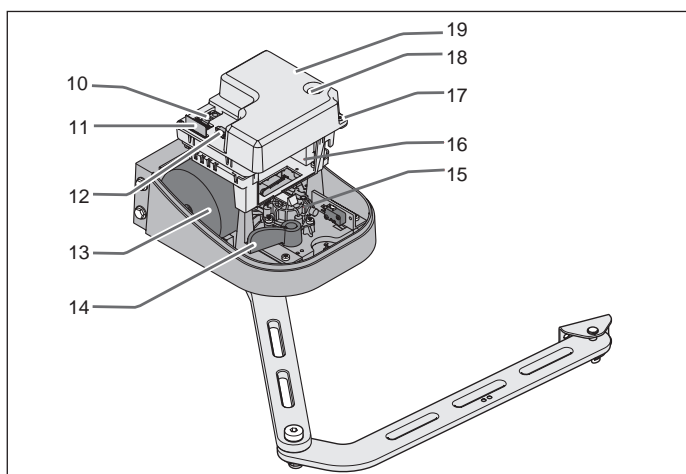


Fig. Overview of master gate operator, open

- 10) Buttons and DIP switch
- 11) Radio receiver
- 12) Memory module
- 13) Transformer
- 14) Emergency release lever
- 15) Motor with gearing system
- 16) Accumulator rack
- 17) Screws of the transparent protective cover for the control unit
- 18) Fuse
- 19) Transparent protective cover for the control unit

Slave gate operator from inside

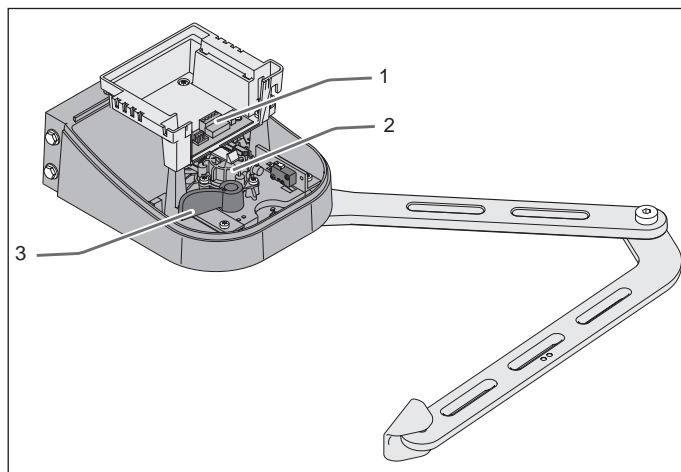


Fig. Overview of slave gate operator, open

- 1) Terminal blocks
- 2) Motor with gearing system
- 3) Emergency release lever

3. Description of function and product

3.8 Definitions

The following definitions are used in this document:

Master gate operator

Designates the operator with integrated control unit and transformer. The optional accumulator can also be installed in the **master** gate operator. We recommend installing the **master** gate operator on the side of the gate system with the power supply.

Slave gate operator

The **slave** gate operator mostly contains only the mechanical operator elements. It can be distinguished from the **master** gate operator by the type plate, the lack of a power cord and its lower weight.

Active leaf

Designates the gate leaf which opens first and closes second. The sequence of movements is necessary e.g. with a stop bar on a gate leaf.

Inactive leaf

Designates the gate leaf which opens second and closes first. 1-leaf gate systems do not have inactive leaves.



INFORMATION

1-leaf gates only have an active leaf.

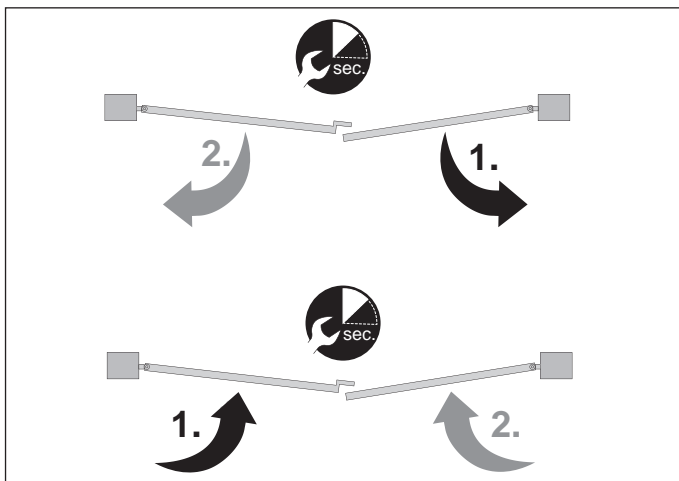


Fig. Example of movement sequence

Left gate/right gate

In this installation and operating manual, it is always assumed that the gate is viewed from the interior of the property. The operators are situated inside the property. The gate opens into the property. When installing the operators, you must decide in which direction the gate will open and close.

3.9 Dimensions and weights

Dimensions of gate leaf fitting

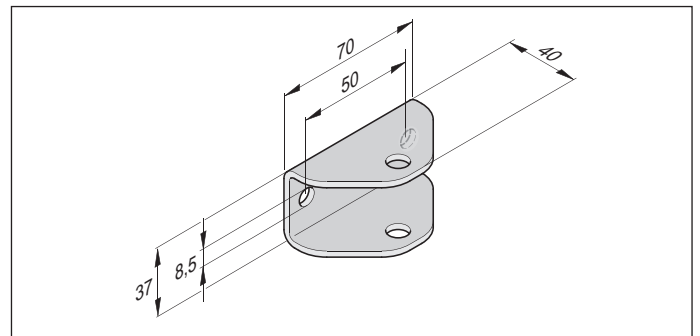


Fig. Dimensions of gate leaf fitting

Dimensions of post fitting

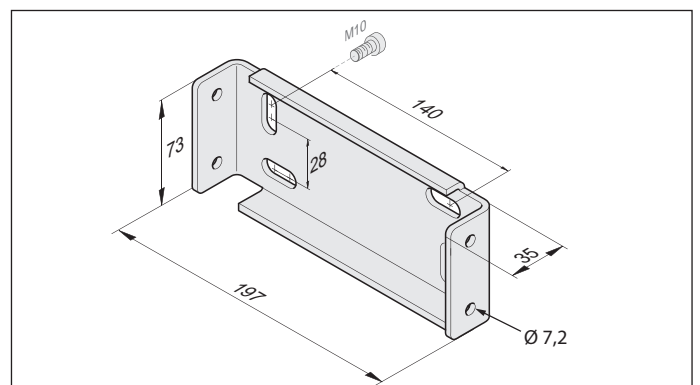


Fig. Dimensions of post fitting

Dimensions of master and slave gate operator

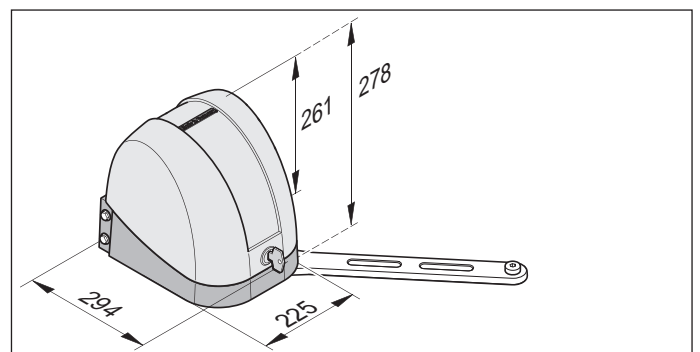


Fig. Dimensions of master and slave gate operator

4. Tools and protective equipment

4.1 Required tools and personal protective equipment

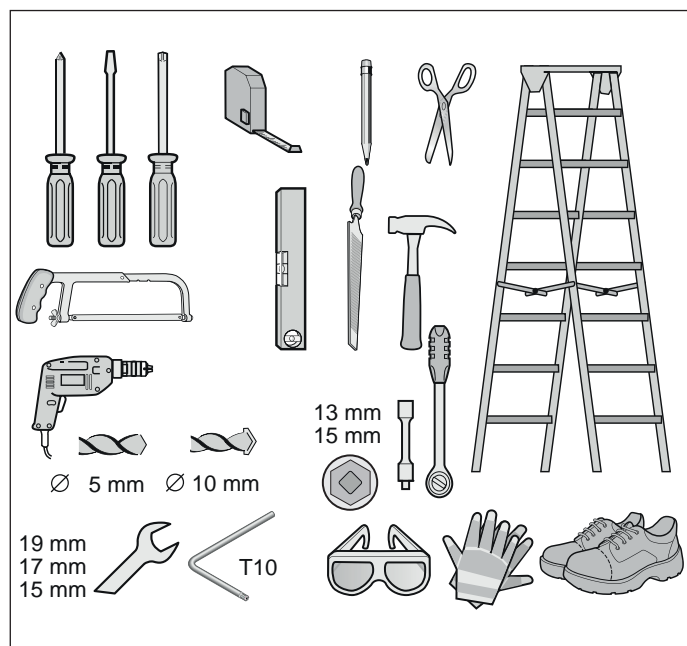


Fig. Recommended tools and personal protective equipment for installation

Tools	Size
Phillips screwdriver	PH2
Flat head screwdriver	3.5 mm
Allen wrench	8 mm
Fork or ring wrench	19 mm 17 mm 15 mm
Ratchet	1/2"
Torque wrench	1/2"
Ratchet insert	15 mm 13 mm

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



WARNING

Risk of eye injury!
Chips flying when drilling may cause serious injuries to eyes and hands.

▶ Wear safety glasses when drilling.





CAUTION

Risk of injury to hands!
Metal parts may cause abrasions and cuts when picked up or touched.



▶ Wear safety gloves when deburring or performing similar work.



CAUTION

Risk of injury to feet!
Falling parts can cause serious foot injuries.



▶ Safety shoes must be worn when performing work on the gate.

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

5. Declaration of Installation

Declaration of installation

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

SOMMER Antriebs- und Funktechnik GmbH
Hans-Böckler-Straße 21 - 27
73230 Kirchheim/Teck
Germany

hereby declares that the swing gate operator

twist AM

has 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 60335-1/2, where applicable Safety of electrical appliances / operators for gates
- EN 61000-6-3 Electromagnetic compatibility (EMC) - interference
- EN 61000-6-2 Electromagnetic compatibility (EMC) - interference resistance
- EN 60335-2-103 Safety of electrical appliances for household and similar uses
- 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, 1.2.6, 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.

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

The undersigned is responsible for compilation of the technical documents.

Kirchheim, 20-04-2016



i.V. 

Jochen Lude
Responsible for documents

6. Installation

6.1 Important information on installation

Please observe and comply with all instructions to ensure safe installation.

People under the influence of drugs, alcohol, or medications that can influence their ability to react may not work on the operator.

The installation of the operator may only be performed by a qualified specialist. This installation and operating manual must be read, understood and complied with by the qualified specialist who installs the operator.



DANGER

Danger if not observed!
If safety instructions are not observed, serious injury or death may result.

- ▶ All safety instructions must be complied with.



WARNING

Danger due to projecting parts!
Parts projecting into roads or public footpaths may seriously injure or kill persons or animals.

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



WARNING

Danger due to unstable, tilting parts!
Unstable posts or gate leaves or an improperly installed operator can tip over. Persons or animals may be struck by these parts. Severe injuries or death may result.

- ▶ Posts, gate leaves and installed operators must be stable. Suitable mounting material must be used to attach the operator to the gate post and the gate.



WARNING

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

- ▶ Only use the operator when you have a direct view of the gate.
- ▶ All danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.



WARNING

Danger of tripping and falling!
Unsafely positioned parts such as packaging, operator parts or tools may cause trips or falls.

- ▶ Keep the installation area free of unnecessary items.
- ▶ Place all parts where no-one is likely to trip or fall over them.
- ▶ The general workplace guidelines must be observed.



WARNING

Risk of eye injury!
Chips flying when drilling may cause serious injuries to eyes and hands.

- ▶ Wear safety glasses when drilling.



6. Installation



WARNING

Risk of injury to feet!
Falling parts can cause serious foot injuries.



- ▶ Safety shoes must be worn when performing work on the gate.



CAUTION

Risk of injury to hands!
Metal parts may cause abrasions and cuts when picked up or touched.



- ▶ Wear safety gloves when deburring or performing similar work.



NOTE

If the gates or the gate posts are unstable, parts could break off or the operator could fall. Objects may be damaged. Gates and gate posts must be stable.



NOTE

To prevent damage to the gate or operator, use only suitable and approved fastening materials such as wall plugs or screws. The fastening material must be suitable for the material of the gates and gate posts.



NOTE

Damage to the gate system can occur if the gate leaves are relatively large or the leaf filling level is high and there is high wind pressure. We recommend using electric locks for secure locking.



INFORMATION

Ask your specialist dealer if you require additional installation accessories for different installation or attachment situations.

6.2 Preparation for installation

Check the existing gate mechanism and installation posts

Before beginning installation, ensure that the operator is suitable for the existing gate system.

The existing gate system must meet the following criteria:

- Gate length of a leaf 0.80 m to 2.50 m.
- Maximum gate height 2.00 m
- Maximum weight of an individual gate leaf 250 kg.
- Weight should be evenly distributed.
- It must be possible to move the gate leaf easily by hand in the entire swivel range.
- The gate leaf must stand still in every position and must not move independently into a default state.
- Not suitable for inclined gates.
- Stable installation posts.
- Closed area on the gate leaf must not be larger than the maximum allowed cover, see the table below.

Height (m)	Filling level [%]			
2.0	100	80	40	30
1.5	100	100	60	40
1.0	100	100	80	50
Length (m)	1.0	1.5	2.0	2.5

Tab. Relation of gate surface to filling level

Use of electric locks

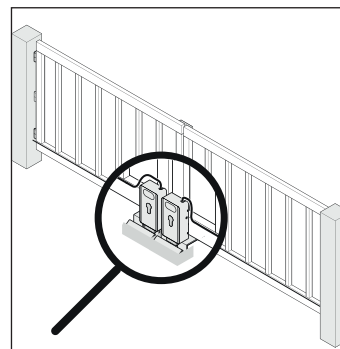


Fig. Installation example for electric locks

To lock the gate securely, a separate electric lock is recommended for every gate leaf. This applies in particular for gate lengths of over 2 m.

The requirements described below must be complied with: DIN EN 1991-1-4 Wind pressure, with values 32.3 m/s, wind zone 2, and 11 on the Beaufort scale.

6. Installation



NOTE

Strong wind can push the gate open. This may cause damage to the operator or the gate system. The use of an electric lock in addition is recommended for relatively large gate leaves or gate leaves with high filling levels.

Fastening dimensions on posts



WARNING

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

- ▶ The required safety distances to fixed elements must comply with standards including EN 13241-1. The respective country-specific requirements must be observed.

The following criteria must be fulfilled for mounting on the gate:

- Post dimensions must be at least 25 x 25 cm.
- Material of the posts must have sufficient strength for the forces generated.
- The installation position of the fittings must be within the permitted values of dimensions A/B/C/D.

A (mm)	B (mm)	C (mm)	D (mm)	Angle
200	155	720	480	90°
	200	715		
	250	705		
	300	694		
	350	678		
	400	660		
	450	639		
225	155	695	100°	
275		645	110°	
350		570	120°	
400		519	130°	

Fig. Permitted specifications of dimensions A, B, C, D and the corresponding opening angles

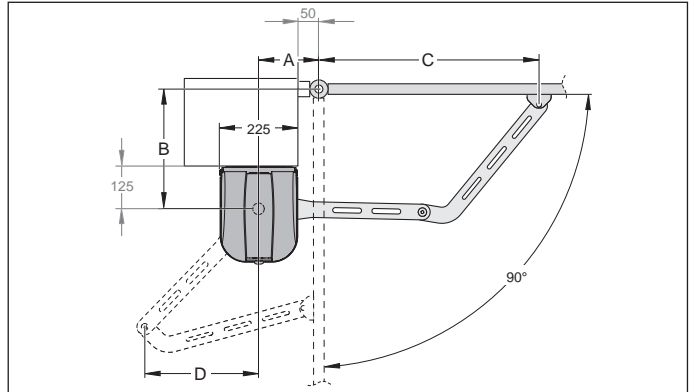


Fig. Dimensions A/B/C/D, opening angle 90°

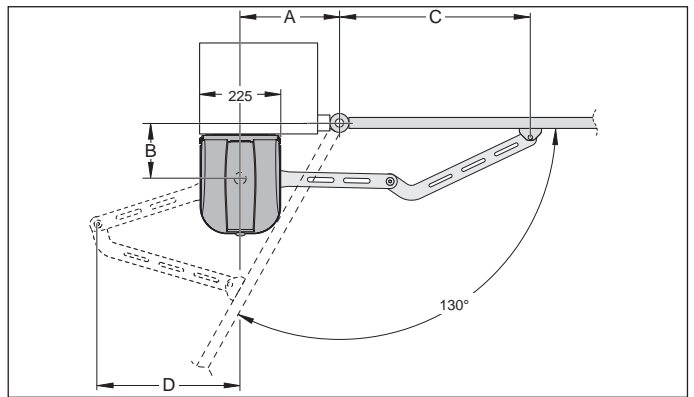


Fig. Dimensions A/B/C/D, max. opening angle 130°

- If the opening angles of the two gate leaves deviate, dimensions A/B/C/D must be selected appropriately.
- The safety distances comply with the standard for the gate type.
- The intended installation surface on the post must be vertical and flat. The post fitting must be positioned flat during installation. Uneven areas or slopes must be flattened out before installation.



INFORMATION

Overextension of the gate arm can be prevented in the case of deviating dimensions. To do so, the defined position for the gate fitting must be shifted 15 mm towards the gate post with the gate arm extended.

Removing unsuitable components

Before installation, remove:

- All manual locking systems, e.g. door locks
- Dampers or spring elements

6. Installation



NOTE

If attached parts, e.g. bolts or locks, are installed on a gate, they may block the operator. This may cause faults or damage to the operator.

Before installing the operator, remove all attached parts or reliably disable them.

Definition of master/slave gate operator

In the case of 2-leaf gate systems, the position of the master gate operator must be defined before beginning installation. We recommend installing the master gate operator on the side of the gate with the power supply.

6.3 Pre-assembly of operator arm

Mechanical stops, so-called blocking elements, can be installed in the operator arm. These are additional safeguards for the gate system. The blocking elements can be omitted if fixed stops are present.

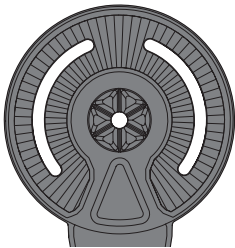
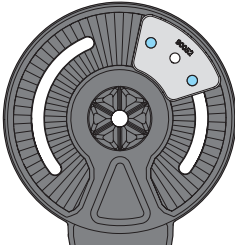
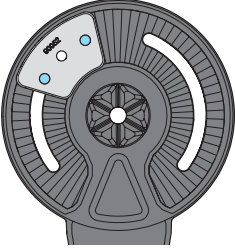
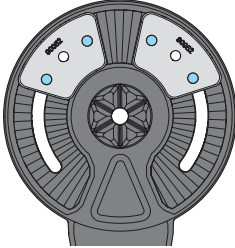
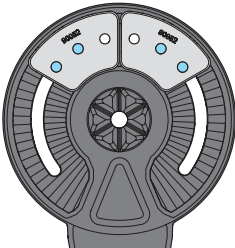


NOTE

The operator switches off via fixed stops. Fixed stops are required for gate OPEN and gate CLOSE. The existing stops on the gate system must be used as fixed stops.

The supplied blocking elements can be used in addition to the existing fixed stops. This is an additional safeguard for the gate system.

Use of the blocking elements

Blocking element in the gate arm	Left gate	Right gate
	Fixed stops present in the gate system for gate OPEN and gate CLOSE	
 *1	Blocking element in addition to gate OPEN fixed stop	Blocking element in addition to gate CLOSE fixed stop
 *1	Blocking element in addition to gate CLOSE fixed stop	Blocking element in addition to gate OPEN fixed stop
 *1	Blocking elements in addition to gate OPEN and gate CLOSE fixed stops	
 *2		

*1 Blocking element is mounted on the two outer threads.

*2 Blocking element is mounted on the two **centre** and on **one outer** thread. The possible swivel area of the gate arm is extended when using this installation option.

6. Installation

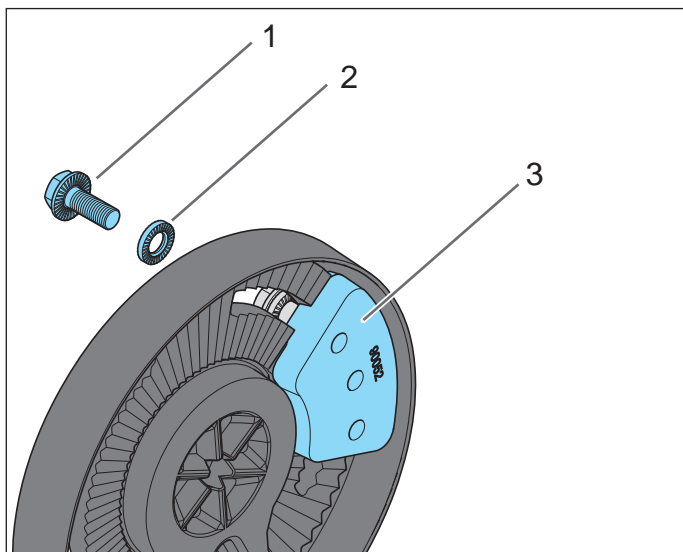


Fig. Installation example for the blocking element

- 1) Screw for blocking element, RIPP LOCK, M 8 x 20
- 2) Washer, RIPP LOCK, d = 8 mm
- 3) Blocking element

Installing the blocking element

1. Insert the blocking element into the operator arm and attach with 2 screws and 2 washers. To do so, use the screws M 8 x 20 and the washer d = 8 mm for the blocking element.

It must still be possible to shift the blocking element in the cut-out.

2. If necessary, install the second blocking element accordingly.

6.4 Installation on the operator arm

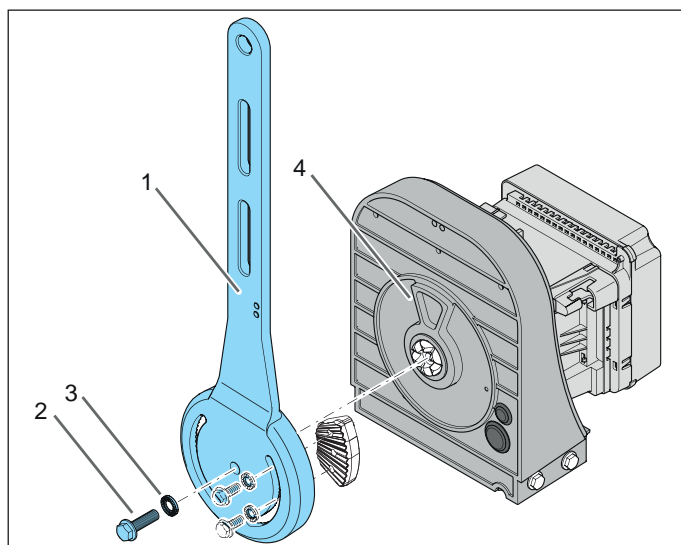


Fig. Installation example for the operator arm with one blocking element

- 1) Operator arm
- 2) Screw, RIPP LOCK, M 10 x 35
- 3) Washer, RIPP LOCK, d = 10 mm
- 4) End stop for the blocking element

Installing the operator arm

1. Position the operator upright as shown in the diagram.
2. Hold the operator arm approximately vertically and observe the position of the holes .
With screw M 10 x 35 and washer d = 10 mm, screw the operator arm to the operator. Tightening torque 75 Nm.
Ensure that the parts are friction-locked.



WARNING

Danger of crushing and shearing!
When tightening the screws, the operator arm can rotate in the screwing direction and hit people. This may cause crushing or shearing injuries.

- When tightening the screws, hold the upper section of the operator arm against the direction of rotation.

6. Installation

6.5 Installing the post fitting

The position of the post fitting is dependent on various factors:

- Height of the gate leaf fitting
- Opening angle of the gate
- Comply with dimensions A/ B/ C/ D, see chapter "6.2 Preparation for installation", section "Fastening dimensions on posts".

NOTE

To prevent damage to the gate or operator, use only suitable and approved fastening materials such as wall plugs or screws. The fastening material must be suitable for the material of the gates and gate posts.

NOTE

If the gates or the gate posts are unstable, parts could break off or the operator could fall. Objects may be damaged. Gates and gate posts must be stable.

Installing the post fitting

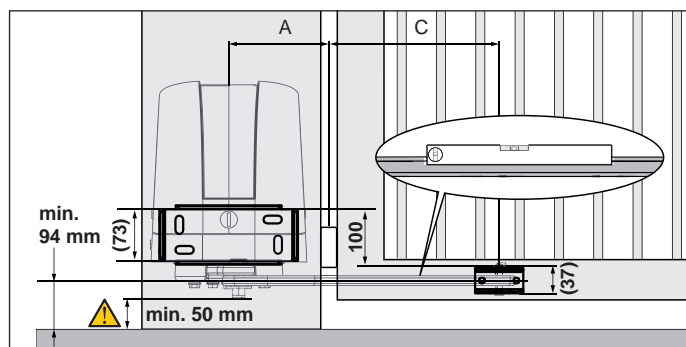


Fig. Dimensions of fittings

1. Determine the vertical position of the gate leaf fitting.
 - The position for the gate leaf fitting must be fixed and stable.
 - The centre of the gate leaf fitting must be at least 94 mm from the ground.
 - The screws on the underside of the gate arm must be accessible.
2. Determine and mark the horizontal position of the gate leaf fitting. Comply with the permissible dimensions A/ B/ C/ D, see chapter "6.2 Preparation for installation", section "Fastening dimensions on posts".
3. Determine the position of the post fitting. There must be enough space above the cover to allow you to remove it.

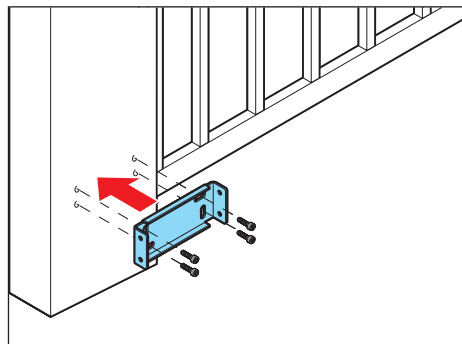


Fig. 4

4. Align the post fitting vertically and horizontally and install on the post with suitable and permissible mounting materials. The short splay on the post fitting must point upwards.

6.6 Installing the operator

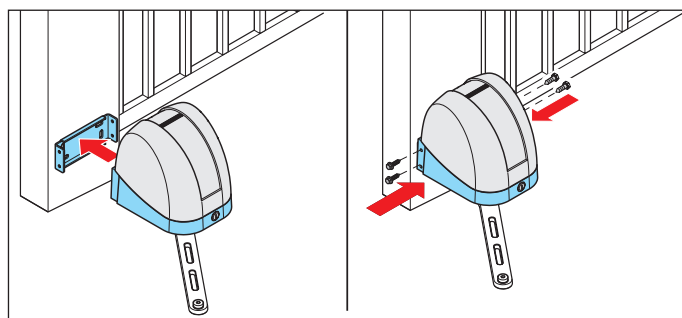


Fig. 1

Fig. 2



CAUTION

Risk of injury to feet!
Falling parts can cause foot injuries.



- ▶ Wear safety shoes.
- ▶ Hold the operator firmly until all 4 screws are tightly screwed in.

1. Position the operator on the post fitting or fasten it provisionally.
2. Lightly grease self-tapping screws M 8 x 16. Fasten the operator to the post fitting with the 4 screws. Tightening torque 20 Nm
The bore holes on the post fitting do not have pre-cut threads.

6. Installation

6.7 Installing the gate arm

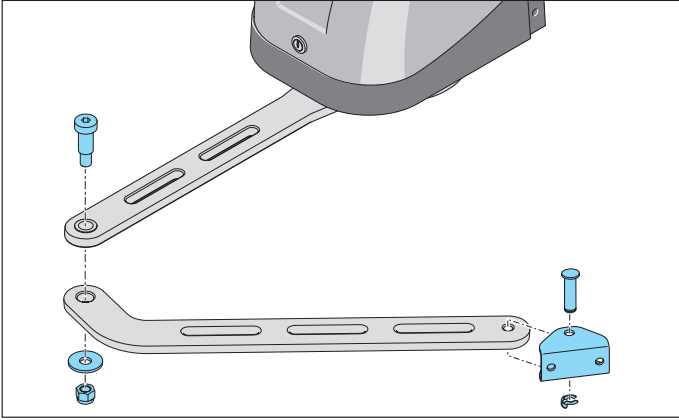


Fig. Gate arm installation, left gate

1. Hold the gate arm so that the bent part points towards the operator. The gate arm is always installed below the operator arm.
2. Attach the gate arm to the operator arm with the fitting screw M 12, the washer and the self-tapping hexagonal nut. Tightening torque 80 Nm.
3. Using suitable materials, fasten the gate leaf fitting provisionally in the defined position on the gate leaf.
4. Lightly grease the connecting bolt. Slide the gate leaf fitting over the gate arm and stick the connecting bolt through.
5. Secure the connecting bolts with the safety bolt.

6.8 Checking for freedom of movement



⚠ 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.

- ▶ All work on electrical components may only be carried out by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



NOTE

The activities in this section must be performed with the system disconnected from the mains voltage. Unplug the accumulator if necessary. This prevents damage to the operator.

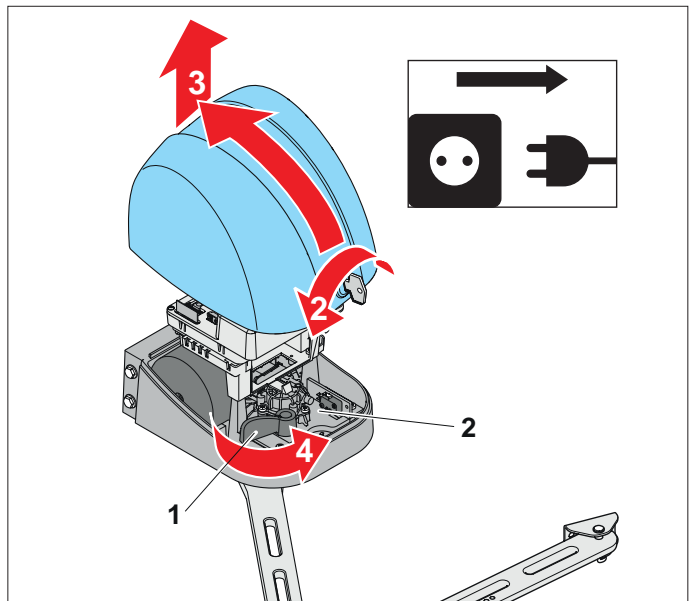


Fig. Bottom section of housing - emergency release lever (1), motor plate (2)

1. Disconnect the operator from the mains voltage, see chapter "7.2 Disconnecting the control unit from the mains voltage".
2. Insert the key and turn it 90° to the left.

6. Installation

3. Tilt the cover slightly towards the rear and remove it in upward direction.
4. Turn the emergency release lever (1) at the front stop.
 - ⇒ The motor plate (2) moves back.
 - ⇒ The operator is released from the gate arm.



INFORMATION

If an electric lock was used, release it separately, see separate installation instructions.

5. Check whether blocking elements are installed in the gate arm and whether they can be moved. Otherwise, slightly unscrew the screws of the blocking elements.



INFORMATION

If the blocking elements of the operator are used in addition to the fixed stops on the gate, see chapter "6.9 Adjusting the blocking elements."



INFORMATION

The distance between the rotation point on the gate leaf fitting and the rotation point of the gate arm must be at least 15 mm smaller than the extended length of the operator arm and the gate arm. See chapter "6.2 Preparation for installation", section "Table of dimensions A/ B/ C/ D."

6. Carefully open and close the gate several times by hand.
As you do so, check the following:
 - Nothing jams.
 - The gate arm always remains horizontal.
 - The intended end positions are reached.
 - Safety distances in accordance with EN 13241-1 must be observed at all times.
 - Fixed stops for gate OPEN and gate CLOSE.
7. Finally, the gate position can be fine-tuned by moving the gate leaf fitting.

6.9 Adjusting the blocking elements

The supplied blocking elements for gate CLOSE and gate OPEN can be used in addition to the existing fixed stops. The blocking elements can be omitted if fixed stops are present.

Setting gate OPEN blocking element

1. Ensure that the operator is unlocked with the emergency release lever and that the gate leaf fitting is provisionally fixed to the gate.
2. Move the gate to the intended end position for gate OPEN.
3. Slide the blocking element with the associated screws forward on the side facing the gate as far as the perceptible stop. For assignment of the blocking elements, see chapter "6.3 Pre-assembly of operator arm."
4. Tighten the screws of the blocking element. The end position for gate OPEN is dependent on the detent mechanism on the blocking element and can be set in the frame of the detent mechanism.
5. Check whether the gate OPEN end position is correct.
If necessary, loosen the screws of the blocking element and move the blocking element one catch.

Setting gate CLOSE blocking element

1. Ensure that the operator is unlocked with the emergency release lever and that the gate leaf fitting is provisionally fixed to the gate.
2. Move the gate to the intended end position for gate CLOSE. With 2-leaf gates, make sure that they are lined up.
3. Using the M 8 x 20 screws, slide the blocking element forwards on the side of the gate facing away from you as far as the perceptible stop. For assignment of blocking elements, see also chapter "6.3 Pre-assembly of operator arm."
4. Tighten the screws of the blocking element. The end position for gate CLOSE is dependent on the detent mechanism on the blocking element and can be set in the frame of the detent mechanism.
5. Check whether the gate end position is correct. If necessary, loosen the provisional fastening of the gate leaf fitting and slide the gate leaf fitting slightly in horizontal direction. Changing the position of the gate leaf fitting can also change the end position of the open gate.

6. Installation

The position of the gate CLOSE blocking element must then be corrected.

6.10 Installing the gate leaf fitting

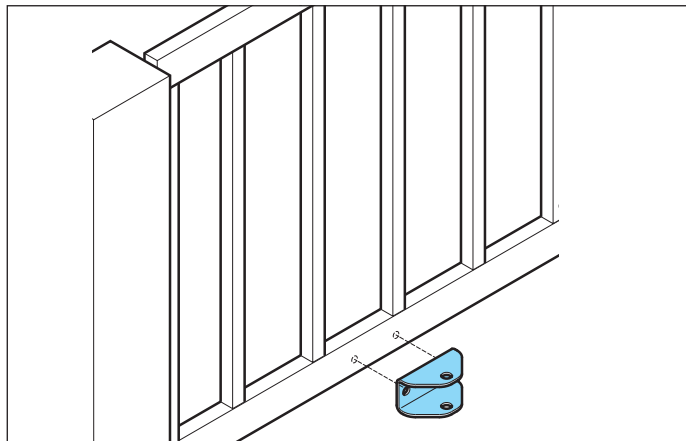


Fig. Installation example for the gate leaf fitting

When the freedom of movement has been checked and if necessary, the blocking elements set, the gate leaf fitting can be fixed firmly to the gate.

1. Mark the position of the gate leaf fitting on the gate.
2. Remove the connecting bolts on the gate leaf fitting.
3. Align the gate leaf fitting vertically and horizontally and install on the gate with suitable and permissible mounting materials.
4. Install the gate arm on the gate leaf fitting with the connecting bolt and the safety bolt.

6.11 Installing accessories

Only SOMMER accessories may be connected. The accessories, e.g. warning light or photocell, come with separate installation instructions.

Position of photocells

We recommend installing the supplied photocell on the outside. As an option, a second photocell can be installed inside for additional functions, see application example in Chapter "3.1 The operator and its mode of operation." Select the position of the photocell so that the movement of the gate leaf does not interrupt the light beam.



NOTE

We recommend installing a second photocell inside and outside at an installation height of e.g. 600 mm. This makes it possible to also secure larger vehicles.

7. Electrical connection and special functions

7.1 Test with provisional connection

Please observe and comply with all instructions to ensure safe installation.

People under the influence of drugs, alcohol, or medications that can influence their ability to react may not work on the operator.

Work on the electrical system and live parts may only be performed by a **trained electrician**.



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.

- ▶ All work on electrical components may only be carried out by a **trained electrician**.
- ▶ Before initial operation, ensure that the voltage of the power source matches the voltage listed on the type plate.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



WARNING

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

- ▶ All danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.



NOTE

To prevent damage to the operator, do not connect the control unit to the power supply until installation is complete.



NOTE

The master gate operator is delivered with a connected power cord for adjustment work and provisional initial operation. The power cord must be removed after initial operation and replaced with a fixed mains power connection with a mains circuit breaker. Otherwise, the operator will be damaged.

The **master** gate operator is equipped with a power cord at the factory for tests and initial operation. This power cord with plug is not suitable for continuous use. After initial operation, the power cord must be replaced, see chapter "**7.16 Connecting mains power supply.**" The power outlet for the power cord must be protected by a fuse. Local and national installation regulations (e.g. VDE) must be observed.

7. Electrical connection and special functions

7.2 Disconnecting the control unit from the mains voltage



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.

- ▶ All work on electrical components may only be carried out by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



WARNING

Danger due to hot parts!
After frequent operation, the motor and control unit may become hot. If the cover is removed and hot parts are touched, they may cause burns.

- ▶ Allow the operator to cool down before removing the cover.



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.



INFORMATION

The terminals on the circuit board of the control unit are pluggable.

1. Disconnect the control unit from the mains voltage.
2. If installed, pull off the connecting cable on the accumulator.
3. Only then can the screws of the transparent protective cover can be removed with a Phillips screwdriver.
4. Remove the transparent protective cover.

7. Electrical connection and special functions

7.3 Overview of control unit



PH 2

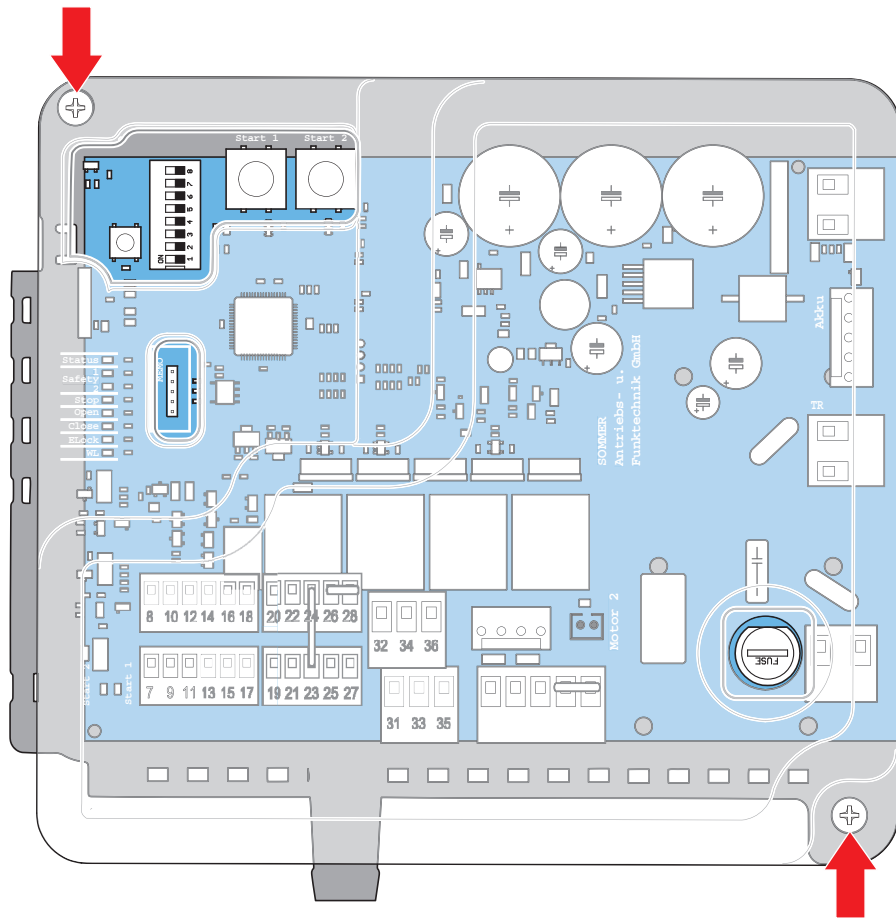


Fig. Control unit with transparent protective cover



DANGER

Danger due to electric current! When the transparent protective cover of the control unit is removed, there is access to dangerous electrical voltage. Contact with live parts may result in electric current flowing through the body. Electric shock, burns or death may result.

- ▶ The transparent protective cover of the control unit may only be removed by a **trained electrician**.

The control unit is protected with a transparent cover. The LED displays on the circuit board are visible through this transparent cover. Elements necessary for the user are accessible through cut-outs in the protective cover. Only a **trained electrician** may remove the transparent protective cover of the control unit and make changes in the accessible areas.

7. Electrical connection and special functions

7.4 Connection options on the master and slave gate operator

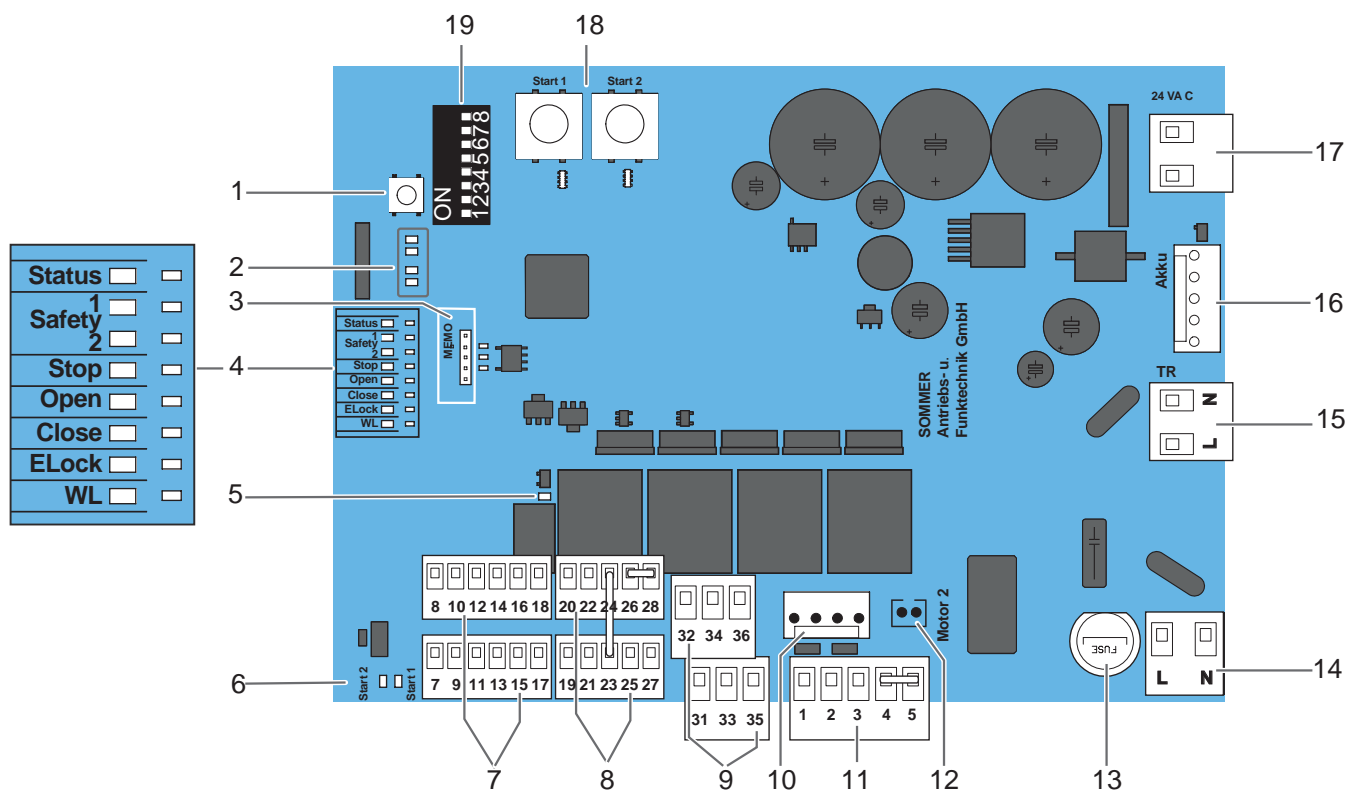


Fig. Position of components and connections of the **master** gate operator

Circuit board for master gate operator

1	Radio button (radio)	16	Terminal for accumulator, pluggable connection, cannot be interchanged
2	LEDs (red), CH 1 - CH 4, display for radio channel	17	Secondary voltage transformer, connected in factory state
3	Slot for extended radio memory (Memo)	18	"START 1" and "START 2" button, for left and right motor
4	LEDs for status (green), safety devices (red) and functions (yellow)	19	DIP switch configuration
5	LED (yellow) for status of multi-function relay (MUFU)	Slave gate operator circuit board	
6	LEDs (yellow) for external start button		
7	Connections for safety and monitoring devices	Fig. Position of components and connections of the slave gate operator	
8	Connections for control elements	1	Motor connection for slave gate operator, connected in factory state
9	Connections for warning light and electric locks	2	Terminal for connection cable (master gate operator/ slave gate operator)
10	Motor connection for master gate operator/Motor 2	3	Signal of emergency release on the slave gate operator, connected in factory state
11	Motor connection for slave gate operator/ Motor 1, in factory state with a jumper between PIN 4 and 5		
12	Signal of emergency release on the master gate operator, connected in factory state		
13	Fuse (5 x 20 mm, 1.6 AT)		
14	Mains power (L, N), 220 V - 240 V AC		
15	Primary voltage transformer, connected in factory state		

7. Electrical connection and special functions

7.5 Overview of the LEDs

The flash sequences show information on malfunctions for technicians, end customers and telephone support.

LED	Flash sequence	Cause
Status (green)	<input type="checkbox"/> Off	• Operating voltage absent or power-saving mode activated
	<input checked="" type="checkbox"/> On	• Hardware self-test
		• Normal operation, flashes while gate is moving • Programming mode activated • Pre-warning time activated • During reversing movement or soft reversal
		• Waiting for confirmation during the gate CLOSE position programming run / gate OPEN position programming run
		• Fault display • Safety device not OK before movement • Safety device interrupted during movement • Interrupted safety device, see chapter "11.9 Jog mode in the event of faults"
		• Display of a fault, see chapter "13. Troubleshooting"
		• Service required (e.g. pre-set limit value reached)
Safety 1 (red)	<input type="checkbox"/> Off	• No safety device connected in exterior
	<input checked="" type="checkbox"/> On	• Safety device detected in exterior
		• Safety device in exterior interrupted/fault
Safety 2 (red)	<input type="checkbox"/> Off	• No safety device connected in interior
	<input checked="" type="checkbox"/> On	• Safety device detected in interior
		• Safety device in interior interrupted/fault
Stop (red)	<input type="checkbox"/> Off	• Emergency stop not activated
	<input checked="" type="checkbox"/> On	• Emergency stop activated
Open (yellow)	<input type="checkbox"/> Off	• Operator is deactivated
	<input checked="" type="checkbox"/> On	• Operator running in gate OPEN direction
Close (yellow)	<input type="checkbox"/> Off	• Operator is deactivated
	<input checked="" type="checkbox"/> On	• Operator running in gate CLOSE direction
ELock (yellow)	<input type="checkbox"/> Off	• Electric lock is locked
	<input checked="" type="checkbox"/> On	• Electric lock is unlocked
Warning light, WL (yellow)	<input type="checkbox"/> Off	• Operating voltage absent, power-saving mode activated
	<input checked="" type="checkbox"/> On	• Warning light is triggered/activated • Gate movement is displayed, no other status indication possible
		• Normal operation, flashes while gate is moving • Programming mode activated • Pre-warning time activated • During reversing movement or soft reversal
		• Waiting for confirmation during the gate CLOSE position programming run or gate OPEN
		• Fault display. Display via warning light for additional 10 seconds after a gate movement • Safety device not OK before movement • Safety device interrupted during movement • Interrupted safety device, see chapter "11.9 Jog mode in the event of faults"
		• See chapter "13. Troubleshooting"
		• Service required (e.g. pre-set limit value reached)
Multi-function relay, MUFU (yellow)	<input type="checkbox"/> Off	• Multi-function relay is deactivated
	<input checked="" type="checkbox"/> On	• Multi-function relay is activated

A connection diagram can be found in Chapter "16. Connection diagram for twist AM"

7. Electrical connection and special functions

7.6 Basic configuration

DIP switches 7 and 8 are used to determine the positions for the **master** gate operator, **slave** gate operator and the closing sequences, see chapter "3.8 Definitions."



All DIP switches are set to "OFF" in the factory settings.



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 plastic object, to set the DIP switches.

DIP switches	ON	OFF
8 	Master gate operator is installed on the left gate leaf	Master gate operator is installed on the right gate leaf
7 	Master gate operator works as active leaf	Master gate operator works as inactive leaf

Tab. DIP switches 8 and 7 for the functions of the **master** gate operator



INFORMATION

If the basic configuration is correctly set, the **START 1** button controls the left gate and the **START 2** button the right gate.



INFORMATION

1-leaf gates only have an active leaf. Independent of the installation situation, DIP switch 7 must always be set to ON.

The basic configuration is automatically read in after applying the operating voltage.

7.7 Preparation of connections for various functions

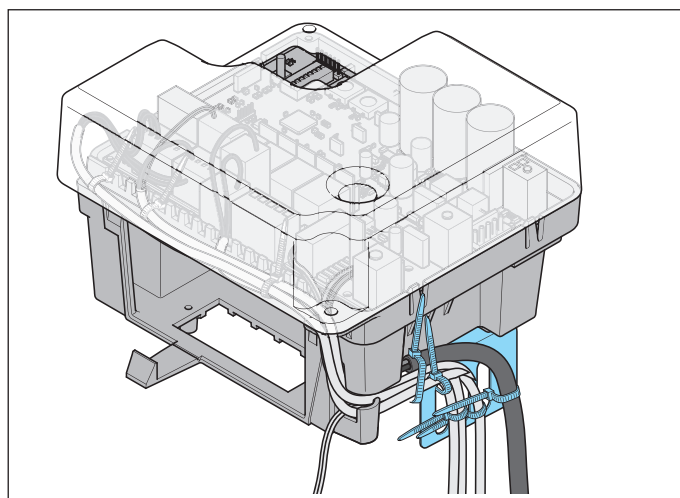


Fig. Cable routing for master gate operator

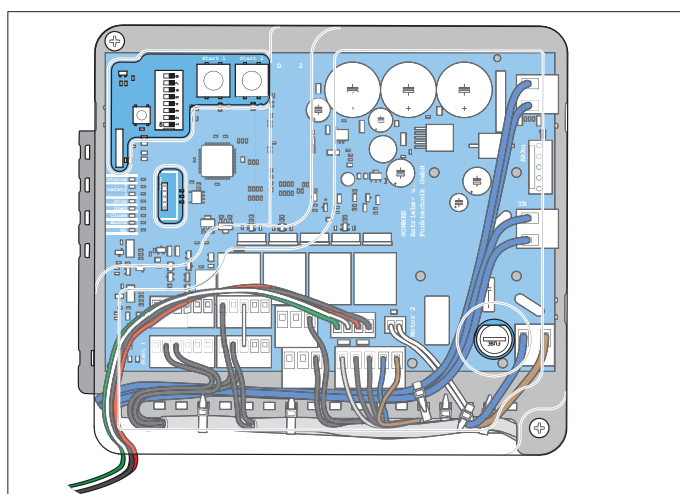


Fig. Cable routing in **master** gate operator

All cables must be routed as shown above and then secured with cable binders. The shaft for the accumulator must remain accessible at all times. The cover must not rub against the cables.

1. Feed the cables into the gate operator through the membrane bush and strip the insulation.
1. Attach core end sleeves to the strands for flexible lines.
2. Connect the individual wires to the specified terminals.



INFORMATION

Only **SOMMER** accessories may be connected to the control unit.

7. Electrical connection and special functions

7.8 Connecting slave gate operator

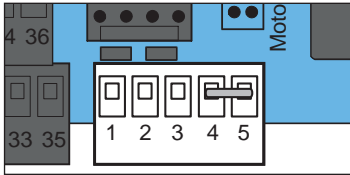


Fig. Connecting **slave** gate operator

1. Route the 5-wire connection cable from the **master** gate operator to the **slave** gate operator.
2. Remove the jumper fitted between terminals 4 and 5 on the **master** gate operator.

Master gate operator terminal	Slave gate operator terminal	Function
1	1	Motor cable
2	2	Motor cable
3	3	Hall sensor
4	4	Emergency release
5	5	Common (earth)

7.9 Connecting warning light

Terminal	Function
35	Warning light + 24 V
36	Warning light earth



INFORMATION

The warning light flashes during normal operation and at different sequences in the event of a fault. The flash sequences can only be output if there is a suitable light bulb.

If light bulbs with slow reactions or, for instance, rotating lights are used, it might not be possible to correctly detect the flash sequence.

Overview of LED warning light (Light)

• Off

- Operating voltage absent or power-saving mode activated

• On

- Warning light is triggered/activated
- Gate movement is displayed, no other status indication possible



- Normal operation, flashes while gate is moving
- Programming mode activated
- Pre-warning time activated
- During reversing movement or soft reversal

7.10 Connecting photocells

To ensure correct function, photocells and safety devices must be correctly mounted, aligned and connected before initial operation.

A 2-wire photocell is contained in the scope of delivery of the gate operator. Additional photocells can be purchased.

The control unit has 2 connections for photocells with 2- or 4-wire technology. Combinations are possible. We recommend installing the photocell at a height of less than 300 mm. To protect property, it may be necessary to install an additional photocell, for example at a height of 600 mm. Photocells can only be connected in series if the photocell has 4-wire technology. For positions of the photocells on the gate system, see the application example in Chapter "3.1 The operator and its mode of operation."



NOTE

We recommend installing a second photocell inside and outside at an installation height of e.g. 600 mm. This makes it possible to also secure larger vehicles.



INFORMATION

Only light-switching photocells with a floating relay contact and a voltage range of 12 - 20 V can be connected.

7. Electrical connection and special functions

2-wire photocell

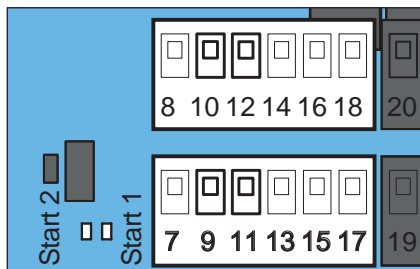


Fig. Connecting a 2-wire photocell

Photocell	Terminal	Function
Exterior Safety 1	9	Connections for photocell, any polarity
	11	
Interior Safety 2	10	Connections for photocell, any polarity
	12	

Terminals 7 and 13 or 8 and 14 are not connected when operating with 2-wire photocells.

4-wire photocell

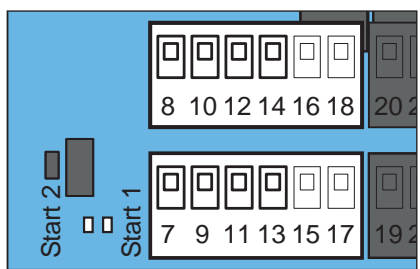


Fig. Connecting a 4-wire photocell

Photocell	Terminal	Function
Exterior	7	Supply voltage + 21 V
	9	Signal relay contact
Safety 1	11	COM relay contact
	13	Supply voltage GND
Interior	8	Supply voltage + 21 V
	10	Signal relay contact
Safety 2	12	COM relay contact
	14	Supply voltage earth

Overview of LED warning light (Safety 1 and Safety 2)

Off

- No safety device connected in exterior or interior

On

- Safety device detected in exterior or interior



- Safety device interrupted in exterior or interior, see chapter "13. Troubleshooting."

7.11 Connecting safety contact strip

To ensure correct function, photocells and safety devices must be correctly mounted and connected before initial operation.

Instead of an additional photocell for the inner side of the gate, an 8k2 strip can be connected as a safety device.

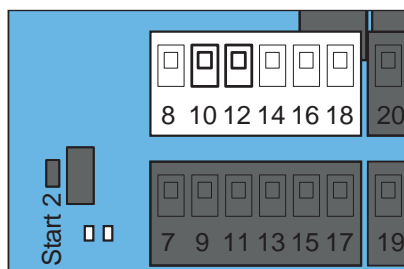


Fig. Connecting safety device

Terminal	Function
10	Safety device connections, 8K2 strip, any polarity
12	

7. Electrical connection and special functions

7.12 Connecting external emergency stop

The control unit is prepared for the connection of an external emergency stop signal.



DANGER

Danger due to electric current!
The gate operator is not disconnected from the power supply when the emergency stop is triggered. 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 may only be carried out by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



INFORMATION

When an emergency stop is triggered, the motor relay control is interrupted and the operator is forced off. There is no all-pole disconnection of the power supply. There is no gate movement after the emergency stop has been triggered. Not until the emergency stop has been released does the gate move in the gate OPEN direction. This gate movement is performed in a soft run.

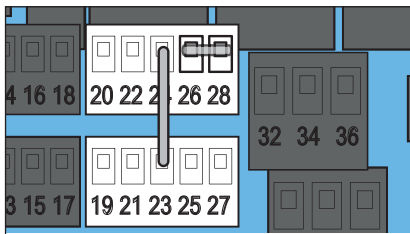


Fig. Connecting external emergency stop

1. Remove the jumper fitted between terminals 26 and 28 (factory state).
2. Connect the emergency stop control element with a floating NC contact.

Terminal	Function
26	Emergency stop common (earth)
28	Emergency stop

Overview of LED for Stop (red)

- Off
 - Stop or emergency stop not activated
- On
 - Stop or emergency stop activated

7.13 Electric lock (ELock)

The control unit is prepared for the connection of optional electric locks. Electric locks lock the gate leaves in closed state. Only **SOMMER** accessories can be connected.



NOTE

Both connections simultaneously receive a pulse when the motor starts.

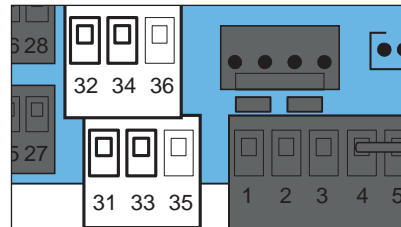


Fig. Connecting electric lock

Gate	Terminal	Function
Active leaf	31	Electric lock 1 + 24 V
	32	Electric lock 1, earth
Inactive leaf	33	Electric lock 2 + 24 V
	34	Electric lock 2, earth



INFORMATION

The voltage for the electric lock is the direct and unregulated transformer voltage. The voltage can fluctuate between 22 V and 34 V, per electric lock 15 W.

Overview of LED for ELock (red)

- Off
 - Electric lock is locked
- On
 - Electric lock is unlocked

7. Electrical connection and special functions

7.14 Connecting control elements

Off

- Stop or emergency stop not activated

On

- Stop or emergency stop activated



DANGER

Danger of crushing and shearing!
As soon as the operator is supplied with power and the gate moves, crushing and shearing injuries can arise in the gate movement area.

- ▶ Control elements may only be installed within view of the gate.
- ▶ In particular when operating control elements, all danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.

The control unit is prepared for the connection of optional control elements.

Amongst others, the following control elements are available:

- Button
- Key switch

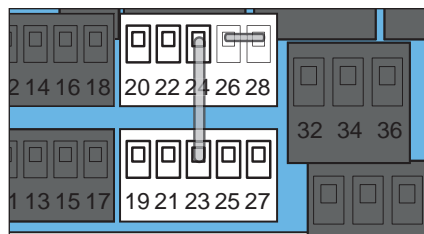


Fig. Control element connections

Terminal	Connection	Function in normal operation
19		Pulse button, active and inactive leaf
20		
21		Pulse button, active leaf
22		
23		Stops ongoing movements
25		Defined Open
27		Defined Close
24		Common (earth)

➔ **NOTE**
Continuous contacts can block the proper function of the gate operator. Only Pulse buttons may be connected.

➔ **NOTE**
The button on terminal 23 must be equipped with an NC contact. When connecting a button on terminal 23, the jumper between terminal 23 and terminal 24 (factory state) must be removed.

➔ **NOTE**
The input "Targeted opening" can be configured as input for a timer via SOMlink.

The cable for connecting a button must not be longer than 30 m.

7.15 Multi-function relay

The control unit is fitted with a multi-function relay. The multi-function relay can be used for various functions. In factory state, the multi-function relay outputs a pulse with a duration of 1 second every time the motor starts.

➔ **NOTE**
The contact of the multi-function relay is floating and may only be loaded with a maximum of 60 V/1 A.

INFORMATION
The function of the multi-function relay can be modified and adjusted with SOMlink by a qualified specialist, see chapter "7.18 Information on SOMlink."

7. Electrical connection and special functions

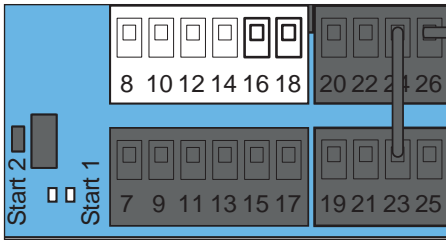


Fig. Multi-function relay connections

Terminal	Terminal assignment	Function
16	GND	1 second at motor start for additional functions, see chapter "7.18 Information on SOMlink."
18	Signal	

7.16 Connecting mains power supply

The mains power must not be connected until all other connections have been established. See from Chapter "7.7 Preparation of connections for various functions" onwards. The connection to the accumulator is established last.

In the factory state, the **master** gate operator is equipped with a power cord with plug for tests and setting. This power cord with plug is not suitable for continuous use inside or outside. The power cord with plug must be removed and a fixed mains power connection with a mains circuit breaker installed.



DANGER

Danger due to electric current! The gate operator is not disconnected from the power supply when an emergency stop is triggered. 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 may only be carried out by a **trained electrician**.
- ▶ All wires and the exposed strands must be completely double-insulated up to the contact point.



WARNING

Danger of crushing and shearing! As soon as the operator is supplied with power and the gate moves, crushing and shearing injuries can arise in the gate movement area.

- ▶ Connect the mains power and if applicable, the accumulator, at the end.
- ▶ All other connection work must be carried out with the mains voltage disconnected and the accumulator unplugged.
- ▶ All danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Never stand inside the movement area of the opened gate.



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.



NOTE

The master gate operator is delivered with a connected power cord for adjustment work and provisional initial operation. The power cord must be removed after initial operation and replaced with a fixed mains power connection with a mains circuit breaker. Otherwise, the operator will be damaged.

1. Make sure that the power supply is interrupted.
2. Remove the provisionally connected power cord (factory state).
3. The new power cord with the exterior insulation must be routed under the transparent protective cover.
4. Remove the exterior insulation over a length of about 3 cm.
5. Strip the insulation from the brown (**BR**) and blue (**BL**) strands and attach core end sleeves firmly and professionally.
6. Then pull a silicon hose over both strands and attach firmly and professionally.

7. Electrical connection and special functions

7. Fasten both wires with a cable binder in the area of the attached silicon hose.

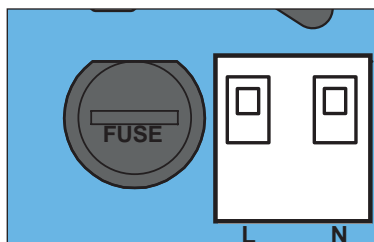


Fig. Terminals for mains power

8. Connect the single wires to terminals L and N on the terminal block on the control unit board.
9. Secure the strands against unintentional loosening of the mains power connection.



DANGER

Danger due to electric current!
Loosened strands can trigger a short circuit if they make contact with other conductive parts.

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 may only be carried out by a **trained electrician**.
- ▶ Ensure that the strands are secured against unintentional loosening after connection to the mains power and cannot trigger a short circuit.

Overview of LED for status

Off

- Operating voltage absent, power-saving mode activated

On

- Hardware self-test



- Normal operation, flashes while gate is moving
- Programming mode activated
- Pre-warning time activated
- During reversing movement or soft reversal

7.17 Installing and removing the accumulator

The accumulator is part of the optional accessories.

The accumulator can supply power during a mains power failure. A fully-charged accumulator has energy for about 5 cycles. The number of cycles depends on the mass and mobility of the gate leaf, the connected accessories as well as the age of the accumulator.

Only a **qualified electrician** is permitted to install, test and replace the accumulator.

Follow the instructions in the separate installation and operating manual for the accumulator.

See also Chapter "7.2 Disconnecting the control unit from the mains voltage."



DANGER

Danger due to electric current!
In order to insert the accumulator, the operator must be open and the electrical components must be readily accessible. 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 may only be carried out by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.

7. Electrical connection and special functions



DANGER

Danger of hazardous substances! Improper storage, use or disposal of accumulators or batteries are dangerous for the health of humans and animals. Serious injury or death may result.

- ▶ Accumulators and batteries must be stored out of the reach of children and animals.
- ▶ Keep accumulators and batteries away from chemical, mechanical and thermal influences.
- ▶ Do not recharge old accumulators and batteries.
- ▶ Components of the operator as well as old accumulators and batteries must not be disposed of with household waste. They must be disposed of properly.



WARNING

Danger of crushing and shearing! As soon as the operator is supplied with power and the gate moves, crushing and shearing injuries can arise in the gate movement area.

- ▶ Ensure that no accidental operation occurs after the accumulator is connected.



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.



NOTE

Dispose of all parts in accordance with local or national regulations to avoid environmental damage.



INFORMATION

All operator components that have been taken out of service must not be disposed of with household waste, as they contain hazardous substances. The components must be disposed of correctly at an authorised recycling centre. The local and national regulations must be observed.



INFORMATION

Old batteries and accumulators must not be disposed of with household waste as they contain hazardous substances. These must be disposed of properly at municipal collection points or in containers provided by dealers. National guidelines must be observed.



INFORMATION

Only an original accumulator from SOMMER Antriebs- und Funktechnik GmbH may be used.

Installing the accumulator

1. Plug the connection cable for the accumulator into the accumulator.
2. Slide the accumulator completely into the rack for the accumulator until the locking tab engages.

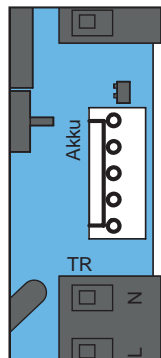


Fig. Connection for accumulator

3. Route the connection cable and insert it into plug connector 15.



INFORMATION

The accumulator is charged by the operator when mains voltage is present. An additional charging device is not necessary.



INFORMATION

The accumulator is at full capacity after 12 hours of charging.

7. Electrical connection and special functions

Removing the accumulator

The accumulator is removed in the reverse order, see chapter "7.17 Installing and removing the accumulator."

7.18 Information on SOMlink

SOMlink allows qualified specialists to change many functions and settings on the gate operator. These include force and speed values as well as operating parameters and other 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 gate operator functions.



SOMlink may only be installed by a trained specialist. Settings may also only be made by a trained specialist.

All changes to settings are logged by the SOMlink.



INFORMATION

All operator parameters are reset to the factory settings by a factory reset.



All settings via SOMlink and WiFi-enabled device are also reset.

The DIP switches can only be manually reset.

8. Initial operation

8.1 Safety information for commissioning



DANGER

Danger if not observed!
If safety instructions are not observed, serious injury or death may result.

- ▶ All safety instructions must be complied with.



WARNING

Danger of crushing and shearing!
If the gate is not visible and the radio control is operated, crushing and shearing injuries to persons may occur.

- ▶ In particular, when operating control elements like the radio control, all danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Store the handheld transmitter so that unauthorised or accidental operation, e.g., by children or animals, is impossible.
- ▶ Never stand inside the movement area of the opened gate.



INFORMATION

Operation is only possible with an original SOMMER radio receiver.

8.2 Programming of end positions and operating forces

Pre-conditions

Before programming and connecting the operating voltage for the first time, the following conditions must be fulfilled:

- Fixed stops are present on the gate system and, if necessary, blocking elements are mounted and set in the operator arm, see chapter "**6.9 Adjusting the blocking elements.**"
- The lines to the **slave** gate operator, if present, are fixed and connected, see chapter "**7.8 Connecting slave gate operator.**"
- The warning light is installed and connected, see chapter "**7.9 Connecting warning light.**"
- The photocell is installed, aligned and connected, see chapter "**7.10 Connecting photocells.**"
- The basic configuration is set at DIP switches 8 and 7, see chapter "**7.6 Basic configuration.**"
- Optional safety devices, e.g. 8K2 strip, are installed and connected, see chapter "**7.11 Connecting safety contact strip.**"

The definition of active leaf and inactive leaf can be found in Chapter "**3.8 Definitions.**"

8.3 Basic configuration and preparations

DIP switches 7 and 8 are used to determine the positions for the **master** gate operator, **slave** gate operator and the closing sequences, see chapter "**3.8 Definitions.**"

All DIP switches are set to "OFF" in the factory settings.





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 plastic object, to set the DIP switches.

8. Initial operation

DIP switches	ON	OFF
8 	Master gate operator is installed on the left gate leaf	Master gate operator is installed on the right gate leaf
7 	Master gate operator works as active leaf	Master gate operator works as inactive leaf

Tab. DIP switches 8 and 7 for the functions of the **master** gate operator

The basic configuration is automatically read in after applying the operating voltage.



INFORMATION

If the basic configuration is correctly set, the **START 1** button controls the left gate and the **START 2** button the right gate.



INFORMATION

1-leaf gates only have an active leaf. Independent of the installation situation, DIP switch 7 must always be set to ON.

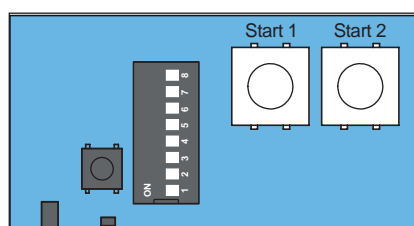


Fig. Displays and buttons for programming
The LEDs show various signals and states, see chapter "7.5 Overview of the LEDs."

- At the **master** gate operator, release the operator from the gate arm using the emergency release lever.
- Move the gate leaf to the centre position.
- Relock the operator with the emergency release lever. It might be necessary to move the gate leaf a little in order to lock it.
- If present, move the gate leaf on the **slave** gate operator into the centre position and lock.

- Insert the power plug into a power outlet and/or switch on the power supply.

For a gate with 2 leaves, continue at the section "**Programming a 2-leaf gate**," for a gate with one leaf at the section "**Programming a 1-leaf gate**."

8.4 Programming a 2-leaf gate

Programming the inactive leaf

In the case of a **2-leaf** gate, the inactive leaf must be programmed first. Then the active leaf is programmed.



INFORMATION

With a stop bar on a gate leaf, it is absolutely essential to programme the inactive leaf first.



INFORMATION

The inactive leaf must open first when the first button is pressed. If this is not the case, the basic configuration must be checked and adjusted, see chapter "8.3 Basic configuration and preparations."

- Press the **START** button for the inactive leaf **briefly** (<1 second).
 - ⇒ Inactive leaf moves to the gate **OPEN** end position and switches off **automatically**.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The warning light gives a **repeated sequence of two short flashes** when the gate **OPEN** end position is reached.
- Press the **START** button for the inactive leaf **briefly** (< 1 second) to save the end position.
 - ⇒ The end position for gate **OPEN** is saved.
 - ⇒ Inactive leaf moves to the gate **CLOSE** end position and switches off **automatically**.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The warning light gives a **repeated sequence of two short flashes** when the gate **CLOSE** end position is reached.
- Press the **START** button for the inactive leaf **briefly** (< 1 second) to save the end position. The end position for gate **CLOSE** is saved. **The operator starts its programming process automatically.**
 - ⇒ The force programming run starts **automatically**.
 - ⇒ The inactive leaf moves **automatically** first to the gate **OPEN** end position and then to the gate **CLOSE** end position. As it does so, the required operating force is programmed.

8. Initial operation

- ⇒ The warning light and Status LED flash while the gate is moving.
- ⇒ The inactive leaf moves **automatically** to the gate OPEN end position.



INFORMATION

If the inactive leaf is equipped with a stop bar and serves as a stop for the active leaf, the inactive leaf must be closed before programming the active leaf.

Optionally:

4. Press the START button for the inactive leaf **briefly** (<1 second).
 - ⇒ The inactive leaf moves **automatically** to the gate CLOSE end position.
 - ⇒ The inactive leaf is closed.

Programming the active leaf

1. Press the START button for the active leaf **briefly** (<1 second).
 - ⇒ Active leaf moves to the gate OPEN end position and switches off **automatically**.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The warning light gives a **repeated sequence of two short flashes** when the gate OPEN end position is reached.
2. Press the START button for the active leaf **briefly** (< 1 second) to save the end position.
 - ⇒ The end position for gate OPEN is saved.
 - ⇒ Active leaf moves to the gate CLOSE end position and switches off **automatically**.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The warning light gives a repeated sequence of two short flashes when the gate CLOSE end position is reached.
3. Press the START button for the active leaf **briefly** (< 1 second) to save the end position.
 - ⇒ The end position for gate CLOSE is saved.
 - The operator starts its programming process automatically.**
 - ⇒ The force programming run starts **automatically**.
 - ⇒ The active leaf moves **automatically** first to the gate OPEN end position and then to the gate CLOSE end position. As it does so, the required operating force is programmed.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The active leaf moves **automatically** to the gate OPEN end position.

4. Press the START 1 and START 2 buttons simultaneously and **briefly** (1 second) until the LEDs for Open and Close flash at the same time.
 - ⇒ The active leaf is programmed.
 - ⇒ Operator is programmed and ready for use.

Optionally:

5. Press the START button for the active leaf **briefly** (<1 second).
 - ⇒ The active leaf moves **automatically** to the gate CLOSE end position.
 - ⇒ The gate is closed.

8.5 Programming a 1-leaf gate

After the operator has been connected to the power supply and the basic configuration has been correctly set, the first movement triggered by the operator is always gate OPEN. If this is not the case, the basic configuration must be checked and adjusted, see chapter "7.6 Basic configuration."



INFORMATION

1-leaf gates only have an active leaf. Independent of the installation situation, DIP switch 7 must always be set to ON, see chapter "7.6 Basic configuration."

Programming the active leaf

1. Press the START button for the active leaf **briefly** (<1 second).
 - ⇒ Active leaf moves to the gate OPEN end position and switches off **automatically**.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The warning light gives a **repeated sequence of two short flashes** when the gate OPEN end position is reached.
2. Press the START button for the active leaf **briefly** (< 1 second) to save the end position.
 - ⇒ The end position for gate OPEN is saved.
 - ⇒ Active leaf moves to the gate CLOSE end position and switches off **automatically**.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The warning light gives a **repeated sequence of two short flashes** when the gate CLOSE end position is reached.
3. Press the START button for the active leaf **briefly** (< 1 second) to save the end position.
 - ⇒ The end position for gate CLOSE is saved.
 - The operator starts its programming process automatically.**

8. Initial operation

- ⇒ The force programming run starts **automatically**.
 - ⇒ The active leaf moves **automatically** first to the gate OPEN end position and then to the gate CLOSE end position. As it does so, the required operating force is programmed.
 - ⇒ The warning light and Status LED flash while the gate is moving.
 - ⇒ The active leaf moves **automatically** to the gate OPEN end position.
4. Press the START 1 and START 2 buttons simultaneously and **briefly** (1 second) until the LEDs for Open and Close flash at the same time.
 - ⇒ The active leaf is programmed.
 - ⇒ Operator is programmed and ready for use.

Optionally:

5. Press the START button for the active leaf **briefly** (<1 second).
 - ⇒ The active leaf moves **automatically** to the gate CLOSE end position.
 - ⇒ The gate is closed.

8.6 Detecting obstacles

There are two obstacle detection events.

Obstacle detection during programming of the end positions

If the gate runs into an obstacle during programming of the end positions, the operator stops. The warning light gives **a repeated sequence of two short flashes**.

1. **Press and hold** the START 1 or START 2 button for the corresponding gate.
 - ⇒ After 1 second, the operator triggers a **brief movement** in the last direction of travel.
2. Release the START 1 or START 2 button if the end position is reached after this brief movement. If an additional brief movement is necessary, **press and hold** the START 1 or START 2 button again until the movement is triggered.
3. The operator triggers movement in the last direction of travel as long as the START 1 or START 2 button **is held pressed** or until the forces become too great.
4. As soon as the end position is reached, release the START 1 or START 2 button.
5. Press the START 1 or START 2 button **briefly** (<1 second).
 - ⇒ End position confirmed.

This procedure is identical for both directions of travel. After both end positions have been confirmed,

the force programming run automatically starts.

Detecting obstacles during the force programming run

If the door runs into an obstacle during the force programming run, the operator stops the gate and reverses it a short distance. At the same time, the warning light flashes.

1. Press the START 1 or START 2 button for the corresponding gate **briefly** (<1 second).
 - ⇒ The force programming run continues.
 - ⇒ The gate leaf moves to the end position for the last direction selected.
2. When the obstacle detection event has been remedied, the programming process for 1-leaf or 2-leaf gates must be completed, see chapter **"8.2 Programming of end positions and operating forces."**



INFORMATION

The operating forces can be modified and adjusted by a qualified specialist via SOMlink . See Chapter "7.18 Information on SOMlink."

8. Initial operation

8.7 Setting options for the DIP switches

You can select different functions via the DIP switches. The following table summarises the various setting options.



Fig. DIP switch

Overview of setting options for the DIP switches

DIP switch	Function	Effect
1	OFF 	SAFETY 1, exterior photocell, gate movement CLOSE
	ON	SAFETY 1, exterior photocell, gate movement CLOSE
2	OFF 	SAFETY 2, interior photocell, gate movement OPEN
	ON	SAFETY 2, interior photocell, gate movement OPEN
3*	OFF 	SAFETY 2, interior photocell, gate movement CLOSE
	ON	SAFETY 2, interior photocell, gate movement CLOSE
4	OFF 	Power-saving mode
	ON	Power-saving mode
5	OFF 	Pre-warning time
	ON	Pre-warning time
6	OFF 	Automatic close, only with photocell
	ON	Automatic close, only with photocell
7	OFF 	Basic configuration
	ON	Basic configuration
8	OFF 	Basic configuration
	ON	Basic configuration



Factory setting

* The settings for DIP switch 3 only apply to photocells.



INFORMATION

All DIP switches are set to OFF with the factory settings.



INFORMATION

If a safety contact strip is connected at SAFETY 1 or SAFETY 2, the settings of the DIP switches have no effect. The reaction with safety contact strips is always EMERGENCY STOP followed by partial reversion.

8. Initial operation

8.8 Setting the automatic closing function

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.

To ensure correct functioning, photocells and safety devices must be correctly mounted, aligned and connected before initial operation, see chapter "7. Electrical connection and special functions." Only photocells from SOMMER may be connected.



WARNING

Risk of injury during automatic closing!

Automatically closing gates can injure people and animals in the movement area of the gate when the gate is closing. Serious injury or death may result.

- ▶ It is essential to install a photocell before activating the automatic closing function.
- ▶ In particular when automatic closing is activated, all danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.



NOTE

If the gate is not in view and the operator is actuated, 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.



INFORMATION

A connected photocell is a prerequisite for the automatic closing function.



INFORMATION

The automatic closing function will only start if a photocell is connected. Jumpers cannot be used. Operation with automatic closing must comply with EN 12453. This is a legal requirement. National regulations must be observed in non-European countries.



INFORMATION

Changes to the settings for pre-warning time, automatic closing and hold open time can be adjusted via SOMlink and a WiFi-enabled device. See Chapter "7.18 Information on SOMlink."



Activating the automatic closing function

1. Close the gate.



Fig. 2

2. Set DIP switch 6 to ON.
3. The gate is opened by pressing the Pulse button on the transmitter. The gate movement cannot be stopped with the transmitter. The pre-set hold open time of the gate is 1 minute. Every new command within this minute restarts the hold open time.
 - ⇒ The Status LED flashes.
 - ⇒ Gate OPEN.
4. The gate closes automatically after 1 minute.
 - ⇒ The Status LED is off.
5. The closing movement can be stopped by a command with the transmitter.
 - ⇒ The Status LED flashes.
 - ⇒ Gate opens completely - reversal of direction.
6. The gate starts the closing process again after 1 minute.
 - ⇒ The Status LED is off.
 - ⇒ Gate CLOSE.

8. Initial operation



INFORMATION

The factory setting is fully automatic closing with a pre-set hold open time of 1 minute. The hold open time starts at the gate OPEN end position and from the position of a partially opened gate. The progress of the pre-warning time is indicated by the flashing Status LED. This setting and the selection of semi-automatic closing can be adjusted via SOMlink and with a smartphone.



Shorten hold open time with:

- Close command on handheld transmitter
- Signal pulse at terminal 27
- Drive-through of photocells

Activating pre-warning time of the warning light

The warning light flashes before the start of every gate movement.

1. Close the gate.



Fig. 2

2. Set DIP switch 5 to ON.
3. If the Pulse button on the handheld transmitter is pressed:
 - ⇒ The warning light flashes for 4 seconds.
 - ⇒ The gate then opens.

8.9 Final commissioning work

The power cord installed at the time of delivery must be removed and a fixed mains power connection established at the latest after completing the adjustments.

Normal operation of the gate operator is only permitted with a fixed mains connection with a mains circuit breaker.

The mains power connection is described in Chapter "7.16 Connecting mains power supply."

9. Radio

9.1 Information on SOMloq2

The gate operator is equipped with the innovative SOMloq2 radio system. The bidirectional data transmission between the transmitter and receiver allows a wide range of functions. Transmission is tap-proof and particularly reliable thanks to the special coding. Separate antennas or other installations are not necessary. You can find more information in the separate SOMloq2 brochure.



9.2 Programming the handheld transmitter

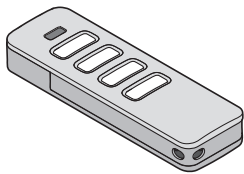


Fig. Handheld transmitter

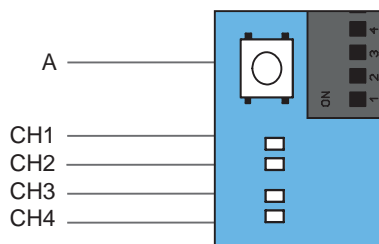


Fig. Radio button (A) and radio channels CH 1 - CH 4 on the master gate operator circuit board

Explanation of the LEDs for radio channels CH 1 - CH 4

LED	1-leaf	2-leaf
CH 1	-	Open and close both gate leaves
CH 2	Open and close active leaf	Open and close active leaf
CH 3	Open active leaf	Open both gate leaves
CH 4	Close active leaf	Close both gate leaves

These functions are assigned to the 4 radio channels in the factory state. In principle, the functions can be randomly assigned to the transmitter buttons.



INFORMATION
CH 2 must be programmed in the receiver in a 1-leaf gate system.

1. Select the desired radio channel (CH) by pressing the Radio button (A) on the control unit repeatedly.

LED	1 x	2 x	3 x	4 x
CH 1	■	□	□	□
CH 2	□	■	□	□
CH 3	□	□	■	□
CH 4	□	□	□	■

⇒ LED for the selected radio channel lights up.



INFORMATION
If no button is detected as pressed on the handheld transmitter within 30 seconds, the LED for the selected radio channel (CH) goes out and programming mode is ended.

2. Press the desired button on the handheld transmitter until the previously selected LED (CH 1, CH 2, CH 3 or CH 4) goes out.
 - ⇒ LED goes out - programming is complete.
 - ⇒ The transmitter has transferred the radio code to the radio receiver.
3. Repeat the above steps to program additional transmitters.



INFORMATION
Further transmitters cannot be programmed if all memory locations of the receiver are occupied.

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 CH 1 - CH 4 flash. If more memory space is needed, see chapter "9.3 Information on Memo."

9.3 Information on Memo

The memory capacity can be extended to 450 handheld transmitter commands using the optional Memo accessory part. When the Memo is plugged in, all available transmitters are transferred from the internal memory to the Memo and stored there. The Memo must remain plugged in on the control unit. No more transmitters are 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 chapter "9.9 Deleting all radio channels in the receiver."

9. Radio

9.4 Overview of the time sequences

15 s	20 s	25 s	30 s
Deleting a transmitter button from the radio channel	Deleting handheld transmitter completely from the radio channel	Deleting a radio channel in the receiver	Deleting all radio channels in the receiver

Fig. Time sequences for selecting the functions
The time sequences for the selection menu of the functions can be derived from the table. More exact descriptions are given in the following chapters.

9.5 Cancelling programming mode

1. Press the Radio button (A) on the control unit repeatedly until the LED for a selected radio channel goes out, or do not make an entry for 30 seconds.
⇒ Programming mode is cancelled.

9.6 Deleting a transmitter button from the radio channel

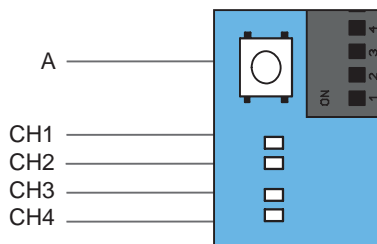


Fig. Radio button (A) and radio channels CH 1 - CH 4 on the master gate operator circuit board

1. Press the Radio button (A) repeatedly to select the desired radio channel, and keep the Radio button (A) pressed for 15 seconds.

LED	1 x	2 x	3 x	4 x
CH 1	■	□	□	□
CH 2	□	■	□	□
CH 3	□	□	■	□
CH 4	□	□	□	■

⇒ After 15 seconds, the LED of the selected radio channel flashes.

2. Release the Radio button (A).
⇒ The radio receiver is now in delete mode.

3. Press the transmitter button for which the command is to be deleted in the radio channel.
⇒ The LED for the selected radio channel goes out.
⇒ The deletion procedure is ended.
4. Repeat the process for additional buttons as required.

9.7 Deleting transmitter completely from the receiver

1. Press the Radio button (A) and hold it pressed for 20 seconds.
⇒ The LED flashes after 15 seconds.
2. After another 5 seconds, the flash sequence changes to flashing.
3. Release the Radio button (A).
⇒ The radio receiver is now in delete mode.
4. Press any button on the transmitter that is being deleted.
⇒ LED goes out.
⇒ The deletion procedure is completed.
⇒ The transmitter is deleted from the radio receiver.
5. Repeat the process for additional transmitters as required.

9.8 Deleting a radio channel in the receiver

1. Press the Radio button (A) repeatedly to select the desired radio channel, and keep the Radio button (A) pressed for 25 seconds.

LED	1 x	2 x	3 x	4 x
CH 1	■	□	□	□
CH 2	□	■	□	□
CH 3	□	□	■	□
CH 4	□	□	□	■

⇒ After 15 seconds, the LED of the selected radio channel flashes.

⇒ After another 5 seconds, the flash sequence changes to flashing.

⇒ After another 5 seconds, the LED of the selected radio channel remains steady.

2. Release the Radio button (A).
⇒ The deletion procedure is ended.

9. Radio

- ⇒ All programmed handheld transmitters on the selected radio channel are deleted from the radio receiver.

9.9 Deleting all radio channels in the receiver

With this function, **all** radio channels in the receiver are deleted. When the Memo accessory part is used, **all** data on the Memo are also deleted with this function.

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 flashing.
 - ⇒ 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 (A).
 - ⇒ All LEDs are off after 5 seconds.
 - ⇒ All programmed transmitters are deleted from the receiver.
 - ⇒ Receiver is completely deleted, and this also applies for the Memo.

9.10 Programming an additional 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. For example, a Pearl can only be programmed on a Pearl and a Pearl Vibe on a Pearl Vibe. The button assignment of handheld transmitter (A) that put the radio receiver into programming mode by radio is used for the new handheld transmitter (B) that is to be programmed. The already programmed handheld transmitter and the handheld transmitter that is to be programmed must be within the range of the radio receiver.

Example:

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

Restrictions

- This function is not possible with the Pearl twin handheld transmitter.
- The targeted programming of a selected handheld transmitter button to a radio channel with HFL is not possible.

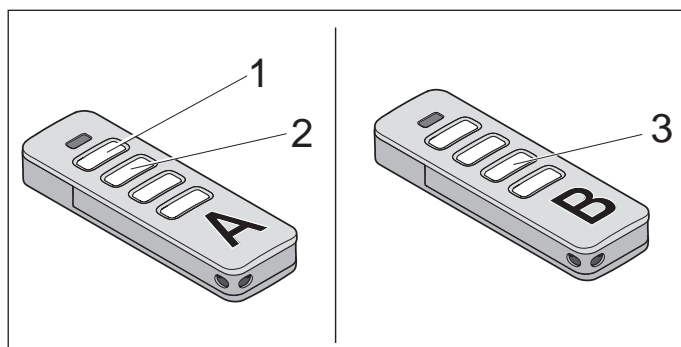


Fig. Handheld transmitter (A) and (B)

1. Press buttons 1 and 2 of a programmed handheld transmitter (A) for 3 - 5 seconds until the LED on the handheld transmitter lights up briefly.
 - ⇒ LEDs of the control unit flash.
2. Release buttons 1 and 2 of handheld transmitter (A).
 - ⇒ If no radio command is transmitted within another 30 seconds, the radio receiver switches over to normal mode.
3. Press any key, e.g. (3) on the new handheld transmitter (B) to be programmed.
 - ⇒ The LEDs remain steady.
 - ⇒ Second handheld transmitter (B) has been programmed.

10. Function test and final test

10.1 Checking the force setting and obstacle detection

After programming the force values, the obstacle detection and force setting must be tested.



WARNING

Danger of entrapment!

If the force setting is too high, persons 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 very carefully checked and if necessary adjusted by a **qualified specialist**.



WARNING

Danger of crushing and shearing!

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

- ▶ In particular when obstacle detection is active, all danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.



NOTE

Observe the national standards, guidelines and regulations for cut-off of the operating forces.



NOTE

The obstacle detection must be tested once a month to prevent damage to the operator.



INFORMATION

Reversing: The operator stops on contact with an obstacle and then moves a short distance in the opposite direction to release the obstacle.



INFORMATION

The operating forces can be modified and adjusted with SOMlink by a qualified specialist, see chapter "7.18. Information on SOMlink."



INFORMATION

If a photocell is interrupted, the gate reverses in soft run.



INFORMATION

After installation of the operator, the person responsible for the installation of the operator 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. All documents as well as the inspection book for the gate, the installation and operating manual and the handover protocol must be handed over to the user.

The force settings must be tested with a force measurement device. Additional safety equipment such as photocells or safety contact strips must then be tested for correct functioning. If the gate hits an obstacle, it must immediately reverse. If this is not the case, a reset must be performed, see chapter "11.8 Performing a reset." The positions and the forces must be reprogrammed. After successful testing of the force settings, the obstacle detection and the functions, the qualified specialist must attach the CE mark and type plate on the gate system.

10.2 Handover of 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 the regular maintenance, testing and care measures which the user can carry out, see chapter "12. Maintenance and care"
- on the troubleshooting measures and repairs which the user can carry out, see chapter "13. Troubleshooting."

10. Function test and final test

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

- installation of accessories
- settings
- regular maintenance, testing and care, with the exception of that described in Chapter "**12. Maintenance and care**"
- troubleshooting and repairs, except those described in Chapter "**13. Troubleshooting.**"

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

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



<http://som4.me/konform>

11. Operation

11.1 Safety information on operation

In particular, observe the following safety instructions and the safety instructions in Chapters "12. Maintenance and care" and "13. Troubleshooting."

The operator must not be used by children or 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 control devices must never be given to children. Handheld transmitters must be stored in a safe place and protected against unauthorised and unintentional use.



DANGER

Danger if not observed!
If safety instructions are not observed, serious injury or death may result.

- ▶ All safety instructions must be complied with.



DANGER

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.
- ▶ You must have faults repaired professionally without delay.



WARNING

Danger due to irregular or omitted maintenance and testing!
Failure to test the operator regularly can lead to damage or faults, or to serious or fatal injury to persons or animals.

- ▶ Test the operator at monthly intervals.
- ▶ The gate operator must reverse if people or obstacles are present.
- ▶ Adjustments and settings may only be performed by a **qualified specialist**.
- ▶ After making adjustments to the operator, the operating forces must always be professionally tested.



WARNING

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

- ▶ All danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.

11. Operation



NOTE

If the operating forces of the gate are improperly adjusted, the operator may be damaged.

- The gate must be stable.
- It must not bend, rotate or twist when opening and closing.
- The gate must move easily along the entire travel path.
- Remedy faults or defects immediately, see chapter "13. Troubleshooting."



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.



INFORMATION

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



INFORMATION

Operation is only possible with an original SOMMER radio receiver attached. In addition, an external radio receiver can be connected.

11.2 Handover to 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 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 user must be informed about which work must only be performed by a qualified specialist:

- installation of accessories
- settings
- regular maintenance, testing and care which can be carried out by the user, except that described in Chapter "12. Maintenance and care"
- troubleshooting and repairs which can be carried out by the user, except those described in Chapter "13. Troubleshooting"

The user is responsible for:

- the intended use of the operator
- its good condition
- operation
- instructing all users how to use the gate system and in the associated hazards
- maintenance, testing and care
- troubleshooting and repair by a qualified specialist

The user must always keep this installation and operating manual at the place of use, ready for consultation and accessible to all users.

11. Operation

11.3 Operating modes of gate movement

In the following description of the gate movement, it is assumed that buttons 1 to 4 on the handheld transmitter have been assigned to radio channels 1 CH - 4 CH. In the case of 2-leaf gates, the movements of the two gate leaves start with a time delay.



WARNING

Danger of injury during gate operation!

Gates can injure people or animals in the movement area of the gate when the gate is closing. This may cause crushing or shearing injuries.

- ▶ In particular when control elements are operated, all danger zones must be visible during the entire gate operation.
- ▶ Keep persons and animals clear of the range of movement of the gate.
- ▶ Always keep the moving gate in sight.
- ▶ Never put your hand near the gate or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.



INFORMATION

Reversing: The operator stops when it hits an obstacle. Then the operator moves slightly in the opposite direction to release the obstacle.

In the automatic closing function, the gate opens completely.



INFORMATION

In the event of interruption of the photocell, the run-on time is longer than when the gate hits an obstacle.

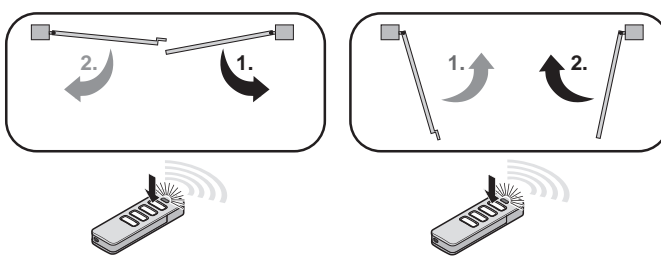
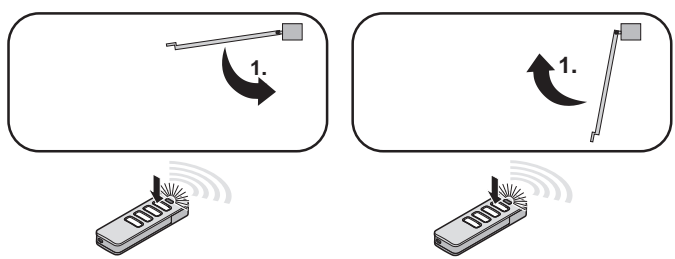
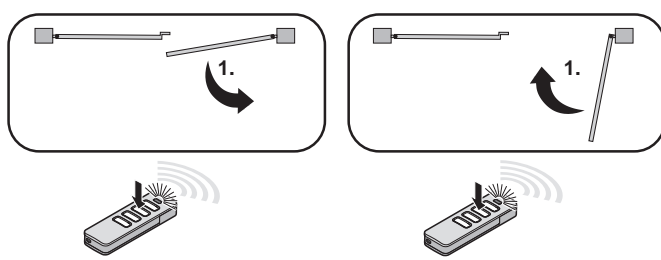
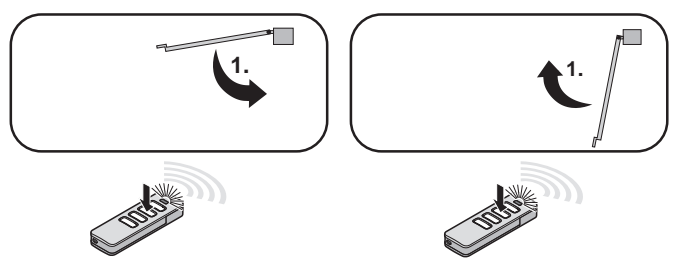
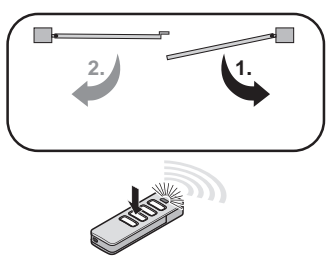
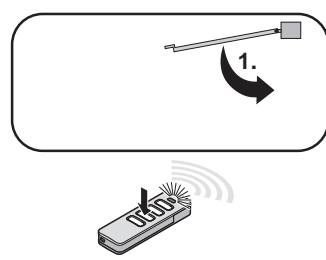
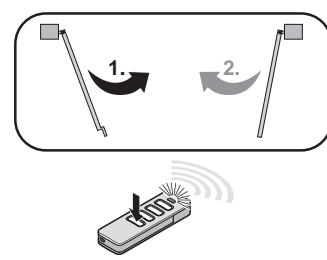
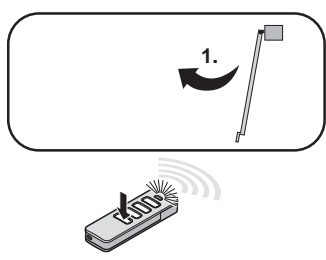
The following safety devices are installed to detect obstacles:

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

Overview of gate movements

In each case, the figures show the sequence of movements of the gate leaves. The prerequisite for button assignment is that the gate system is programmed, see chapter "**8.2 Programming of end positions and operating forces.**" The button assignment of the handheld transmitter corresponds to the factory basic setting.

11. Operation

2-leaf	1-leaf
<p>Open and close both gate leaves</p>  <p>Pulse sequence of button 1 on the handheld transmitter</p>	<p>Open and close active leaf</p>  <p>Pulse sequence of button 1 on the handheld transmitter Button 2 identical</p>
<p>Selectively open and close active leaf</p>  <p>Pulse sequence of button 2 on the handheld transmitter</p>	<p>Open and close active leaf</p>  <p>Pulse sequence of button 2 on the handheld transmitter, button 1 identical</p>
<p>Selectively open active and inactive leaf</p>  <p>Pulse sequence of button 3 on the handheld transmitter</p>	<p>Selectively open active leaf</p>  <p>Pulse sequence of button 3 on the handheld transmitter, without function if gate OPEN</p>
<p>Selectively close active and inactive leaf</p>  <p>Pulse sequence of button 4 on the handheld transmitter</p>	<p>Selectively close active leaf</p>  <p>Pulse sequence of button 4 on the handheld transmitter, without function if gate CLOSE</p>

11. Operation

11.4 Performing obstacle detection

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.

The partial reversion is pre-set at the factory. Full reversion can be set via SOMlink and a WiFi-enabled device.



WARNING

Danger of entrapment!
If the force setting is too high, persons 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 **qualified specialist**.
- ▶ You must proceed with extreme caution if you check and if necessary adjust the force setting.



WARNING

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

- ▶ In particular when obstacle detection is active, all danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.



INFORMATION

Reversing: The operator stops on contact with an obstacle and then moves a short distance in the opposite direction to release the obstacle
In the automatic closing function, the gate opens completely.



INFORMATION

If a photocell is interrupted, the gate reverses in soft run.



INFORMATION

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 detection of operator (personal protection)


See also Chapter "12. Maintenance and care."

The gate must always reverse if it hits a suitable hard obstacle with an edge length of at least 10 cm before reaching the end position. Obstacle detection must be performed once a month by the user.

1. Open the gate with the operator.
2. Additional safety equipment, such as photocells or safety contact strips, must be tested for correct functioning. Briefly interrupt the photocells with suitable materials for this purpose.
3. Close the gate.
⇒ If the gate hits an obstacle, it must immediately reverse.
4. If the gate does not reverse, a qualified specialist must be consulted.

11.5 Setting power-saving mode

To save energy, the operator control unit switches to power-saving mode after a specified period. Connected accessories, e.g. safety contact strips or photocells, are then deactivated. With the next command via the buttons or the radio control system, the operator and the accessories are reactivated.

DIP switch	ON	OFF
4 	Power-saving mode deactivated	Power-saving mode activated (factory state)

11. Operation



INFORMATION

If power-saving mode has been activated, the factory-set time before switching to power-saving mode is about 1 minute.

DIP switch 4 must be set to "ON" to deactivate power-saving mode.

11.6 In the event of a power failure

The programmed force and position values are retained in the event of a power failure. The first movement of the operator after the power supply returns is always gate OPEN.

When voltage returns after a power failure, the gate operator reacts as follows when a button is pressed:

- In the case of a 1-leaf gate system, the **master** gate operator starts up.
- With a 2-leaf gate system, first, the active leaf opens completely and then the inactive leaf opens.
- The warning light continues to blink after opening.
- If the button on the handheld transmitter is pressed again, the operator again tries to move the gate to gate OPEN position.
- If the button on the handheld transmitter is pressed again, the gate system closes.
- The warning light switches off.

Also observe the instructions for emergency release in Chapter "11.7 Function of the emergency release." Operation during a power failure is only possible with an accumulator installed. A fully-charged accumulator has energy for about 5 cycles. The number is dependent on the mass and mobility of the gate leaf, the ambient temperature as well as the age of the accumulator.

11.7 Function of the emergency release

In the event of a fault, the gate can be opened using a mechanical emergency release.



WARNING

Danger of crushing and shearing!
If the gate is opened with the emergency release lever, the gate can move unexpectedly. Crushing and shearing injuries may be caused by the mechanism and safety edges of the gate.

- ▶ Do not use the emergency release lever during heavy storms or bad weather.
- ▶ Secure the gate against unexpected movement before operating the emergency release lever.
- ▶ Keep persons and animals clear of the range of movement of the gate.



NOTE

The emergency release is only suitable for opening or closing the gate in an emergency, e.g. in the event of a power failure.

The emergency release is not suitable for regularly opening or closing the gate. This could cause damage to the operator or the gate.



INFORMATION

Unlocking is possible in any gate position. It might be necessary to move the gate leaf a little in order to unlock it.

11. Operation

Unlocking the operator

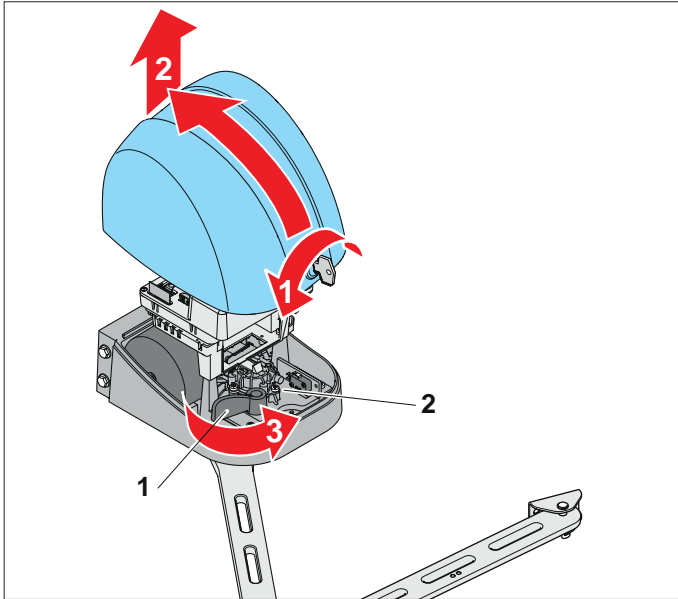


Fig. Unlocking the operator - emergency release lever (1), motor plate (2)

1. Insert the key into the gate operator cover and turn it 90° to the left.
2. Tilt the cover slightly towards the rear and remove it in upward direction.
3. Turn the emergency release lever (1) at the front stop.
 - ⇒ LED for Stop lights up red.
 - ⇒ The motor plate (2) moves back.
 - ⇒ The operator is released from the gate arm.
 - ⇒ The gate leaf can now be moved by hand.
4. Attach and lock the cover in reverse order.



INFORMATION

After unlocking, the operator must be locked again. After the emergency release lever has been actuated, the position of the gate leaves is unknown for the control unit. When a button on the handheld transmitter or other control elements is pressed, the gate operator reacts in the same way as after a power failure, see chapter "11.6 In the event of a power failure."

Locking the operator

For normal operation, the operator must be locked again. Proceed in reverse order to lock the operator. If both operators of 2-leaf gates were unlocked, both have to be relocked. See Chapter "11.7 Function of the emergency release," section "Unlocking the operator."



INFORMATION

The gate leaf has to be moved slightly when the emergency release lever is pressed back.

11.8 Performing a reset

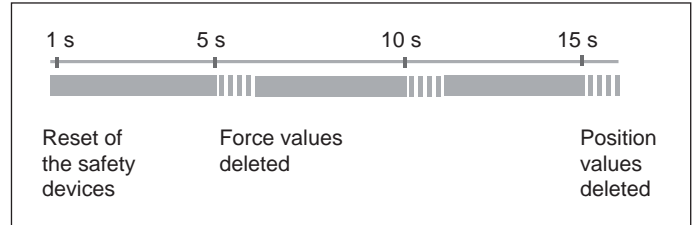


Fig. Time sequence for reset

During a reset, the warning light and the LED for the warning light flash in the pattern shown.

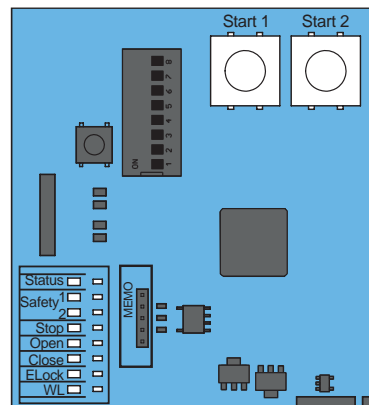


Fig. LEDs and START 1 and START 2 buttons



INFORMATION

A SOMlink and a WiFi-enabled device are required to reset all parameters to the factory settings.



Reset of the safety devices

1. Press the START 1 and START 2 buttons simultaneously for 1 second until the green LED for Status lights up.
 - ⇒ Safety devices are deleted.

Deleting the force values

1. Press the START 1 and START 2 buttons simultaneously for 5 seconds until the green LED for Status lights up.
 - ⇒ Force values are deleted.

11. Operation

Deleting the position values

1. Press the START 1 and START 2 buttons simultaneously for **15 seconds** until the green LED for Status lights up.
⇒ Position values are deleted.

11.9 Jog mode in the event of faults

If a photocell is malfunctioning or defective the control unit can become blocked. This means the gate system no longer opens or closes at the press of a button. The "Jog mode" operating mode must be used to move the gate leaves.

To do so, the "Selectively open" or "Selectively close" command must be run. This is done by pressing and holding the respective button on external control elements such as the key switch or on the handheld transmitter. When the cover is open, the command can also be run by pressing the START 1 or START 2 buttons.

Jog mode is not suitable for normal operation. Faults must be remedied professionally and without delay.



WARNING

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

- ▶ Jog mode may only be executed when you are in the immediately vicinity of the gate.
- ▶ All danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ You must have faults or defects repaired professionally and without delay.



NOTE

Jog mode is not suitable for normal operation. Faults and defects must be remedied professionally and immediately by a qualified specialist in order to prevent further damage or defects.

1. Check whether there is an obstacle in the range of gate movement. If there is, remove the obstacle.
2. If there is no obstacle in the range of gate movement, press the "Selectively open" or "Selectively close" button and hold it down until the end position has been reached.



INFORMATION

To prevent unintentional operation, the corresponding button must first be held down for 10 seconds for this function. Then the operator starts.

- 4.1 On the control unit:

Press the START 1 or START 2 button on the circuit board.

Or:

- 4.2 On the handheld transmitter:

Press the desired button on the handheld transmitter. The gate moves as long as the button on the handheld transmitter is pressed.

⇒ The gate runs as long as the buttons are held pressed.

3. To ensure normal operation again, a qualified specialist must professionally repair the fault or defect.

12. Maintenance and care

12.1 Safety instructions for maintenance and care

Follow the basic safety instructions listed below. Service the operator regularly as directed below. This ensures safe operation and a long service life of your operator. If you have a question on care and maintenance, contact a qualified specialist.



DANGER

Danger if not observed!
If safety instructions are not observed, serious injury or death may result.

- ▶ All safety instructions must be complied with.



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.

- ▶ All work on electrical components may only be carried out by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



WARNING

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

- ▶ All danger zones must be visible during the entire gate operation.
- ▶ 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 or near moving parts when the gate is moving.
- ▶ Do not drive through the gate until it has opened completely.
- ▶ Never stand inside the movement area of the opened gate.



WARNING

Danger due to hot parts!
After frequent operation, the motor and control unit may become hot. If the cover is removed and hot parts are touched, they may cause burns.

- ▶ Allow the operator to cool down before removing the cover.



NOTE

Powerful spray water will damage the operator unit and hinged bracket. Protect the operator unit and the hinged bracket from powerful spray water, e.g. from a garden hose.



NOTE

The use of unsuitable cleaning agents may damage the surface of the operator. No metal objects may be used. Use only a damp, lint-free cloth to clean the operator.

12. Maintenance and care

12.2 Maintenance schedule

How often?	What?	Who? How?
Once a month	Test obstacle detection	User, see chapter "11.4 Performing obstacle detection "
	Test the emergency release	User, see chapter "11.7 Function of the emergency release"
	Check that the gate runs smoothly	
Once a year	Test the gate, the safety devices and all moving parts	Qualified specialist, as directed by the manufacturer
	Check door hinges	Operator must check for ease of movement; if necessary, consult a trained expert
	Check the mounting bolts of the operator	Qualified specialist, check that bolts are tight and tighten if necessary
As needed	Clean cover and hinged brackets	User, damp, lint-free cloth
	Clean the photocell	User, see chapter "12.3 Care," section "Cleaning the photocell"

12.3 Care

Cleaning the gate operator

1. Disconnect the operator from the power supply. Check that the operator is not live and secure it against being switched on again.
2. If an accumulator has been installed, operate the emergency release, see chapter "11.7 Function of the emergency release."
3. Secure the movement area of the gate.
4. Remove dirt from the cover and the hinged bracket with a damp and lint-free cloth.



NOTE

Do not use metal objects to clean the inside of the control unit.

5. Reconnect the power supply. To do so, switch on the main switch or the fuse.
If necessary, lock the emergency release again, see chapter "11.7 Function of the emergency release," section "Locking the operator."

Cleaning the photocell

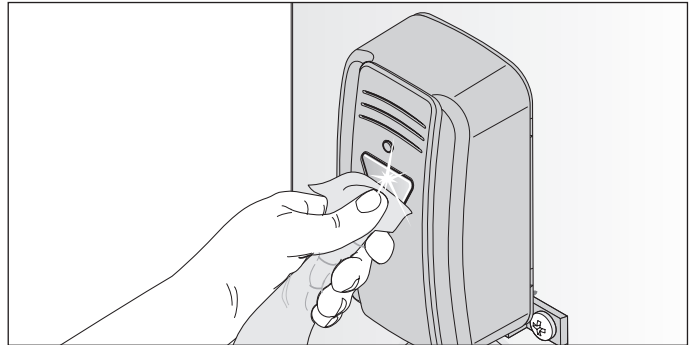


Fig. 1



NOTE

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

1. Clean the housing and reflectors of the photocell with a damp, lint-free cloth.
2. Check the mounting of the photocells.

13. Troubleshooting

13.1 Safety instructions for troubleshooting

Follow the basic safety instructions listed below.



DANGER

Danger if not observed!
If safety instructions are not observed, serious injury or death may result.

- ▶ All safety instructions must be complied with.



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.

- ▶ All work on electrical components may only be carried out by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before working on it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



DANGER

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.
- ▶ You must have faults repaired professionally without delay.



WARNING

Danger of injury to persons due to trapping of clothing or long hair!

- Loose clothing or long hair may be trapped by moving parts of the gate.
- ▶ Keep clear of the moving gate.
 - ▶ Always wear tight-fitting clothing.
 - ▶ Wear a hairnet if you have long hair.



WARNING

Danger of crushing and shearing!
If operator settings are made or changed, the gate can react unexpectedly. This may cause crushing or shearing injuries to persons.

If settings or changes are made to the operator:

- ▶ Keep persons and animals clear of the range of movement of the gate.
- ▶ Secure the movement area of the gate leaves.
- ▶ You must be able to see the movement area of the gate leaves.
- ▶ Never put your hand near the gate or near moving parts when the gate is moving.
- ▶ Never stand inside the movement area of the opened gate.
- ▶ The force values must be checked by a **qualified specialist**. If necessary, the force values must be reset and reprogrammed.



WARNING

Danger due to hot parts!
After frequent operation, the motor and control unit may become hot. If the cover is removed and hot parts are touched, they may cause burns.

- ▶ Allow the operator to cool down before removing the cover.

13. Troubleshooting



NOTE

If the gate is not in view and the radio remote control is actuated, 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.

13.2 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 may be performed only by a **trained electrician**.

1. Disconnect the operator from mains power. If an accumulator is used, it must also be disconnected, see chapter "7.17 Installing and removing the accumulator."
2. Check that the operator is not live and secure it against being switched on again.
3. After working on the operator, first connect the accumulator, then the power supply. Check that the power supply is connected.

13. Troubleshooting

13.3 Time sequences of LEDs for accessories in normal mode and in the case of faults


The flash sequences show information on malfunctions for technicians, end customers and telephone support.

LED	Flash sequence	Cause
Status (green)	<input type="checkbox"/> Off	• Operating voltage absent or power-saving mode activated
	<input checked="" type="checkbox"/> On	• Hardware self-test
		• Normal operation, flashes while gate is moving • Programming mode activated • Pre-warning time activated • During reversing movement or soft reversal
		• Waiting for confirmation during the gate CLOSE position programming run / gate OPEN position programming run
		• Fault display • Safety device not OK before movement • Safety device interrupted during movement • Interrupted safety device, see chapter "11.9 Jog mode in the event of faults"
		• Display of a fault, see chapter "13. Troubleshooting"
		• Service required (e.g. pre-set limit value reached)
Safety 1 (red)	<input type="checkbox"/> Off	• No safety device connected in exterior
	<input checked="" type="checkbox"/> On	• Safety device detected in exterior
		• Safety device in exterior interrupted/fault
Safety 2 (red)	<input type="checkbox"/> Off	• No safety device connected in interior
	<input checked="" type="checkbox"/> On	• Safety device detected in interior
		• Safety device in interior interrupted/fault
Stop (red)	<input type="checkbox"/> Off	• Emergency stop not activated
	<input checked="" type="checkbox"/> On	• Emergency stop activated
Open (yellow)	<input type="checkbox"/> Off	• Operator is deactivated
	<input checked="" type="checkbox"/> On	• Operator running in gate OPEN direction
Close (yellow)	<input type="checkbox"/> Off	• Operator is deactivated
	<input checked="" type="checkbox"/> On	• Operator running in gate CLOSE direction
ELock (yellow)	<input type="checkbox"/> Off	• Electric lock is locked
	<input checked="" type="checkbox"/> On	• Electric lock is unlocked
Warning light, WL (yellow)	<input type="checkbox"/> Off	• Operating voltage absent, power-saving mode activated
	<input checked="" type="checkbox"/> On	• Warning light is triggered/activated • Gate movement is displayed, no other status indication possible
		• Normal operation, flashes while gate is moving • Programming mode activated • Pre-warning time activated • During reversing movement or soft reversal
		• Waiting for confirmation during the gate CLOSE position programming run or gate OPEN
		• Fault display. Display via warning light for additional 10 seconds after a gate movement • Safety device not OK before movement • Safety device interrupted during movement • Interrupted safety device, see chapter "11.9 Jog mode in the event of faults"
		• See chapter "13. Troubleshooting"
		• Service required (e.g. pre-set limit value reached)
Multi-function relay, MUFU (yellow)	<input type="checkbox"/> Off	• Multi-function relay is deactivated
	<input checked="" type="checkbox"/> On	• Multi-function relay is activated





13. Troubleshooting

13.4 Troubleshooting table

In normal mode

Flash sequences	Possible cause	Corrective action
Normal  Warning light or LED for Light	<ul style="list-style-type: none"> • Programming mode activated • Pre-warning time activated • Clearing time activated • Reversing movement, soft reversing and stopped after a soft and reversing movement 	<ul style="list-style-type: none"> • none, for information

Flash sequences in the case of faults

Flash sequences	Possible cause	Corrective action
Requirement  Operator expects a command	<ul style="list-style-type: none"> • Waiting for a confirmation during the position programming run of gate OPEN and gate CLOSE position 	<ul style="list-style-type: none"> • Confirmation of position programming run
Alarm  A process has triggered a fault	<ul style="list-style-type: none"> • Photocell/safety device not OK before movement, SAFETY 1 or SAFETY 2 also flashes 	<ul style="list-style-type: none"> • Check photocell, realign if necessary • If necessary, have parts replaced by a qualified specialist
	<ul style="list-style-type: none"> • Interruption of a safety device during the movement 	<ul style="list-style-type: none"> • Remove obstacle
	<ul style="list-style-type: none"> • Safety device not OK 	<ul style="list-style-type: none"> • Have it checked by a qualified specialist
Service  A process has triggered a fault	<ul style="list-style-type: none"> • Service required (service days, service cycles have been reached) 	<ul style="list-style-type: none"> • Have the service performed by a qualified specialist
	<ul style="list-style-type: none"> • Motor temperature is too high (overheating) 	<ul style="list-style-type: none"> • Allow motor to cool
Fault  Operator or parts of the operator faulty	<ul style="list-style-type: none"> • Significant system fault 	<ul style="list-style-type: none"> • Have it checked by a qualified specialist • If necessary, have operator or components replaced by a qualified specialist

13. Troubleshooting

Problem	Possible cause	Test/check	Remedy
Gate does not open	Power failure	• Check the fuse	• Replace the fuse
		• Emergency stop operated	• Release emergency stop
		• Emergency release activated	• Lock emergency release
		• If necessary, have accumulator checked	• Charge accumulator/have it replaced
	Safety contact strip in interior tripped or defective display LED for SAFETY 2	• Obstacle in gate travel path	• Remove obstacle
		• Safety contact strip defective (rubber profile deformed, contact fault)	• Have safety contact strip checked and replaced if necessary
	Photocell in interior tripped or defective display LED for SAFETY 2	• Obstacle in gate travel path	• Remove obstacle
		• Dirty lens	• Clean the photocell, see chapter "12.3 Care"
		• Check if alignment is correct	• Align photocell
		• Contact fault	• Have connections checked
		• Interrupted photocell	• See Chapter "11.9 Jog mode in the event of faults"
	Radio signal transmission faulty	• Transmitter battery weak	• Replace transmitter battery
		• Range too short	• Reduce distance
		• Transmitter defective	• Have transmitter replaced
	Electric lock remains locked	• Check electric lock	• Check/have electric lock and connections replaced
Gate does not close	Power failure	• Check the fuse	• Replace the fuse
		• Emergency stop operated	• Release emergency stop
		• Emergency release activated	• Lock emergency release
		• If necessary, have accumulator checked	• Charge accumulator/have it replaced
	Safety contact strip in exterior tripped or defective display LED for SAFETY 1	• Obstacle in gate travel path	• Remove obstacle
		• Safety contact strip defective (rubber profile deformed, contact fault)	• Have safety contact strip checked and replaced if necessary
	Photocell in exterior tripped or defective display LED for SAFETY 1	• Obstacle in gate travel path	• Remove obstacle
		• Dirty lens	• Clean the photocell, see chapter "12.3 Care"
		• Check if alignment is correct	• Align photocell
		• Contact fault	• Have connections checked
		• Interrupted photocell	• See Chapter "11.9 Jog mode in the event of faults"
	Radio signal transmission	• Transmitter battery weak	• Replace transmitter battery
		• Check range	• Reduce distance
		• Transmitter defective	• Replace transmitter

13. Troubleshooting

Problem	Possible cause	Test/check	Remedy
Gate operation interrupted	Power failure	• Check the fuse	• Replace the fuse
		• Emergency stop operated	• Release emergency stop
		• Emergency release activated	• Lock emergency release
		• If necessary, have accumulator checked	• Charge accumulator/have it replaced
	Renewed pulse by command device	• Unintended operation	• Secure command device, such as handheld transmitter
		• Faulty contact	• Have connections checked
	Obstacle detection detects an obstacle	• Emergency stop with reversion, warning light flashes three times	• Remove obstacle
			• If gate is not running smoothly, have it repaired
			• Observe wind load
	Safety contact strip detects an obstacle	• Emergency stop with reversion	• Remove object from the gate travel path
• Check the function of the safety device			
Photocell detects an obstacle	• Soft stop with reversion	• Remove object from the gate travel path	
		• Check the function of the safety device	
		• Have defective photocell replaced	
		• Interrupted safety device, see chapter "11.9 Jog mode in the event of faults"	

14. Taking out of operation, storage and disposal

14.1 Taking the operator out of operation and disassembly

Follow the basic safety instructions listed below. People under the influence of drugs, alcohol, or medications that can influence their ability to react may **not** work on the operator. The disassembly and disposal of the operator may only be performed by a qualified specialist. This installation and operating manual must be read, understood and complied with by the qualified specialist who disassembles the operator.



DANGER

Danger if not observed!
If safety instructions are not observed, serious injury or death may result.

- ▶ All safety instructions must be complied with.



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.

- ▶ Electrical components may only be disassembled by a **trained electrician**.
- ▶ The operator must be disconnected from the power supply before disassembling it.
- ▶ If an accumulator is connected, disconnect it from the control unit.
- ▶ Check that the operator is not live.
- ▶ Secure the operator against being switched back on.



WARNING

Danger of tripping and falling!
Unsafely positioned parts such as packaging, operator parts or tools may cause trips or falls.

- ▶ Keep the de-installation area free of unnecessary items.
- ▶ Place all parts where no-one is likely to trip or fall over them.
- ▶ The general workplace guidelines must be observed.



WARNING

Danger due to hot parts!
After frequent operation, the motor and control unit may become hot. If the cover is removed and hot parts are touched, they may cause burns.

- ▶ Allow the operator to cool down before removing the cover.



WARNING

Risk of eye injury!
Eyes and hands may be seriously injured by chips when removing screws.



- ▶ Wear safety glasses.



CAUTION

Danger of abrasions and cuts!
Protruding metal parts may cause abrasions and cuts when picked up or touched.



- ▶ Wear safety gloves.



CAUTION

Risk of injury to feet!
Falling parts can cause foot injuries.



- ▶ Wear safety shoes.

14. Taking out of operation, storage and disposal



NOTE

If there is an accumulator in the master gate operator, it must be removed by a qualified electrician. See chapter "7.17 Installing and removing the accumulator."

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

1. Disconnect the control unit from the mains voltage or disconnect the main switch or the fuse for the circuit that supplies the operator with voltage. See Chapter "7.2 Disconnecting the control unit from the mains voltage."
2. If an accumulator was used, disconnect it, see chapter "7.17 Installing and removing the accumulator."
3. Disassembly is in reverse order of installation.

14.2 Storage



NOTE

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

Store the packaging units as follows:

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

14.3 Disposal of waste

Observe the instructions for disposal of packaging, components, batteries and, if applicable, the accumulator.



DANGER

Danger of hazardous substances!
Improper storage, use or disposal of accumulators, batteries or operator components are dangerous for the health of humans and animals. Serious injury or death may result.

- ▶ Accumulators and batteries must be stored out of the reach of children and animals.
- ▶ Keep accumulators and batteries away from chemical, mechanical and thermal influences.
- ▶ Do not recharge old accumulators and batteries.
- ▶ Components of the operator as well as old accumulators and batteries must not be disposed of with household waste. They must be disposed of properly.



NOTE

Dispose of all parts in accordance with local or national regulations to avoid environmental damage.



INFORMATION

All operator components that have been taken out of service must not be disposed of with household waste, as they contain hazardous substances. The components must be disposed of correctly at an authorised recycling centre. The local and national regulations must be observed.



INFORMATION

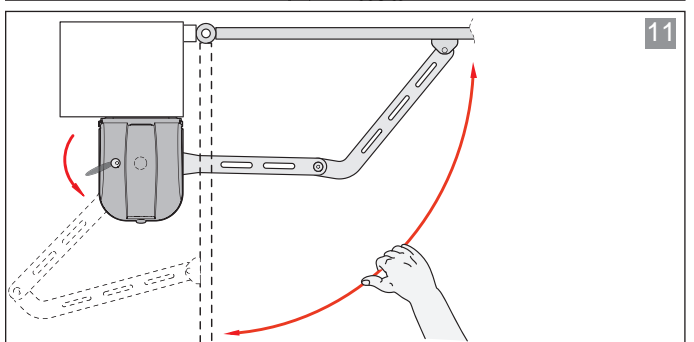
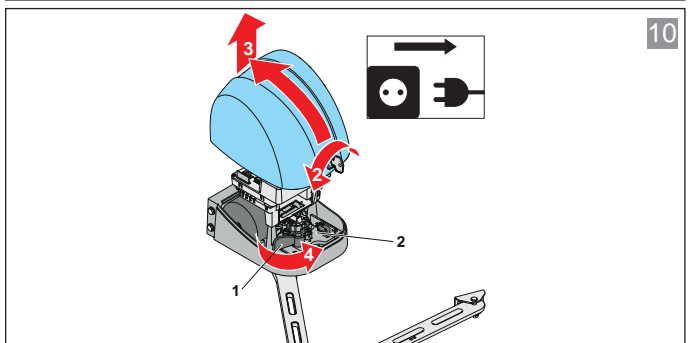
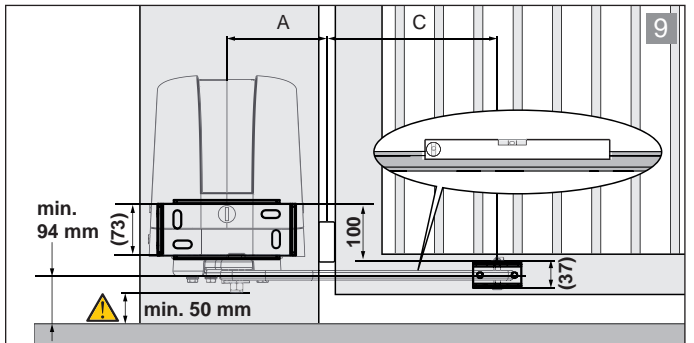
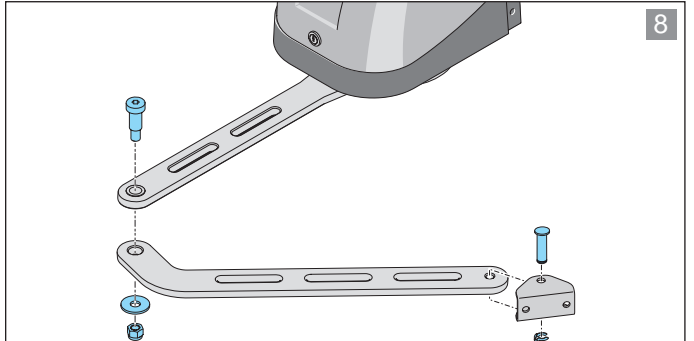
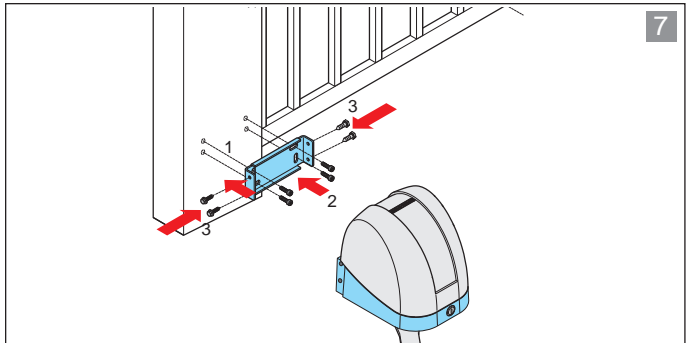
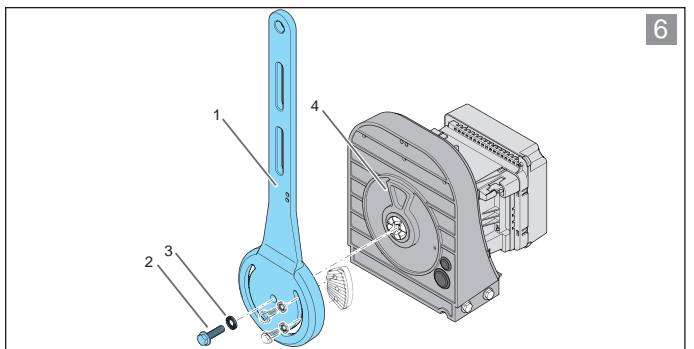
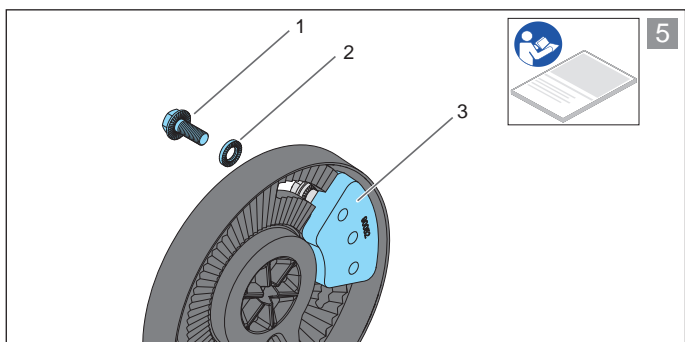
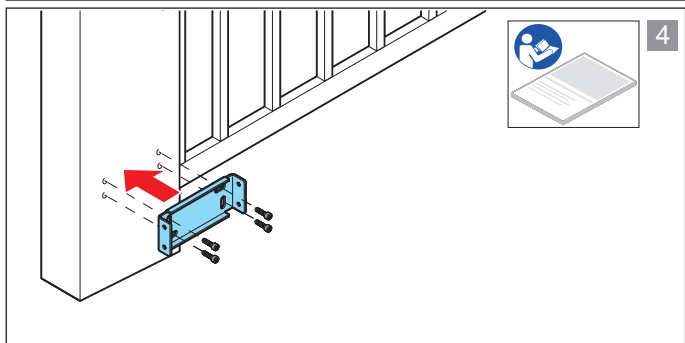
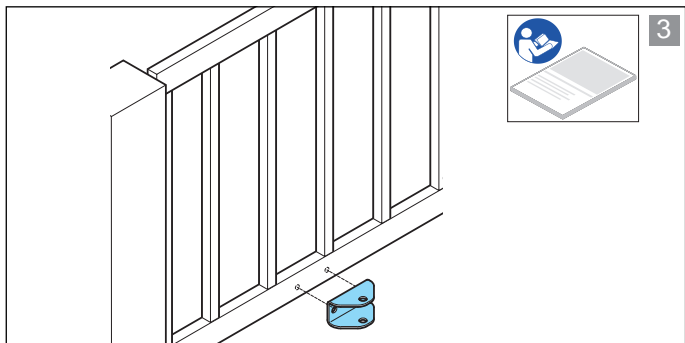
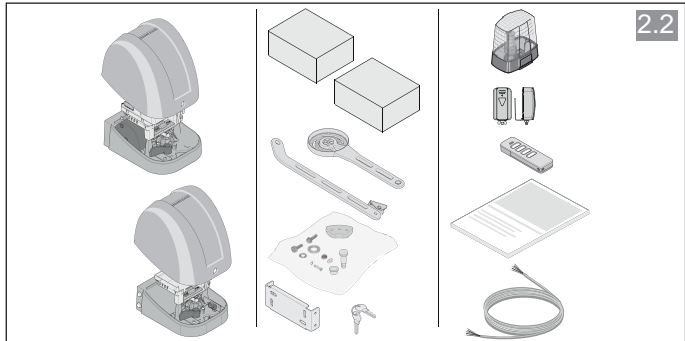
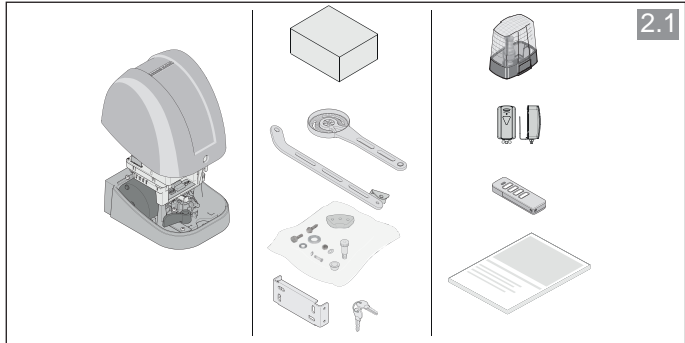
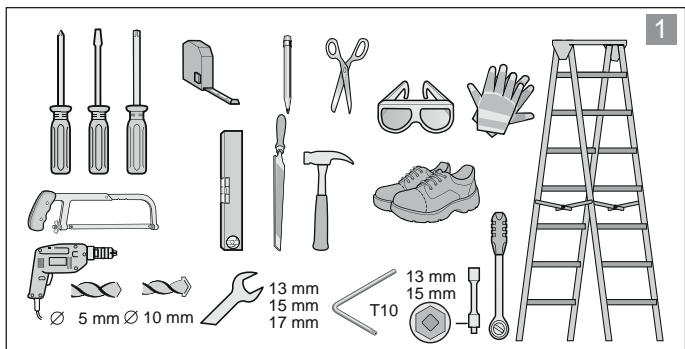
Old batteries and accumulators must not be disposed of with household waste as they contain hazardous substances. These must be disposed of properly at municipal collection points or in the containers provided by dealers. National guidelines must be observed.

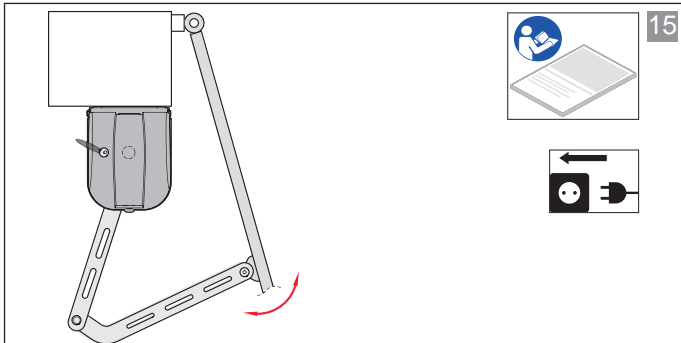
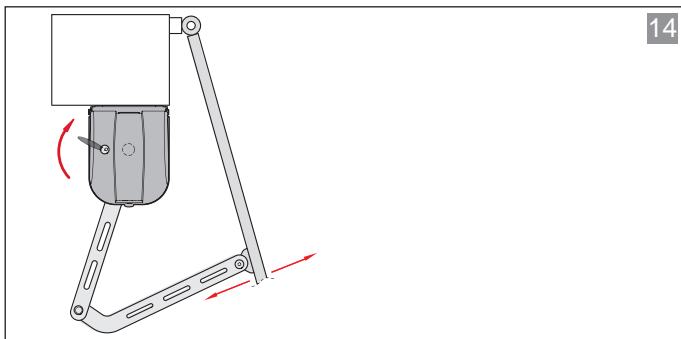
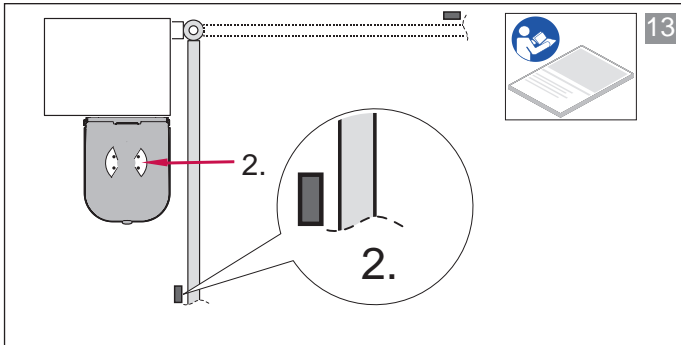
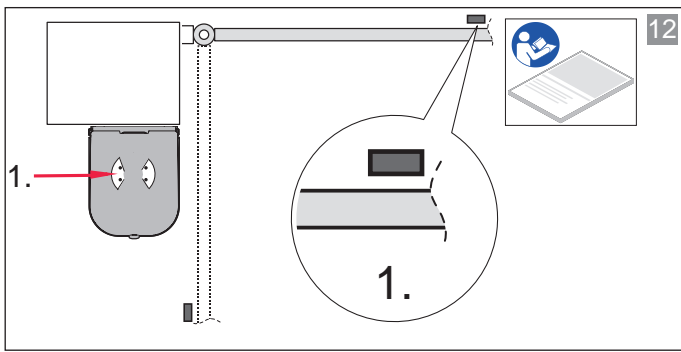
15. Short instructions for installation

The short instructions do not replace the installation and operating manual.

Read this installation and operating manual carefully and, most importantly, follow all warnings and safety instructions.

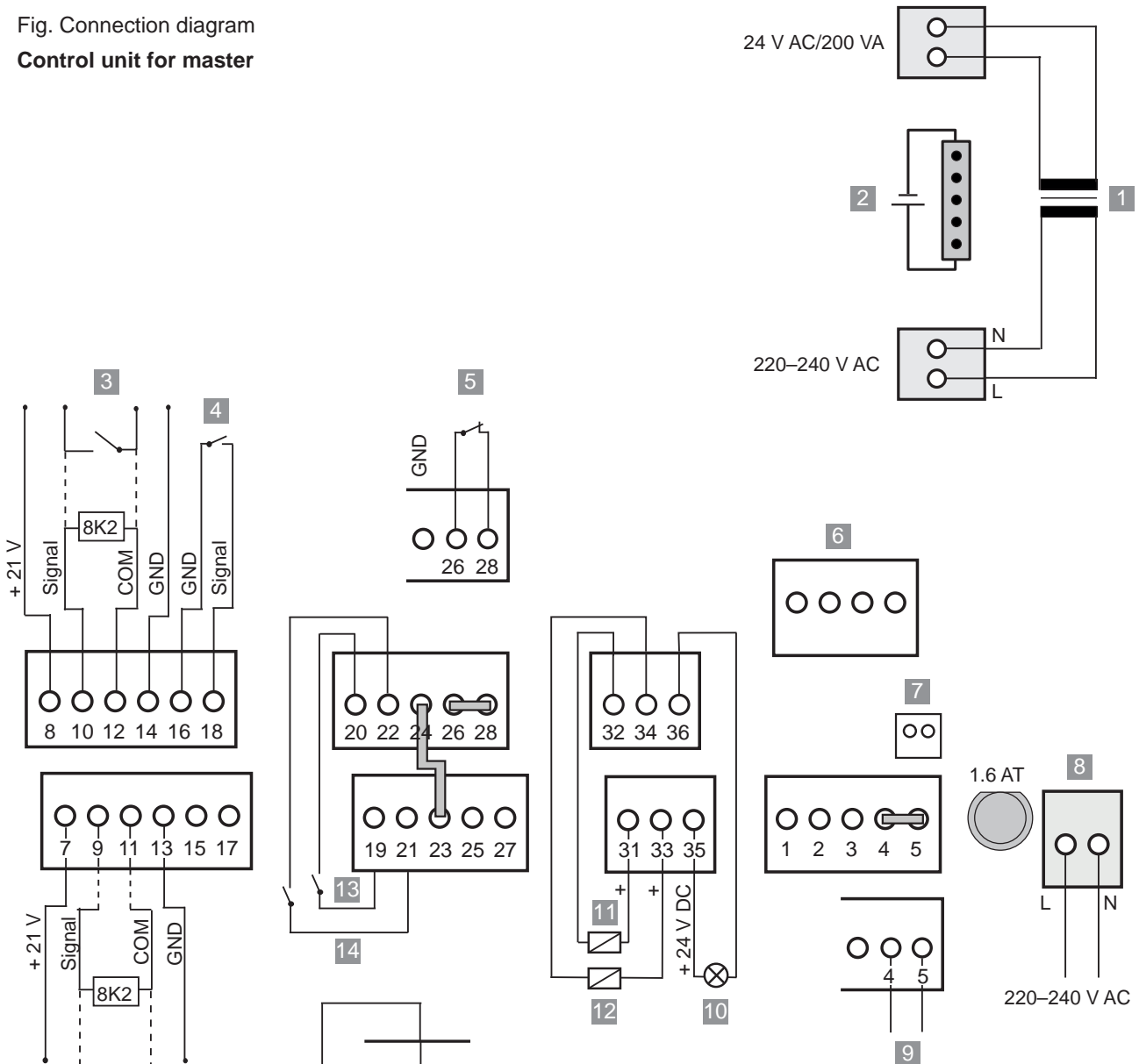
This will ensure that you can install the product safely and optimally.





16. Connection diagram for twist AM

Fig. Connection diagram
Control unit for master



- 1) Transformer
- 2) Accumulator
- 3) Safety device, interior
- 4) Mult-function relays, MUFU, 60 V/1 A
- 5) Emergency stop, when connecting, remove jumpers 26 and 28
- 6) Motor 2
- 7) Emergency release for master
- 8) Mains power connection
- 9) Motor 1, when connecting, remove jumpers 4 and 5
- 10) Warning light, WL
- 11) Electric lock 1, 15 W
- 12) Electric lock 2, 15 W
- 13) Pulse active/inactive leaf
- 14) Pulse active leaf
- 15) 3-way button, when connecting, remove jumpers 23 and 24
- 16) Safety device, exterior

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