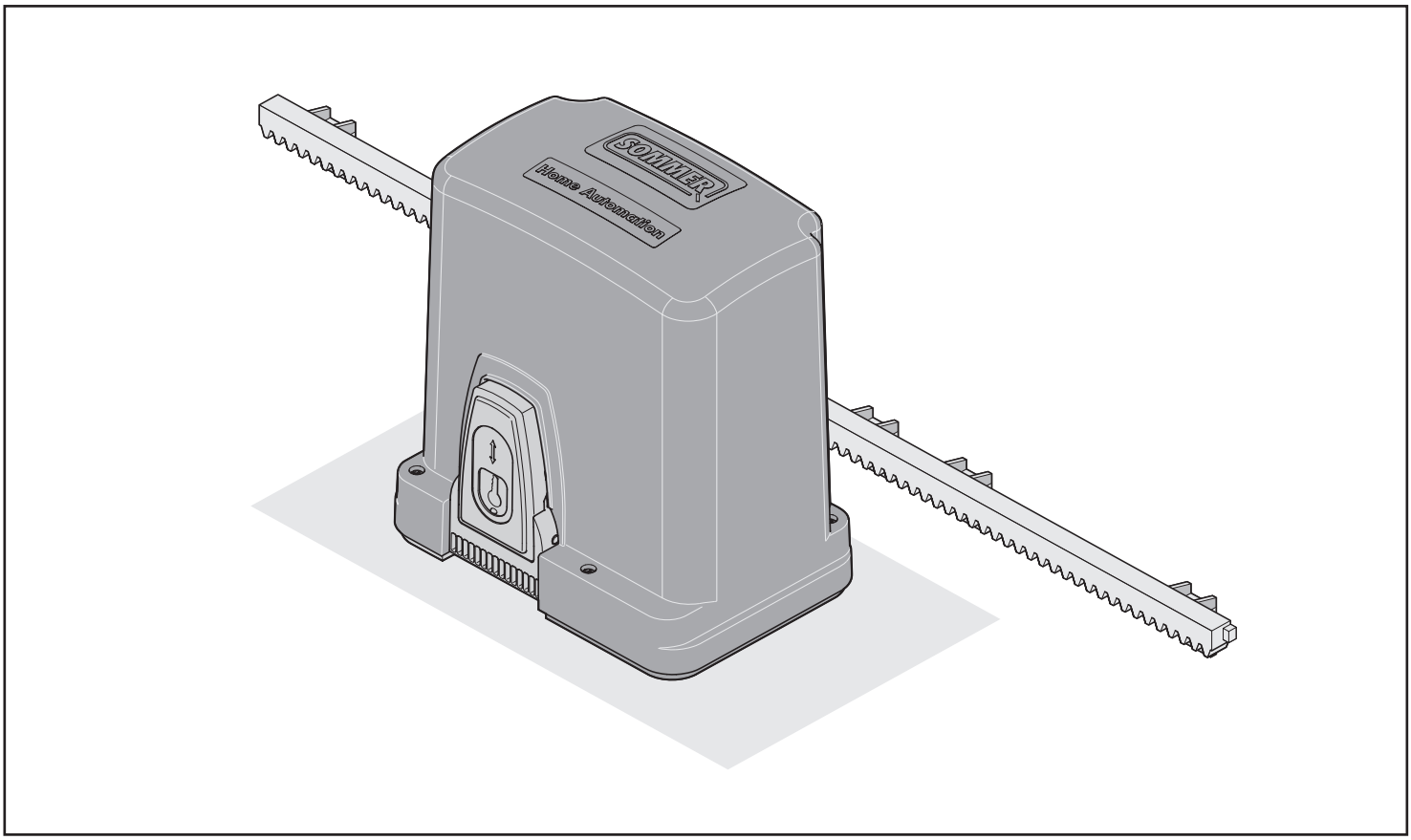


STArter

Table of contents

General Information

Symbols

ATTENTION SYMBOL:
Important safety instructions!
To ensure personal safety, it is important to observe all instructions. Save these instructions!

NOTE SYMBOL:
Information, useful advice!

1 (1) Refers to a respective picture in the introduction or main text.

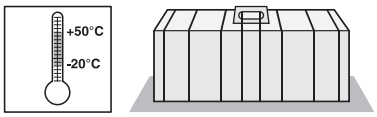
Safety instructions

General

- These installation and operating instructions must be read, understood and complied with by persons who install, use or perform maintenance on the drive.
- Keep this installation and operating manual accessible at all times.
- Installation, connection and initial commissioning of the drive may only be carried out by technically knowledgeable persons.
- Install the drive on correctly aligned gates only. An improperly aligned door can cause serious injuries or damage the drive.
- The manufacturer assumes no liability for injuries, damage or break-downs that occur due to non-compliance with the installation and operating instructions.
- Always ensure compliance with accident prevention regulations and current standards in each respective country.
- Follow and comply with the "ASR A1.7 Technical Regulations for Workplaces" of the committee for workplaces (ASTA) (Applies to operators in Germany).
- Before any work on the drive disconnect it from the power supply and lock it to prevent reconnection.
- Only use OEM (Original Equipment Manufacturer) spare parts, accessories and mounting material.

Storage

- The drive must be stored in an enclosed, dry area at a room temperature of -20 – +50 °C.
- The drive should be stored horizontally.



Operation

- The drive must be operated only if a non-hazardous force tolerance is set or safety is guaranteed by other safety equipment. The force tolerance must be set low enough to eliminate any danger of injury by the closing force (see "Maintenance and care").
- A rubber strip must be attached to secure the closing edge.
- Never put your hand near the door when it is moving or near moving parts.
- Drive through the gate only when it has opened completely.
- There is a risk of persons being crushed or cut by the mechanism or sharp edges of the door.
- For automatic closing the main and auxiliary closing edges must be secured in accordance with the applicable directives and standards.
- Open and close the gate only if there are no children, persons, animals or objects within its range of motion.
- Regularly check the safety and protection functions and repair faults when they are detected. See Care and maintenance.

Radio remote control

- The remote control must only be used for devices and systems in which radio interference will not endanger people, animals or objects or the risk is reduced by other safety devices.
- The user must be made aware that systems that pose an accident risk should only be operated – if at all – by remote control if the user can actually see the door.
- The radio remote control may only be used if the door's movement can be watched and no persons or objects are within the range of movement.
- Store the hand-held transmitter so that unintended operation, e.g., by children or animals, is impossible.
- The operator of the radio system is not protected from faults due to other telecommunications equipment or devices (e.g. radio-controlled systems that are licensed to operate in the same frequency range). If substantial interference occurs, please contact your appropriate telecommunications office which has radio interference measuring equipment (radiolocation).
- Do not operate the hand-held transmitter in areas with sensitive radio communications or systems (e.g. airports, hospitals).

Type plate

- The type plate is attached to the inside of the base frame/housing. The type plate shows the exact type drawing and the date of manufacture (month/year) of the drive.

General Information

Intended use

- The drive is designed exclusively for opening and closing sliding gates (see EN 12433-1), referred to below as gates. Any other use does not constitute intended use. The manufacturer accepts no liability resulting from use other than intended use. The user bears the sole responsibility for any risk involved. It also voids the warranty.
- Doors automated with an operator must must comply with the valid standards and directives: e.g. EN 12604, EN 12605.
- Maintain the safety clearances between the gate and surroundings as specified in EN 12604.
- The drive must be in good technical condition, and it must be used for its intended purpose with awareness of the hazards as described by the installation and operating manual.
- The gate must not have any rise or fall during opening or closing.
- Position the running rail to allow water to drain to prevent ice accumulation in winter.
- The gate must move freely in the guide and on the running rail to allow the drive to react sensitively and the gate to be switched off in emergency.
- The gate must have end stops in open and closed position, otherwise it may be pushed out of the guide in the event of an emergency release.
- Malfunctions which could affect safety must be corrected immediately.
- The door must be stable and rigid, meaning that it may not bend or twist when being opened or closed.
- The drive cannot compensate for defects in the door or incorrect assembly or installation.
- Do not install drive in explosive areas.
- Do not operate drive in rooms with aggressive atmosphere.

For the Declaration of Conformity for the radio see:

www.sommer.eu/mrl

Permitted gate wing dimensions

Min. path	min. 1,400 mm
Max. path:	max. 6,000 mm
Weight:	max. 300 kg
Gate inclination:	0 %

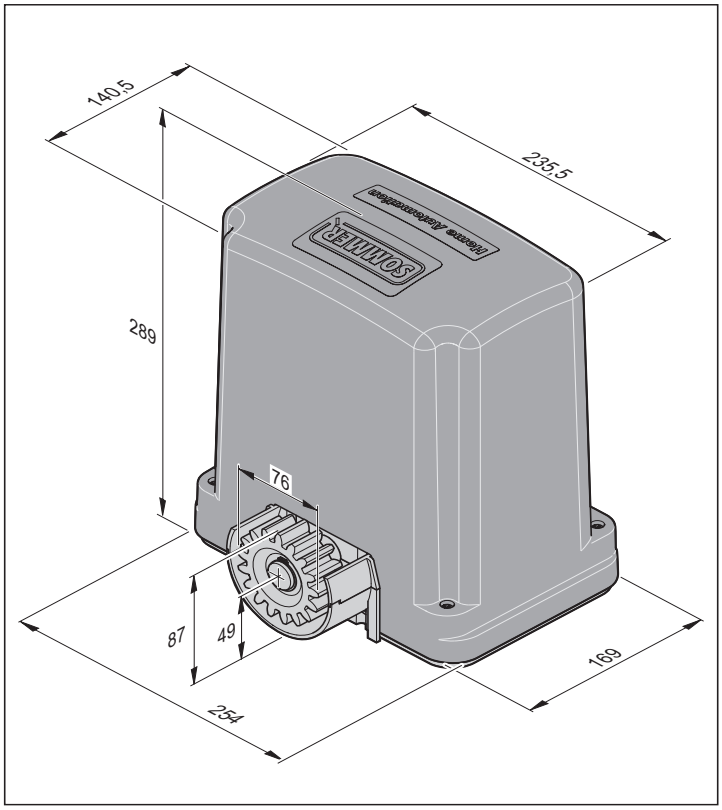
Technical data

Rated voltage	220 ...240 AC/V
Rated frequency	50/60 Hz
Operating temperature range	-20 – +50 °C
Degree of protection	IP 54
Max. tension and compress. force	550 N
Rated tension force	165 N
Rated current consumption	0.22 A
Rated wattage	51 W
Max. speed	200 mm/s
Power consumption, stand-by	2 W
Weight	8 kg
Operating time	30 %

Workplace-related emission value < 75 dBA - drive only

Dimensions

All dimensions are in millimeters. The drive is locked.



Declaration of Installation

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

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

hereby declares that the controller

STArter

as of the identification STArter complies with the Machinery Directive 2006/42/EC and is specified for installation in a gate system.

- The following fundamental safety requirements have been applied and observed in accordance with Appendix I:

- General principles No. 1

- 1.2 Safety and reliability of control units
  Safety input I terminals 6 + 7: Cat 2 / PL C
  Optical safety contact strip terminals 6 + 20 + 21: Cat 2 / PL C
  Electric 8.2 kΩ safety contact strip terminals 6 + 7: Cat 2 / PL C
  Safety input II terminals 8 + 9: Cat 2 / PL C
  Internal force limitation Cat 2 / PL C
  Safety categories in accordance with EN 13849 - 1:2008

- Compliant with the regulations of the EC Building Products Guideline 89/106/EC.
  For the operating forces part, the respective initial testing has been carried out in consultation with recognized inspecting authorities. In doing so, the harmonized standards EN 13241-1, EN 12453 and EN 12445 have been applied. For the tested combinations, refer to the "Reference list" table in the Internet under www.sommer.eu.
- Compliant with the Low Voltage Directive 2006/95/EC.
- Compliant with the Directive on Electromagnetic Compatibility 2004/1 08/EC.

- The technical documentation was drawn up in accordance with Appendix VII B.

The product may only be put into operation after it has been established that the door system complies with the regulations of the Machinery Directive.

CE

Kirchheim, 01.02.11

Jochen Lude
Responsible for documents

Installation preparations

Safety instructions

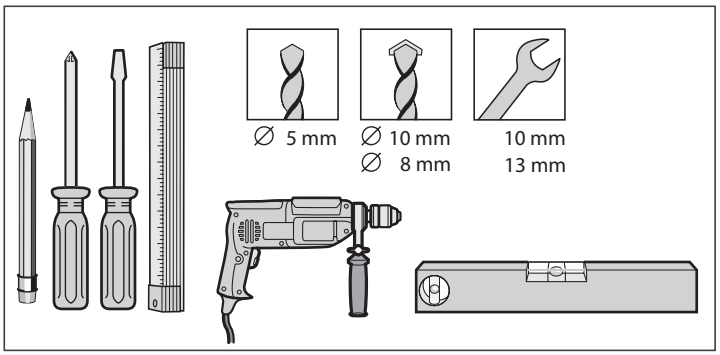
ATTENTION!
Follow all installation directions. Improper installation may cause serious injuries.

- The voltage of the power source must correspond with the voltage listed on the drive type plate.
- The contacts of all devices to be connected externally must be safely isolated from the mains voltage supply according to IEC 364-4-41.
- Wires for external devices must be installed in accordance with IEC 364-4-41.
- The drive may only be installed, connected and commissioned by qualified technicians.
- Do not move the gate if there are people, animals or objects in the area of movement.
- Keep children, disabled persons and animals away from the gate.
- Wear safety glasses when drilling the fastening holes.
- Cover the drive during drilling to prevent penetration of dirt.

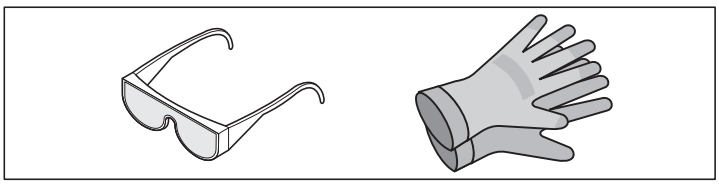
ATTENTION!
The foundation must be solid and stable. Only install the drive on a correctly aligned door. An incorrectly aligned door could cause serious injury.

- Doors must be stable in themselves, since high traction and compression forces are encountered. Reinforce lighter doors made of plastic or aluminum if necessary before installation. Ask a specialist retailer for advice.
- Remove or disable door locks.
- Use only approved fasteners (e.g. anchor fittings, bolts). The fasteners must match the material of the ground.
- Check that the door runs smoothly.

Tools required



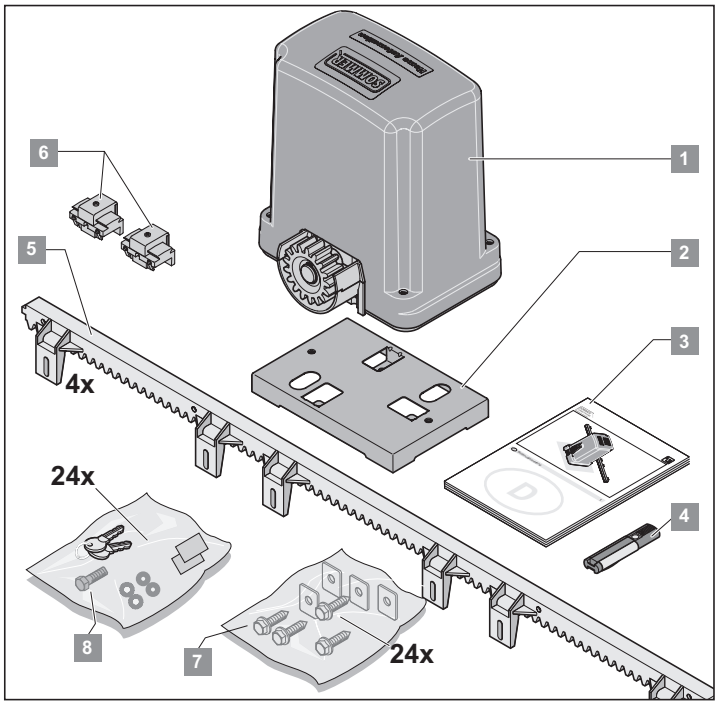
Personal safety equipment



- Safety glasses (for drilling).
- Work gloves.

Scope of supply

- Check the package before installation to avoid unnecessary work and expense if a part is missing.
- The actual scope of supply may vary depending on the design of the drive.



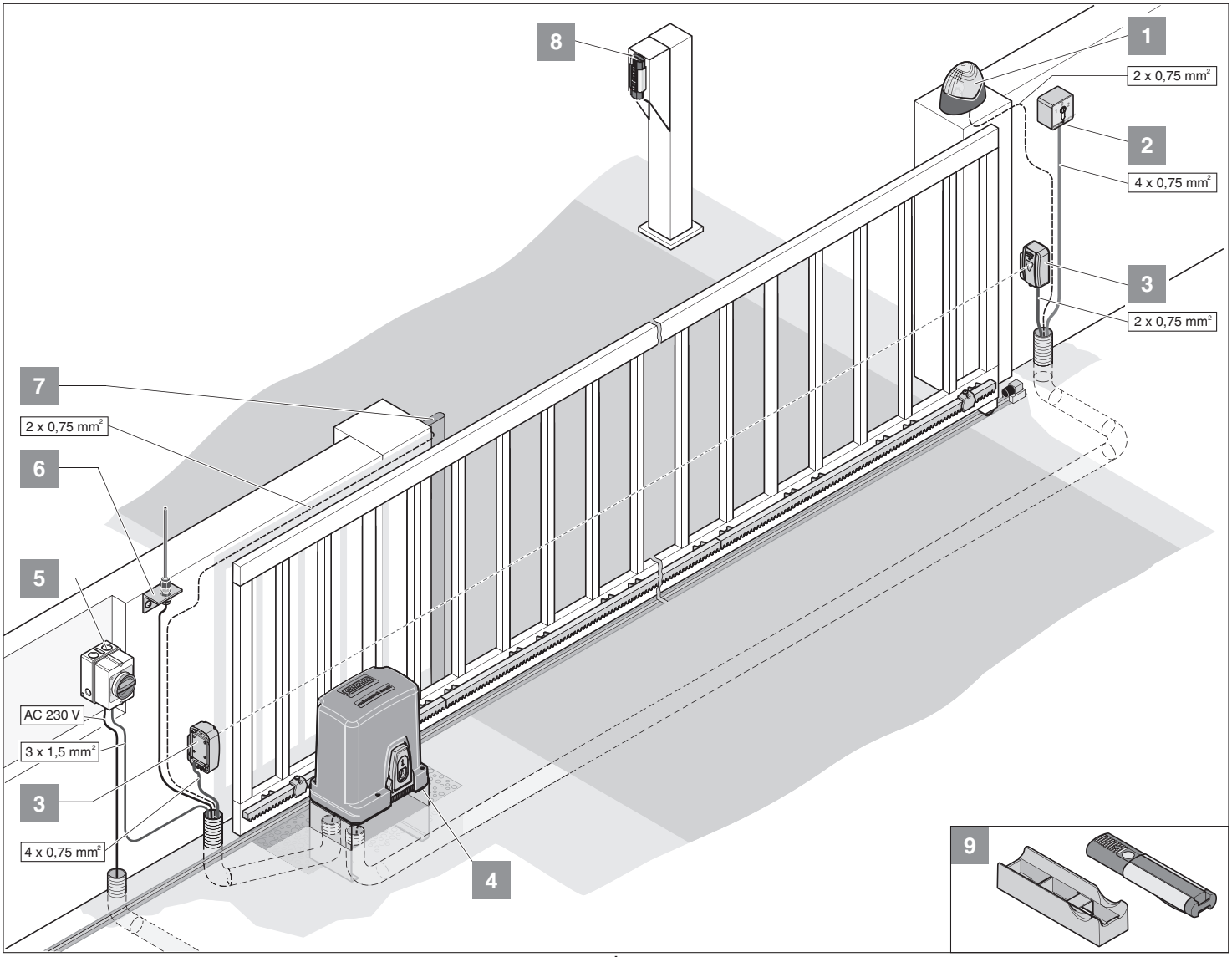
Complete set

Package (L x W x H)		1035 × 350 × 270 mm
Weight		12 kg
1.	1 item	Sliding gate drive with controller and radio receiver
2.	1 item	Console
3.	1 item	Installation and Operating Instructions
4.	1 item	4 Hand-held command transmitter
5.	4 item	1 m rack
6.	2 item	Limit switch
7.	1 item	4 item Auxiliary mounting plate 2 item Spring washer 2 item Screw 2 item U-washer 2 item Lock washer 2 item Key
8.	1 item	Installation bag (fasteners) 24 item Screw 24 items Washers

Single drive

Package (L x W x H)		400 × 355 × 225 mm
Weight		8 kg
1.	1 item	Sliding gate drive with controller and radio receiver
2.	1 item	Console
3.	1 item	Installation and Operating Instructions
8.	2 item	Key for cover
6.	2 item	Solenoid limit switch

Installation



Tips for installation

- A safety device must always be connected as a NC contact. This ensures that safety is always guaranteed in the event of tripping or a fault.
- Determine the position of the accessories before installation together with the operator.

NOTE!

Additional pulse transmitters are: hand-held transmitters, Telecody, wireless indoor switches and key switches. In the case of the hand-held transmitter, Telecody or the wireless indoor switches a connecting line to the drive is not required (contact your dealer).

1.	Warning light DC 24 V
2.	Key switch (1 or 2 contact)
3.	Photo eyes (required for automatic closing, see EN 12543)
4.	Console
5.	Main switch (lockable)
6.	Rod antenna (with 10 m cable)
7.	Safety contact strip (8.2 kOhm, Fraba system)
8.	Telecody
9.	Car/wall holder for hand-held transmitter

General preparations

- Remove or disable all locking devices (electric lock, bars, etc.) before installing the drive.
- The gate must have a stable structure and must be suitable.
- The gate must not show excessive lateral deviation throughout its range of movement.
- The system wheels and bottom track and the roller and top guide must operate without excessive friction.
- End stops must be installed at the "gate OPEN + gate CLOSED" positions to prevent derailing of the gate.
- Install empty ducts under the gate for the cables of the mains supply line and the accessories (photo eye, warning light, key switch, etc.).

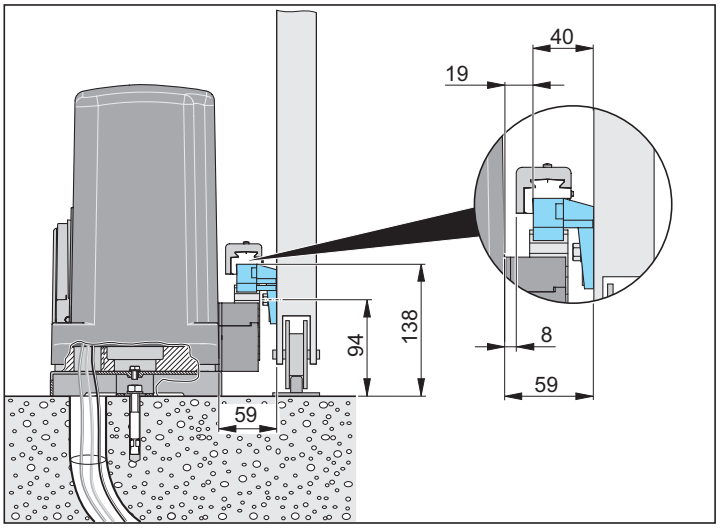
Installation

Safety instructions

- The control unit must be connected to the power supply by an electrician only.
- Ensure that the drive is securely fastened to the ground and the racks on the gate to withstand the high forces generated when opening and closing the gate.
- If a button is used for opening or closing, it must be installed at a height of at least 1.6 m to prevent operation by children.
- The rack must not press on the pinion during operation, otherwise the drive will be damaged.
- Follow the standards for installation, e.g.: EN 12604, EN 12605.

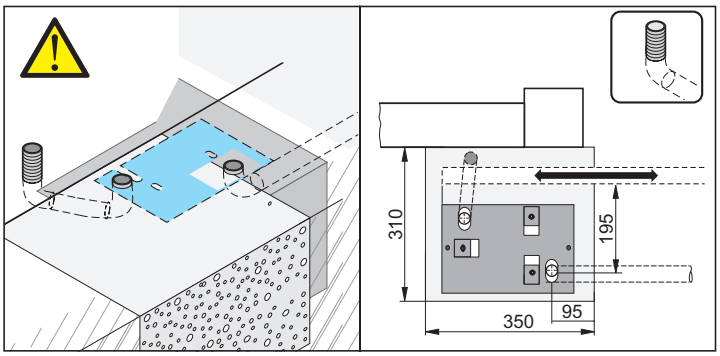
Installation on ground

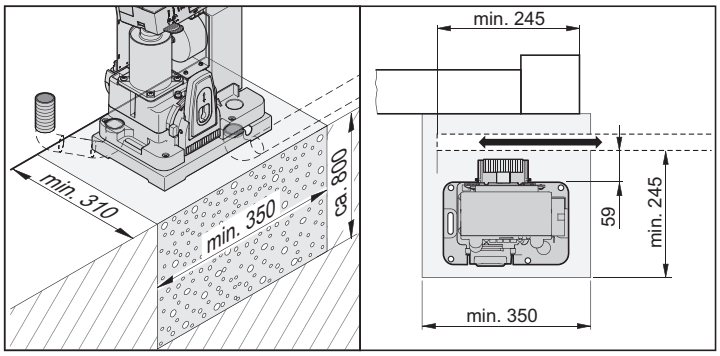
NOTE
Dispose of packaging according to your local regulations.



Foundation

- For free-standing gates install the drive centrally between the roller blocks.
- The foundation must extend below the frost line (approx. 800 mm in Germany).
- The foundation must be cured and horizontal.
- Foundation dimensions as shown.



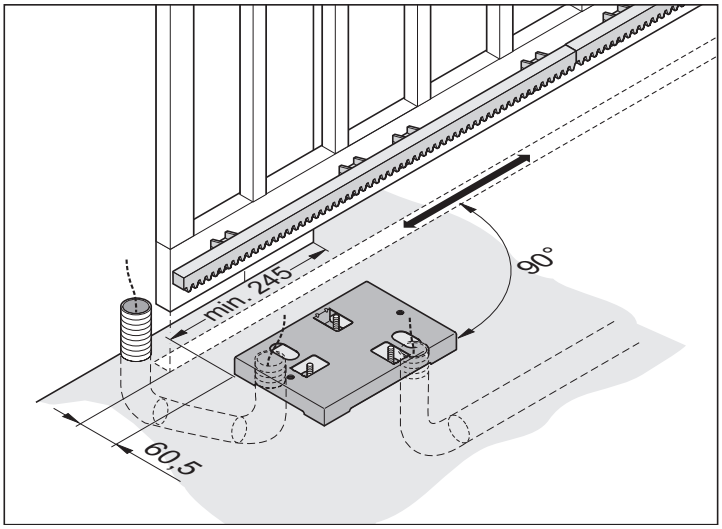


Installing the console

1. Check the scope of supply
2. Remove the drill template from the middle of this manual
3. Mark the holes on the foundation with the drill template
4. Make drill holes
5. Insert anchor fittings
6. Screw down console

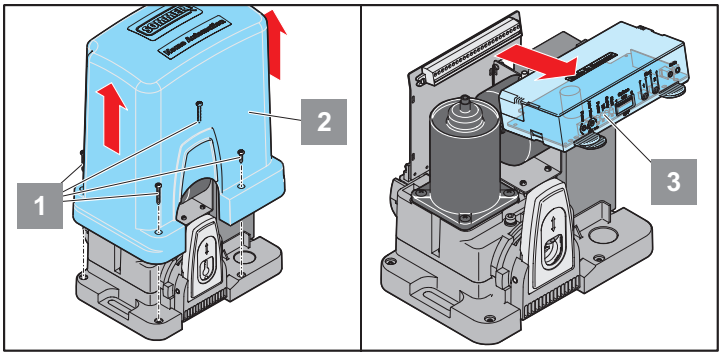
Console

NOTE!
Always note the dimensions and angles, see “Installation location”.

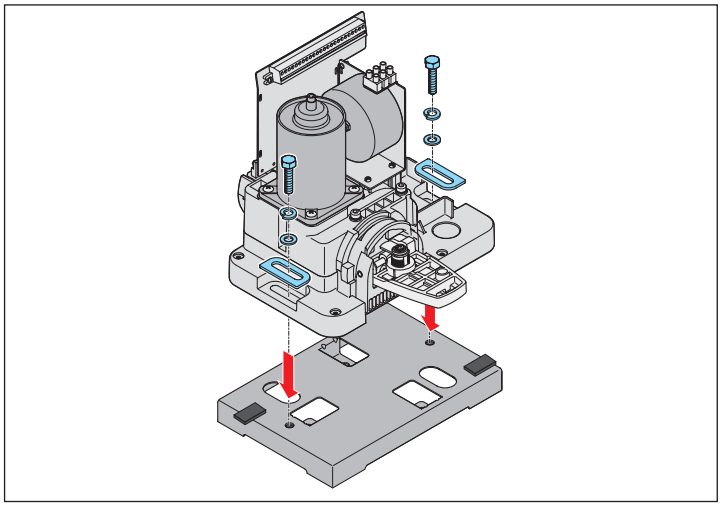


7. Note the dimensions of the console and cable ducts for the mains connection and accessories (e.g. photo eye) during excavation, see "Foundation".
8. Check the dimensions and the horizontal position of the console. Screw down or concrete in cable ducts and console.

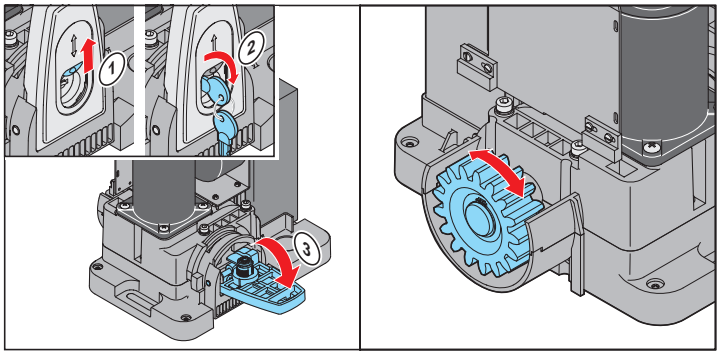
Installing drive on console



9. Unscrew the four screws (1) and remove cover (2).
10. Remove controller (3).
11. Screw drive to console. Use the mounting plates (30 x 20 x 1.5 mm) to set a distance of 1.5 mm in between drive and console. This allows optimum adjustment of the gear play.



Releasing drive



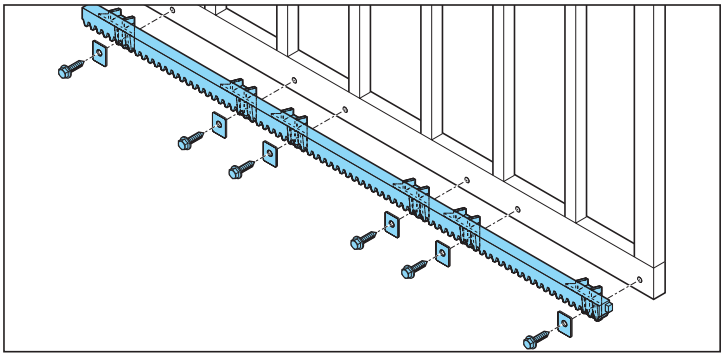
12. Lift protective cover (1).
13. Insert key and turn.
14. Lift cover to the outside.
15. Drive is released and the gate can be moved manually.

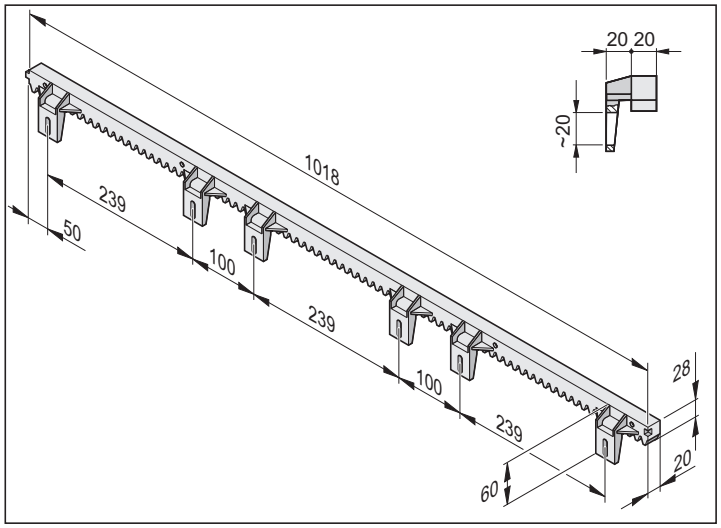
Installing the racks

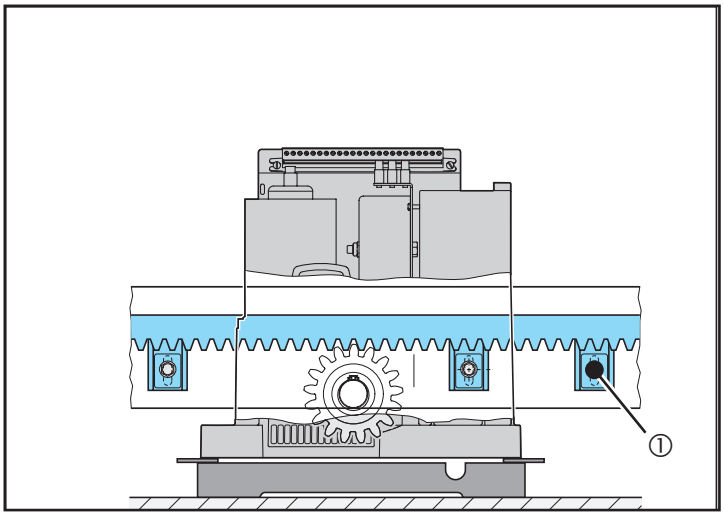
ATTENTION!
Steel racks must have a minimum width of 12 mm. Narrower steel racks may damage the drive.

NOTE!
The complete kit contains four racks each 1 m long. Contact your dealer if you require more racks.

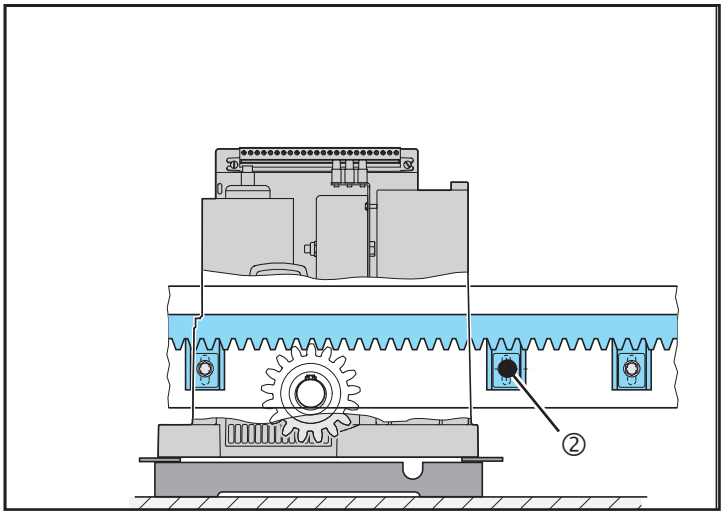
- The rack must not press on the pinion at any position during operation, otherwise the gears will be damaged.
- Always start installing the rack on the passage side of the gate.
- The holes must always be marked near the pinion.







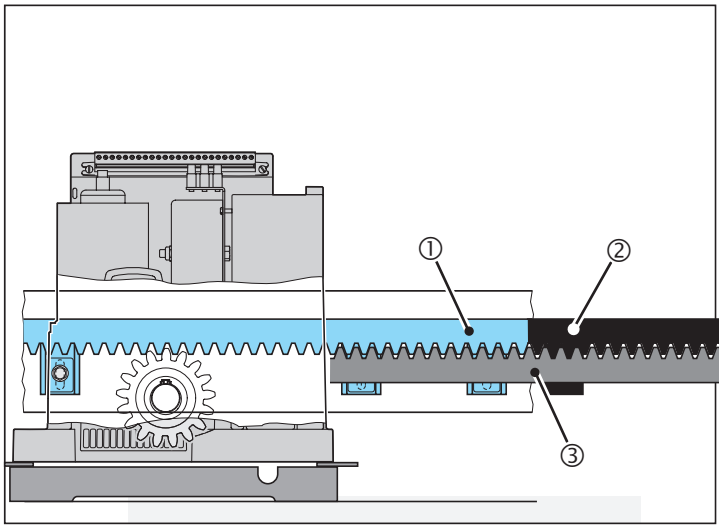
1. Before marking the first hole open the gate completely by hand.
2. Position the rack on the pinion and align it horizontally with a spirit level.
3. Mark the first hole, drill it and fasten.



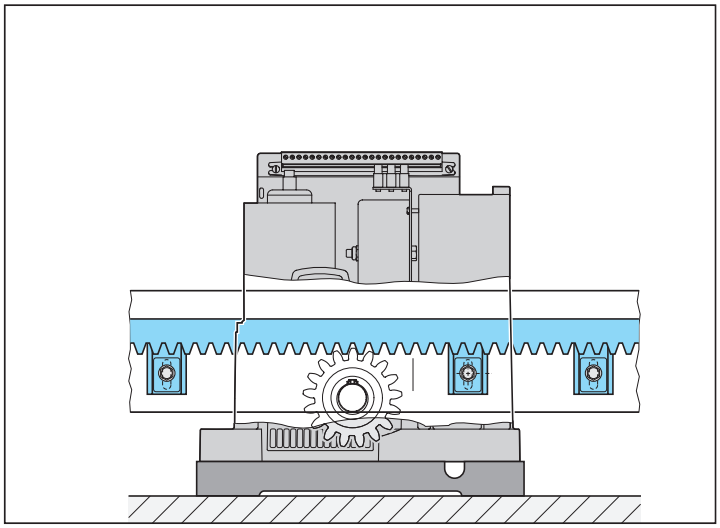
4. Slide gate towards the "closed" position until the next drill point is positioned as shown in the diagram and mark the hole again.
5. Repeat until all drill positions are marked.
6. Fasten rack.

Installing additional racks

TIP!
First mark the two outer holes and drill. Fasten temporarily and mark the remaining holes. Then remove the rack and drill the remaining holes. Then the rack can be finally bolted in position.



1. Position second rack (2) flush with the first rack (1) and hold another rack (3) against them from below so the teeth of the additional rack (3) mesh with the teeth of the two top racks (1 and 2). This will ensure that the second rack (2) is accurately fitted.
2. Mark and drill the holes for the second rack.
3. Attach rack.
4. If a third rack is required, use the same procedure as for the second rack.

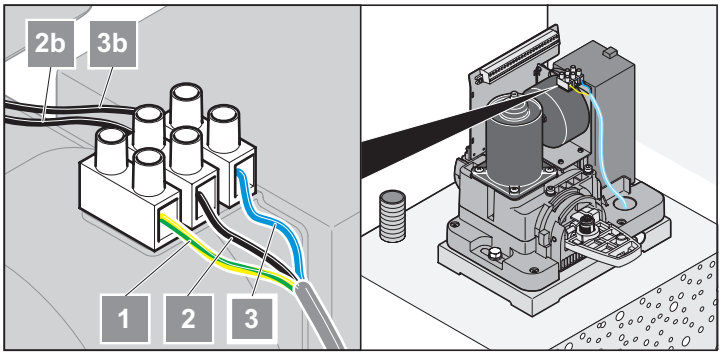


5. Remove auxiliary mounting plate.

Connection

Mains connection

- Permissible cable cross-section: max. 2.5 mm².



1	PE	Protective ground
2	L	Mains supply line AC 220 V - 240 V
3	N	Neutral wire
2b		Transformer supply line
3b		Transformer supply line

Installation location

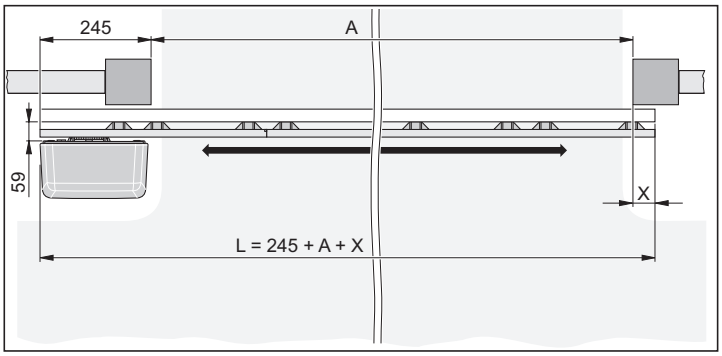
NOTE!
As delivered the drive is installed on the left and the gate opens to the left.

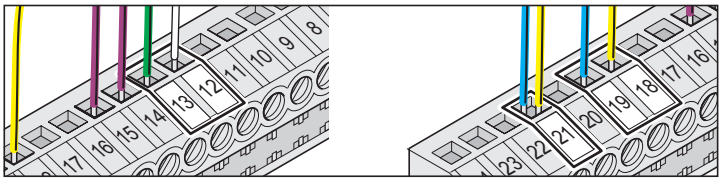
Drive left, calculating gate wing length

L = required gate wing length

A = available passage width

X = overlap (e.g.: gate wing – post)





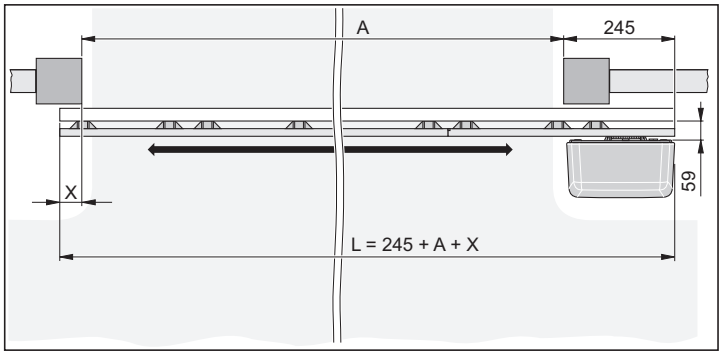
Terminal	Cable color	Name
12	black	Motor
13	red	Motor
18	white	Gate OPEN sensor
19	white	Gate CLOSED sensor
21	white	Gate OPEN + CLOSED sensor ground

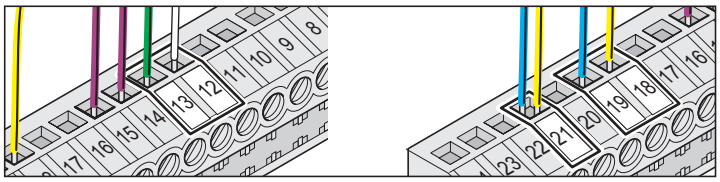
Drive right, calculating gate wing length

L = required gate wing length

A = available passage width

X = overlap (e.g.: gate wing – post)





Terminal	Cable color	Connection
12	red	Motor
13	black	Motor
18	white	Gate OPEN sensor
19	white	Gate CLOSED sensor
21	white	Gate OPEN + CLOSED sensor ground

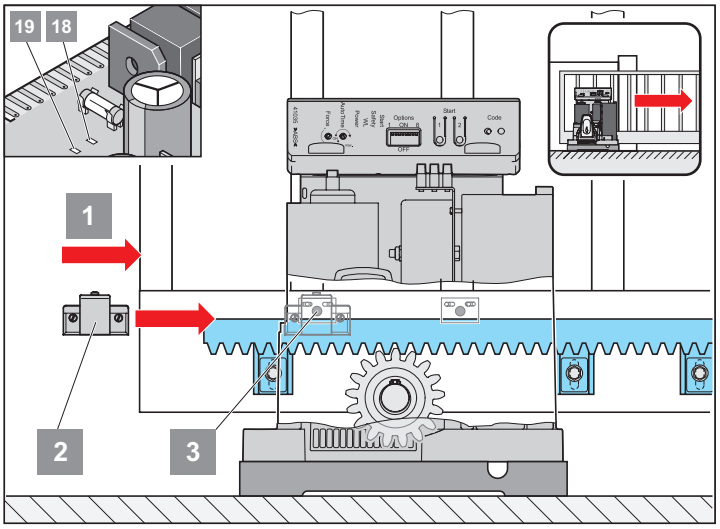
NOTE!
For right-hand installation reverse motor connection 12 + 13 and sensor lines 18 + 19.

NOTE!
For terminal diagram overview, see overleaf.

NOTE!
For max. line lengths see terminal plan overleaf.

Connection

Set door end position CLOSED

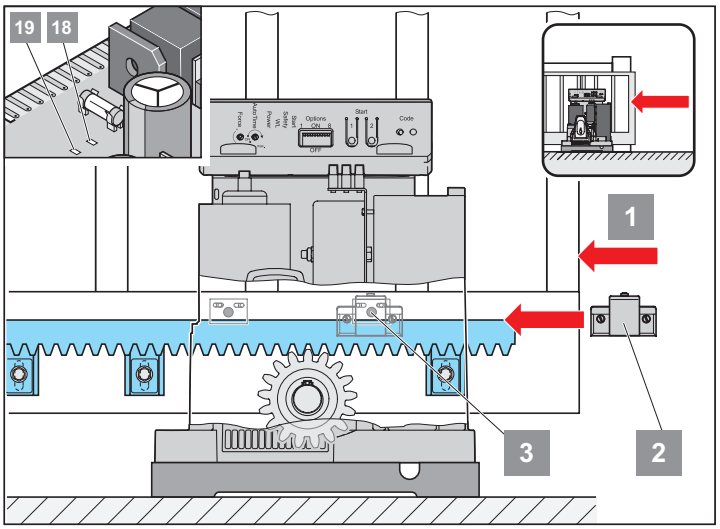


- Push the door into door end position CLOSED. (1)
- Push the limit switch magnet (2) on the sensor (3) until it switches (the LED on the control unit lights up).

  Drive on left: LED 18 -> Door CLOSED
  Drive right: LED 19 -> Door CLOSED

- Tighten limit switch magnet 2.

Set door end position OPEN

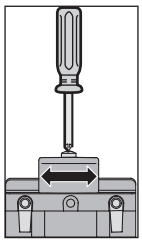


- Push the door into door end position CLOSED. (1)
- Push the limit switch magnet (2) on the sensor (3) until it switches (the LED on the control unit lights up).

  Drive on left: LED 19 -> Door OPEN
  Drive right: LED 18 -> Door OPEN

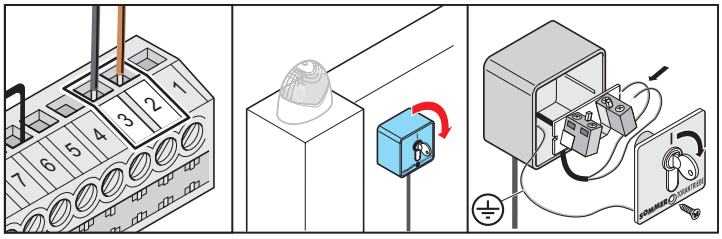
- Tighten limit switch magnet 2.

Note: Fine adjustment



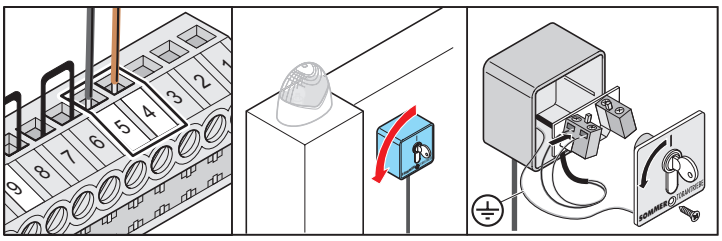
Connecting buttons or key switches

ATTENTION!
When actuating the key switch the operator must keep clear of the movement zone of gate and must have a direct view of it.



Button 1:

Terminals 2 + 3



Button 2:

Terminals 4 + 5

What is button 2 for?

For settings see chapter "Functions and connections"

Defined opening and closing (2-channel mode)

Button 1 opens and button 2 closes the gate.

Partial opening

Button 1 always opens and closes the gate completely.

Button 2 only opens the gate partially and closes the gate.

Deadman's function (switch on with TorMinal only)

Button 1 opens the gate while the button is pressed.

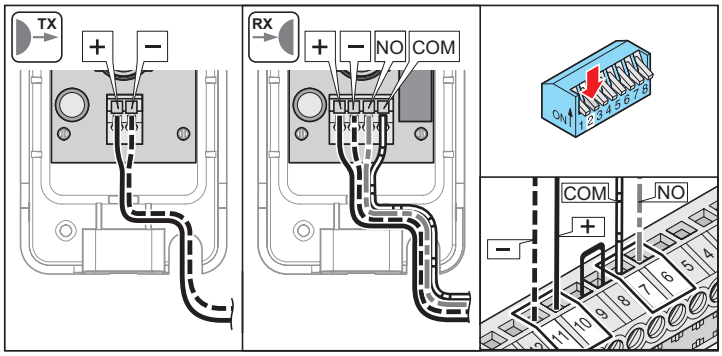
Button 2 closes the gate while the button is pressed.

Safety instructions

ATTENTION!

Before working on the gate or the drive always disconnect the control unit from the power supply and lock to prevent reactivation.

Connecting photo eyes



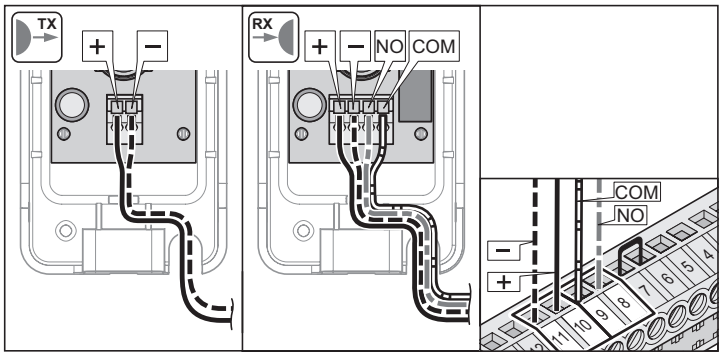
Safety input terminal 1 (Safety-1)

Terminal 6 + 7: Tested connection for floating contacts, only if DIP switch 2 OFF

Voltage supply

Terminal 10: Regulated DC 24 V, max. 0.1 A

Terminal 11: Ground



Safety input terminal 2 (Safety-2)

Terminal 8 + 9: Tested connection for floating contacts, reacts only with door CLOSED

Voltage supply

Terminal 10: Regulated DC 24 V, max. 0.1 A

Terminal 11: Ground

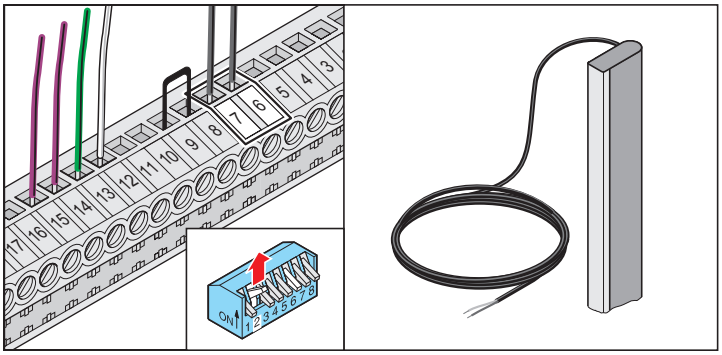
Additional connection options

Connecting safety contact strip

NOTE!
Either an 8.2 kohm safety contact strip or an optoelectronic system can be connected, but not both at the same time.

Electrical safety contact strip (8.2 kohm)

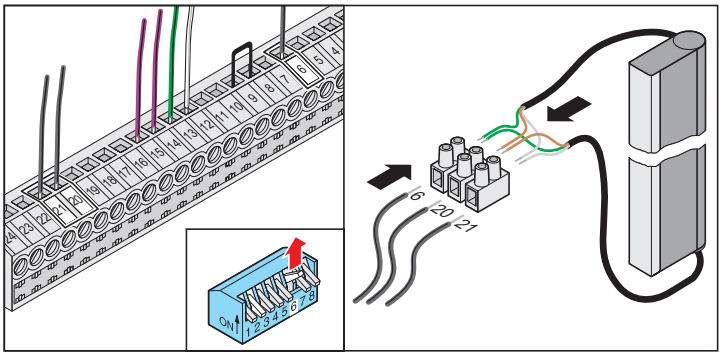
Analysis 8.2 kOhm. Connection without special analytical device, the controller does the evaluation.



Terminals 6 + 7:	Tested connection for an 8.2 kohm strip
DIP switch 2:	ON

Optoelectronic safety contact strip

One strip can be connected without special analytical device, the controller does the evaluation. Connection of two strips with special analytical device only.

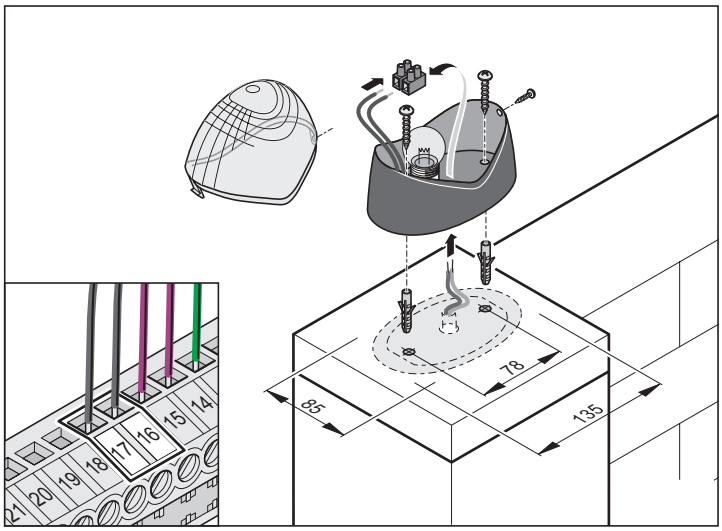


Terminal 6:	Green cable from Fraba System
Terminal 20:	Brown cable from Fraba system
Terminal 21:	White cable from Fraba system
DIP switch 6:	ON
DIP switch 2:	OFF

Safety instructions

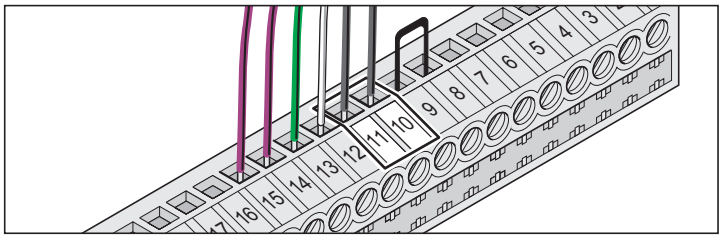
ATTENTION!
Before working on the gate or the drive always disconnect the control unit from the power supply and lock to prevent reactivation.

Warning light



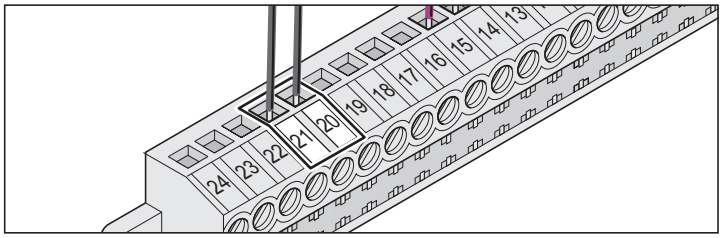
Terminal 16
Terminal 17

24 V connection



Terminal 10:	Regulated DC 24 V, max. 0.1 A
Terminal 11:	Ground

12 V connection

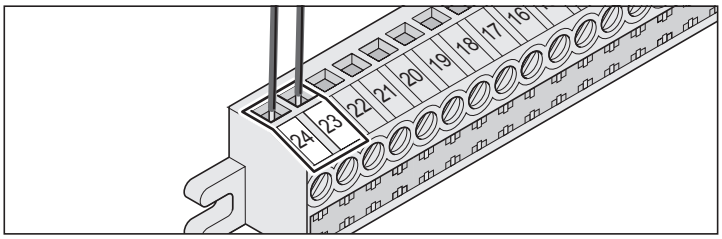


Terminal 20:	DC 12 V, max. 0.1 A
Terminal 21:	Ground

Connections

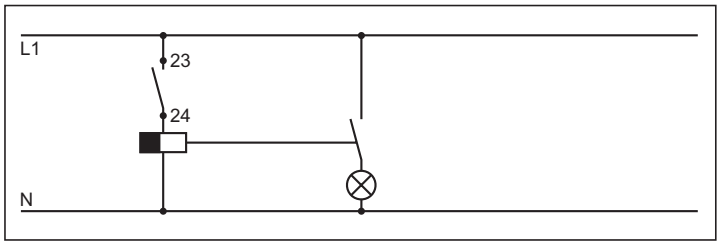
Floating relay output

Every time the drive is started, a pulse is pending at the relay output that can be used to switch on lights in a stairwell, for example.



Terminals 23 + 24: Max. switching capacity: AC 230 V, max. 5 A

The “max. switching duration” can only be changed with the TorMinal.



Example: automatic lights in stairwell

Connecting external antenna

See p. 18 Chapter "External antenna".

TorMinal interface

See TorMinal owner’s manual.

Special functions

Deadman operation

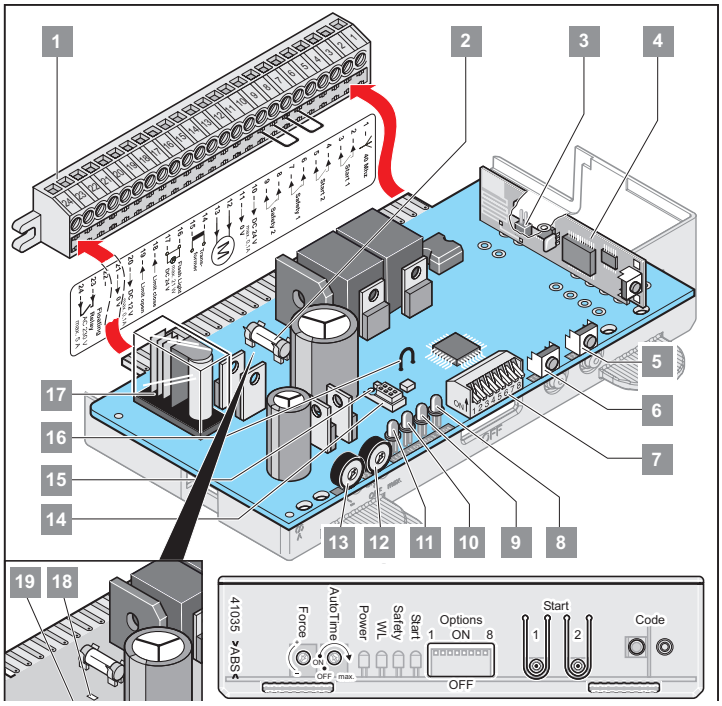
Service monitor

This and additional functions or settings require the TorMinal.

General information

- DIP switches set to "OFF" position on delivery.
- Do not apply external voltage to the connections of the control system, otherwise the control system is immediately destroyed.

Overview of the control system



1.	Direct connector, 24-pole
2.	Fuse for warning light-1 connection, terminal 16 + 17
3.	Connection of the external antenna
4.	Radio receiver
5.	Button 2 (T2*)
6.	Button 1 (T1*)
7.	DIP switch 1 - 8
8.	Start (LED 4*) Lights when a radio command is sent or a button is pressed.
9.	Safety (LED 3*) Lights when a safety input is actuated.
10.	WL (LED 2*) Flashes when the drive opens or closes the gate.
11.	Power (LED 1*) Lights when mains power is on.
12.	Potentiometer (P2*) for setting time of automatic closing
13.	Potentiometer (P1*) for adjusting the power tolerance
14.	Connection of TorMinal
15.	Protection against incorrect insertion for the connection of TorMinal
16.	Wire jumper, disconnecting switches off soft running.
17.	Relay contact, Terminals 23 + 24
18.	LED: Drive left: end position gate CLOSED Drive right: Door end position OPEN
19.	LED: Drive left: Door end position OPEN Drive right: Door end position CLOSED

* See the controller pcb for this label.

Initial operation

Safety instructions

NOTE!

After installation of the drive the person responsible for the installation must complete an EC declaration of conformity for the gate system in accordance with the Machinery Directive 2006/42/EC and apply the CE mark and a type plate. This is also required for private installations and also if the drive is retrofitted to a manually operated gate. This documentation and the Installation and Operating Instructions are retained by the operator.

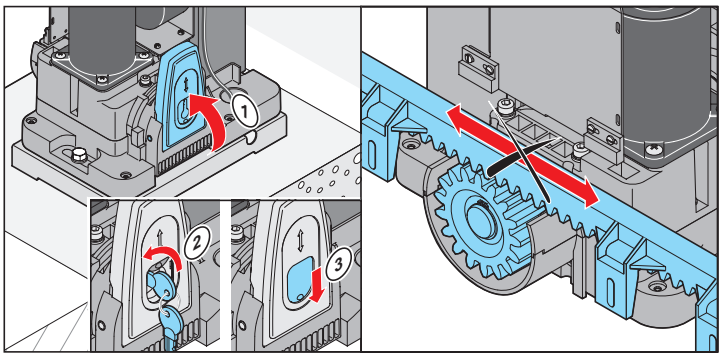
ATTENTION!

The adjustment of the force tolerance is safety-relevant and must be performed by qualified personnel with upmost care. If the adjustment of the spring unit is excessively high, people or animals could be injured and objects damaged. Select a force tolerance that is as low as possible so that obstacles are detected quickly and safely.

Programming the drive

The control system has an automatic force setting. The control system memorizes the required force during the "OPEN" and "CLOSE" gate movements and stores it when the end position has been reached.

Locking drive



1. Traverse drive to center position.
2. Lift lever (1) up and lock with key until the motor locks - loud click. Release lever (1).
3. Remove key and push dust cap down.

NOTE!

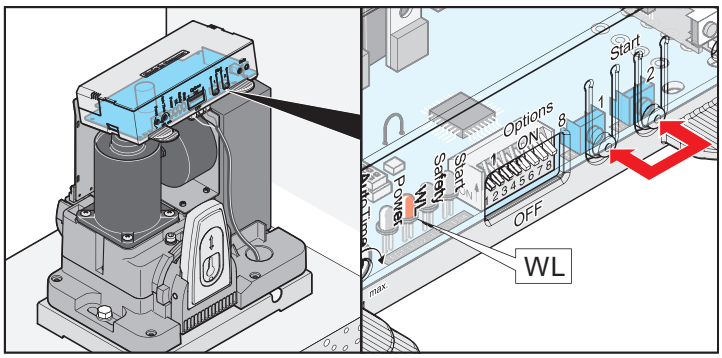
Move gate back and forth by hand so the pinion meshes with the rack more easily and the motor can lock.

⇒ Drive is locked and the gate can only be moved with the motor.

4. Plug in controller.
5. Switch on main switch.

⇒ LED (power) on.

Resetting the control system



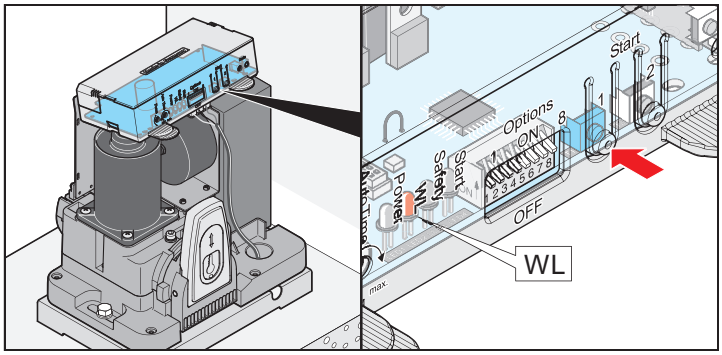
1. Press the buttons (1 + 2) until the "WL" LED extinguishes.

⇒ "WL" LED off - force values deleted.

2. Press the buttons (1+2).
3. Reset is complete.

⇒ "WL" LED flashes.

Learn the force values:



1. Press button (1).

⇒ Gate opens to end switch magnet (end position gate OPEN).

⇒ If the gate does not open, the motor may be incorrectly connected (see "Connection" page 11).

⇒ "WL" LED flashes.

2. Press button (1).

⇒ Gate closes to end switch magnet (end position gate CLOSED).

⇒ "WL" LED flashes.

3. Repeat Steps 1 and 2.

⇒ The "WL" LED switches on and off - force values have been learned.

4. Test gate OPEN and CLOSED end positions by opening and closing the gate. Adjust end positions if necessary until the gate opens and closes completely.

NOTE!

Soft running length with gate CLOSED min. 500 mm.

Adjusting the force tolerance

- Shut-off force = learned force + force tolerance (adjustable with the "Force" potentiometer)
- If the force is not sufficient for opening or closing the gate completely, increase the force tolerance by rotating the potentiometer clockwise.
- If the setting is changed while the gate is opening or closing, the control unit imports the setting next time the gate is opened.
- After setting the force tolerance it may be necessary to reset the end positions.

Checking the force tolerance

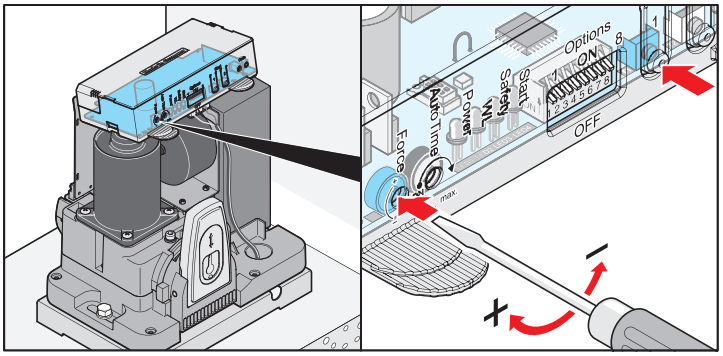
ATTENTION!

The use of rubber safety strips on the main and side closing edges is required. No sliding door without safety strips may be used!

⇒ Our program contains various safety strips, both active (triggers an immediate stop of the door at contact) and passive (takes up part of the gyrating mass of the moving door). This strip can be ordered from a SOMMER dealer under Art. No. 3652V000.

See care and maintenance / regular testing.

Setting the force tolerance to the automatically learned force.
The potentiometer setting is imported again at every start.



- Left stop of potentiometer (-) is the lowest force tolerance, right stop (+) is the highest tolerance.

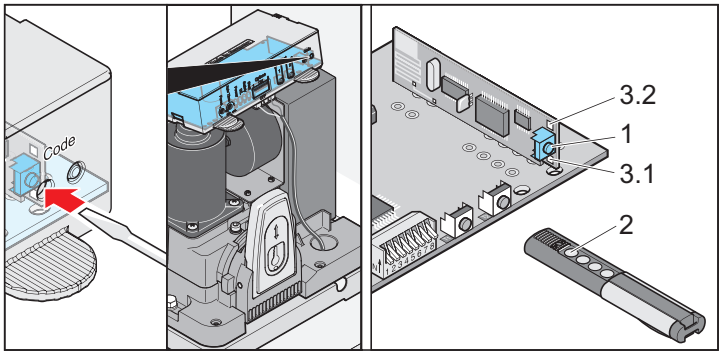
Test run:

1. Close gate.
2. Press button (Start 1) 1x.
   Gate opens to gate OPEN end position.
3. Press button (Start 1) 1x.
   Gate closes to gate CLOSED end position.
4. If one of the set gate end positions is not reached (gate OPEN or CLOSED), the force tolerance must be increased.
5. Turn "Force" potentiometer approx.10 degrees clockwise.
6. Repeat test run until the gate reaches the gate OPEN and CLOSED end positions.

Programming the hand-held remote control

NOTE!

Before programming the hand-held transmitter for the first time, always clear the radio receiver memory completely.



Deleting the radio receiver memory

1. Press and hold the Learn button (1).
   ⇒ After 5 seconds the LED (3.1 or 3.2) flashes - after another 10 seconds the LED (3.1 or 3.2) is steady.
   ⇒ After a total of 25 seconds all LEDs are on (3.1 and 3.2).
2. Press the learn button (1).

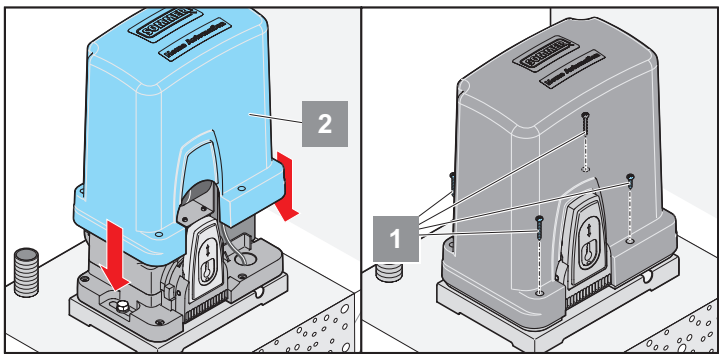
Programming the hand-held remote control

1. Press the learn button (1).
   - 1 x for channel 1; the LED (3.1) lights up.
   - 2 x for channel 2; the LED (3.2) lights up.

   ⇒ If no code is sent within 10 seconds, the radio receiver switches to Normal mode.
2. Press the desire hand-held transmitter button (2) until the LED (3.1/3.2) extinguishes, depending upon which channel has been selected.
   ⇒ LED extinguishes - programming is finished.
   ⇒ The hand-held transmitter has transferred the radio code to the radio transmitter.
3. For the additional programming of hand-held transmitters, repeat the steps above. A maximum of 112 memory locations are available for each radio receiver.

NOTE!

Press the learn button (1) until all LEDs are off to cancel the learn mode.



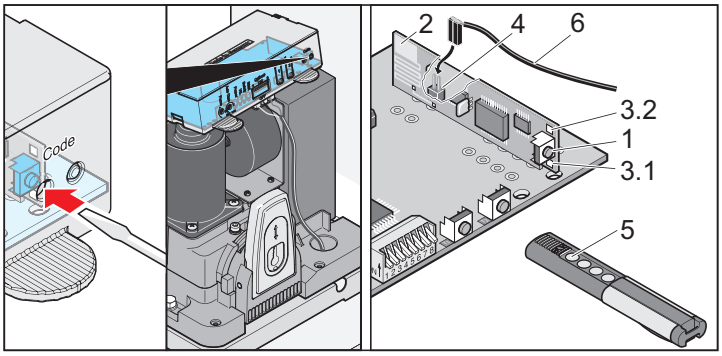
1. Position cover (2) and push down.
2. Fasten cover.
   ⇒ Commissioning complete.

Functions and connections

Safety instructions

- The local safety regulations for the system must be complied with to ensure safe operation. For information electrical utilities, VDE and professional associations.
- The operator is not protected against interference caused by other telecommunications equipment or devices (e.g. wireless systems which are being operated properly in the same frequency range).
- Replace the hand-held transmitter unit's batteries if you experience reception problems.

Display and button explanation



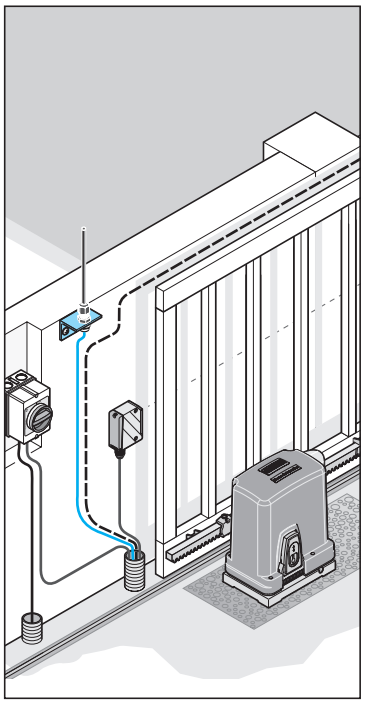
1.	Sets the radio receiver to different operating modes: Learn, delete, normal mode
2.	Internal antenna

NOTE!
Channel 2 (3.2) is only required for the "Defined opening and closing or partial opening" functions.

3.	LEDs; indicate which channel is selected. 3.1 LED channel 1 3.2 LED channel 2
4.	Connection for external antenna An external antenna can be used if the range with the internal antenna is not sufficient. See p. 18 Chapter "External antenna."
5.	Hand-held transmitter button
6.	External antenna

External antenna

- If reception is inadequate with the radio receiver internal antenna, an external antenna can be connected.
- The antenna cable may not exert any mechanical force on the radio receiver; provide for stress relief.
- Define the installation location together with the operator.



Programming the hand-held remote control

NOTE!
Before the first learning of the hand-held transmitter, delete the memory of the radio receiver.

1. Press the learn button (1).
   - 1 x for channel 1; the LED (3.1) lights up.
   - 2 x for channel 2; the LED (3.2) lights up.
   - ⇒ If no code is sent within 10 seconds, the radio receiver switches to Normal mode.
2. Press the desire hand-held transmitter button (5) until the LED (3.1/3.2) extinguishes, depending upon which channel has been selected.
   - ⇒ LED extinguishes - programming is finished.
   - ⇒ The hand-held transmitter has transferred the radio code to the radio transmitter.
3. For the additional programming of hand-held transmitters, repeat the steps above. A maximum of 112 memory locations are available for each radio receiver.

Canceling the Learn mode:

Press the Learn button (1) until no more LEDs are lit.

Deleting the hand-held transmitter from the radio receiver

If a hand-held transmitter is to be deleted from the radio receiver, **every** button and **every** shortcut of the hand-held transmitter must be deleted for security reasons!

1. Press the learn button (1) and keep it pressed for five seconds.
   - ⇒ An LED flashes (3.1 or 3.2).
2. Press the learn button (1).
   - ⇒ The radio receiver is in Deletion mode.
3. Press the hand-held transmitter button whose code should be deleted in the radio receiver.
   - ⇒ The LED extinguishes. The deletion procedure is ended.
4. Repeat the procedure for **all** buttons and shortcuts.

Deleting a channel from the radio receiver

1. Press and hold the Learn button (1).
   - 1 x for channel 1; the LED (3.1) lights up.
   - 2 x for channel 2; the LED (3.2) lights up.
   - ⇒ After 5 seconds, the LED flashes (3.1 or 3.2).
   - ⇒ After another 10 seconds, the LED lights up steadily (3.1 or 3.2).
2. Press the learn button (1).
   - ⇒ The deletion procedure is ended.

Deleting the radio receiver memory

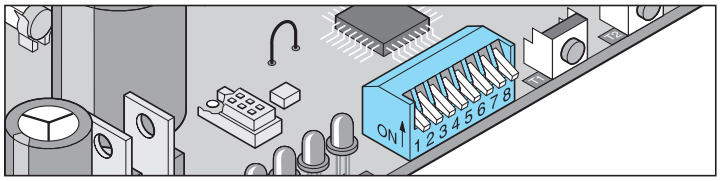
If a hand-held transmitter is lost, all channels in the radio receiver must be deleted for security reasons. After that, relearn all hand-held transmitters.

1. Press and hold the Learn button (1).
   - ⇒ After 5 seconds, the LED flashes (3.1 or 3.2).
   - ⇒ After another 10 seconds, the LED lights up steadily (3.1 or 3.2).
   - ⇒ After a total of 25 seconds, all LEDs light up steadily (3.1 and 3.2).
2. Release the Learn button (1) - the deletion procedure is ended.

DIP switches

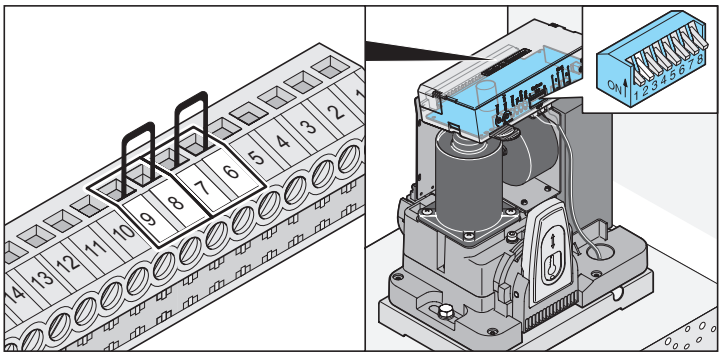
NOTE
Before switching the DIP switches, disconnect the power supply to the control unit. DIP switches are read again when the controller is connected to the power supply again.

Factory setting: OFF



DIP	Position	Function/reaction
Safety connection 1, terminal 6 + 7; action of drive on gate open		
1	OFF	No reaction by drive
	ON	Drive reversed
Safety connection 1, terminal 6 + 7; selection of function as NC contact or 8.2 kohm		
2	OFF	NC contact (e.g. photo eye)
	ON	8.2 kohm
Safety connection 2, terminal 8 + 9; action of drive on gate close		
3	OFF	Drive stops and opens the gate slightly, reversion
	ON	The drive stops and opens the door completely
Automatic closing: the gate closes 5 seconds are actuation of the photo eye (safety connection 1 or 2).		
4	OFF	Deactivated
	ON	Activated
Prewarning time for warning light connection terminal 16 + 17		
5	OFF	Prewarning time 0 sec.
	ON	Prewarning time 3 sec. - warning light flashes
Fraba system		
6	OFF	Deactivated
	ON	Activated
Defined opening and closing		
7	OFF	Pulse sequence with 1st channel operation button/channel 1 + 2 : OPEN - STOP - CLOSED - STOP - OPEN - STOP - CLOSED - etc.
	ON	Pulse sequence with 2nd channel operation Button/channel 1: OPEN - STOP - OPEN - STOP - OPEN - etc. Button/channel 2: CLOSED - STOP - CLOSED - STOP - CLOSED - etc.
Partial opening		
8	OFF	Partial opening deactivated
	ON	Partial opening activated Button/channel 1 = OPEN - STOP - CLOSED - etc. Button/channel 2 = partial opening DIP switch 7 OFF

Obstacle detection (DIP 1, 2 + 3)



Obstacle when gate is opening

Force cut-off

Drive reversed.

Safety input 1, terminal 6 + 7

If a safety input is interrupted (e.g. someone passes through the photo eye), the drive detects this and reacts according to the setting of DIP switch 1.

DIP switch 1:

OFF No reaction by drive

ON Drive reversed

DIP switch 2: Safety connection 1, terminals 6 + 7 function

OFF NC contact e.g.: for photo eye

ON 8.2 kohm (safety contact strip)

Safety input 2, terminal 8 + 9

No reaction by drive.

Obstacle when gate is closing

NOTE!
When automatic closing is activated the gate always opens completely.

Force cut-off

Drive reversed.

Safety input 1, terminal 6 + 7

If a safety input is interrupted (e.g. someone passes through the photo eye), the drive detects this and reacts according to the setting of DIP switch 3.

DIP switch 3:

OFF Drive stops and opens the gate slightly, reversion

ON The drive stops and opens the door completely

Safety input 2, terminal 8 + 9

DIP switch 3:

OFF Drive stops and opens the gate slightly, reversion

ON The drive stops and opens the door completely

Automatic closing function

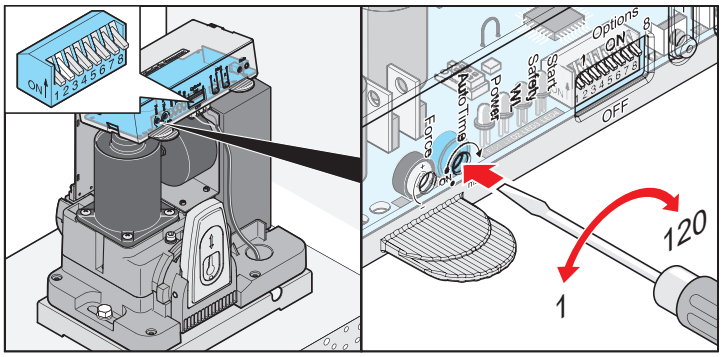
NOTE!
When using the automatic close function, ensure compliance with standard EN 12453 (e.g. install photo eye 1). Connect an additional photo eye to safety connection 2. It reacts only when the gate is closing.

The door closes automatically after a certain stay-open time, as set with the potentiometer. The door can only be opened but not closed by a command from a button or hand-held remote control. While the door is being opened, it cannot be stopped by a command.

If a command is sent while the door is automatically closing, it will open completely. A command during the opening time will start the procedure again from the beginning.

NOTE!
Partial opening and automatic closing
Use both functions together, first partial opening (DIP 8 ON) and then adjust automatic closing.

A warning light connected to warning light connection 1 (terminal 16 + 17) flashes during automatic closing.



Switch open hold time on and off with potentiometer:

- Time can be set from 1 - 120 seconds
- Switch off -> left stop

Behavior of drive when safety inputs 1 + 2 are triggered

During door open:
drive behavior depends on the setting of DIP switch 1.

During gate close:
drive always opens gate completely regardless of the setting of DIP switch 3.

Variant 1: automatic closing function

Automatic closing is activated when the door OPEN end position is reached.
The stay-open time set with the potentiometer starts at this point.
If a command is sent during this period, the time is reset.

Settings:

- Set the potentiometer for the desired time (1 - 120 seconds)
- DIP switch 4, 7 + 8 OFF
- Other DIP switches as desired

Variant 2: Automatic closing + photo eye (DIP 4)

NOTE!
Install a switch in the photo eye supply line for manual interruption of automatic close.

However, as in type 1, the drive closes the gate 5 seconds after interruption of the photo eye.

- Photo eye at safety connection 2 (terminal 8 + 9)

Settings:

- Set the potentiometer for the desired time (1 - 120 seconds)
- DIP switch 7 + 8 OFF
- DIP switch 4 ON
- Other DIP switches as desired

Variant 3: Automatic closing + safety contact strip + photo eye

NOTE!
Install a switch in the photo eye supply line for manual interruption of automatic close.

However, as in type 1, the drive closes the gate 5 seconds after interruption of the photo eye.

- Safety contact strip at safety connection 1 (terminal 6 + 7)
- Photo eye at safety connection 2 (terminal 8 + 9)

Settings:

- Set the potentiometer for the desired time (1 - 120 seconds)
- DIP switch 7 + 8 OFF
- DIP switches 2, 4 ON
- Other DIP switches as desired

Prewarning time (DIP 5)

A warning light connected to warning light connection 1 (terminal 16 + 17) flashes for 3 seconds after pressing the button or the hand-held transmitter before the drive starts.

The prewarning time is cancelled if a button or hand-held transmitter is actuated again.

DIP switch 5

OFF Deactivated

ON Activated, warning light 1 flashes for 3 seconds

Fraba system (DIP 6)

The function of safety connection 1 (terminal 6 + 7) can be switch to evaluation of the signal of a Fraba system here.

DIP switch 6

OFF Deactivated

ON Activated

Defined opening and closing (DIP 7)

Button/channel 1 open and button/channel 2 close the door. The 2-channel mode can also be used with only 2 buttons or with hand-held remote controls.

Requirement: DIP switch 8 OFF, 2 buttons connected or 2 hand-held transmitter buttons programmed.

DIP switch 7

OFF Deactivated

ON Activated

Partial opening (DIP 8)

Depending on the setting, this function partially opens the door.

Example:
Open the gate for persons to pass through. Partial opening can be used with two buttons or by radio (hand-held transmitter, Telecody, etc.).

DIP switch 8

OFF Deactivated

ON Activated, DIP switch 7 non-functional

Partial opening with 2 buttons

Install additional button and connect to terminals 4 + 5 as button 2.

Button 1 always opens the door completely.
If the door is partially opened with button 2, pressing button 1 opens the door completely.

Button 2 opens the gate partially only if the gate is closed.
If the gate is completely opened with button 1 or partially opened with button 2, pressing button 2 again closes the gate.

Procedure:

1. Close gate.
2. DIP switch 8 ON activates partial opening.

NOTE!
Always leave DIP switch 8 set to ON, the OFF setting immediately deletes the set partial opening.

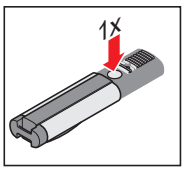
3. Press button 2 (open door from CLOSED end position).
   ⇒ Door opens until button 2 is pressed again or the door reaches the "door OPEN" end position.
4. Press button 2 once the desired position is reached.
5. Close door with button 2.
   ⇒ Partial opening saved and pressing button 2 opens the gate to the saved position.
6. Set DIP switch 8 to OFF to delete the partial opening setting.

Operation and control

Safety instructions

- Keep children, disabled persons and animals away from the gate.
- Never put your hand near the door when it is moving or near moving parts.
- Only pass through the door only once it is completely open.
- There is a risk of persons being crushed or cut by the mechanism or sharp edges of the door.

Open door

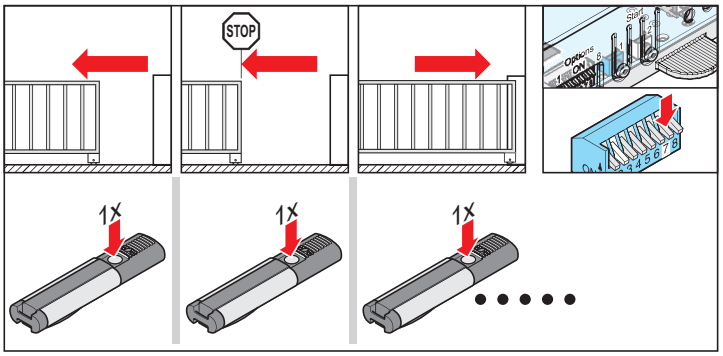


1. Press the pulse transmitter (1) or hand-held transmitter button once.
   - If the button is pressed during the gate OPEN movement, the gate stops. Depending on DIP switch 7.
   - It closes when pressed again.

Close door

1. Press button (1) or hand-held transmitter button once.
   - If the button is pressed during the gate CLOSE movement, the gate stops. Depending on DIP switch 7.
   - It opens when pressed again.

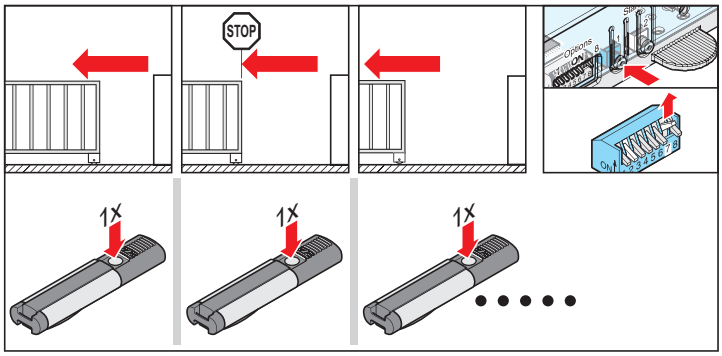
Pulse sequence of door movement

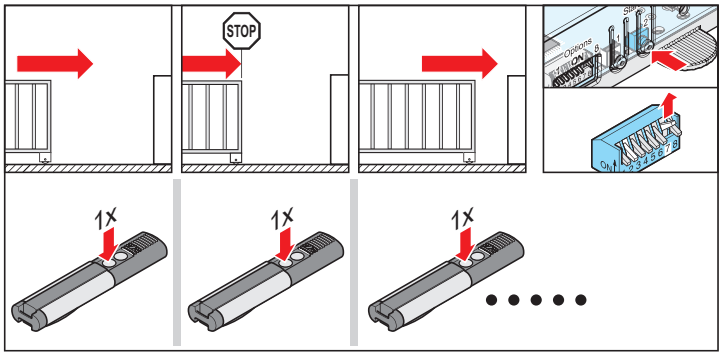


Standard setting for all drives

- DIP 7 OFF:
  OPEN - STOP - CLOSED - STOP - OPEN - etc.

Set pulse sequence with DIP switch 7.





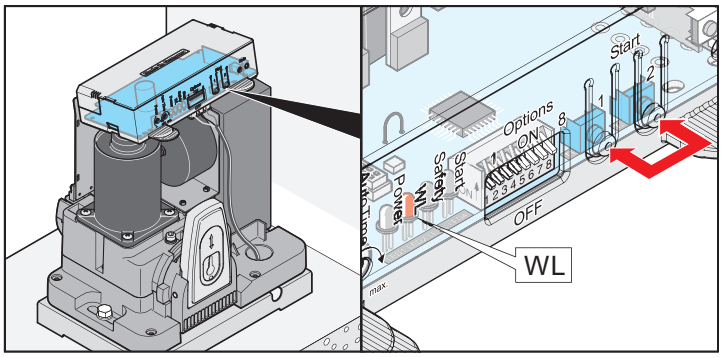
- DIP 7 ON:
  Button 1: OPEN - STOP - OPEN - STOP - etc.
  Button 2: CLOSED - STOP - CLOSED - STOP - CLOSED - etc.

Control unit reset

All saved values (e.g. runtime, opening force) are deleted; the drive learning process must be repeated.

Resetting the control system

- See the TorMinal manual to change the maximum speed or shut-off force.
- If the drive learned incorrect values or the gate has been changed.



1. Press button (1 + 2) until the "WL" LED is off.
   ⇒ "WL" LED off - force values deleted.
2. Release button (1+2).

Break-in protection due to automatic lock

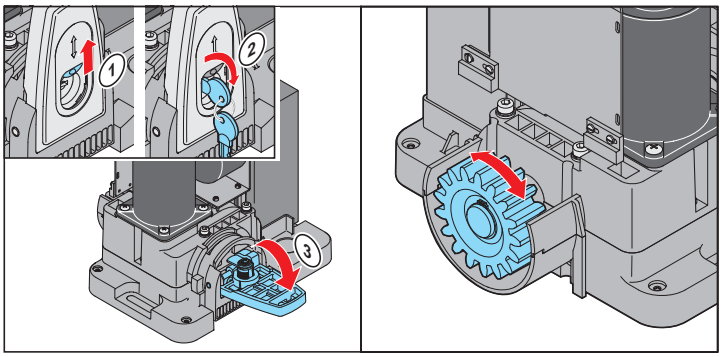
If an attempt is made to open the door with force, the drive presses automatically against it via its motor capacity.

Emergency release

ATTENTION
Before emergency unlocking, you must absolutely avoid interrupting the power supply to prevent unintentional movements of the door.
Otherwise, injuries due to unintentional movements of the door may result.

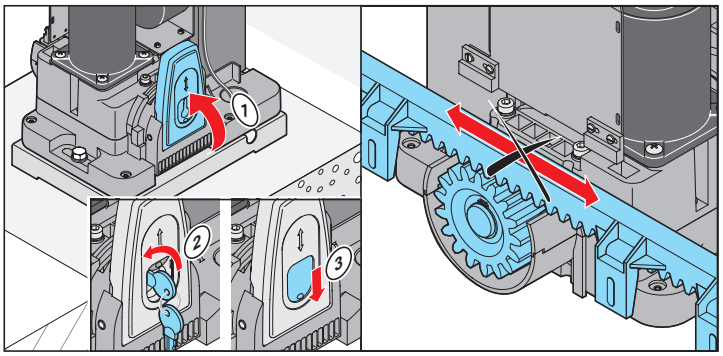
NOTE!
It can be locked and released in any door position.

Releasing drive



1. Switch off the power supply and secure it against reactivation.
2. Push dust cap (1) upwards.
3. Turn key (2).
4. Open flap.

Locking drive



1. Traverse drive to center position.
2. Lift lever (1) up and lock with key until the motor locks - loud click. Release lever (1).
3. Switch on power supply.

NOTE!
Move gate back and forth by hand so the pinion meshes with the rack more easily and the motor can lock.

⇒ Drive is locked and the gate can only be moved with the motor.

Overload protection

If the drive is overloaded during opening or closing, the control system detects it and stops the drive.

After about 20 seconds or a control system reset, the control system releases the overload protection again. The drive can now resume operation.

Operation after a power failure

The programmed force values are retained in the event of a power failure. The first movement of the drive after a power failure is always gate OPEN.

Stop by obstacle

1. Force cut-off

- When closing the gate -> drive reversed
- When opening the gate -> drive reversed

At the next command the drive moves in the opposite direction, see chapter “Pulse sequence of gate movement”.

2. Safety input 1 triggered e.g.: safety contact strip actuated

When the safety input is triggered the drive reacts depending on the setting of the DIP switches. See chapter "Obstacle detection".

Factory settings:

- When closing the gate -> drive reversed
- When opening the gate -> drive reversed

At the next command the drive moves in the opposite direction, see chapter “Pulse sequence of gate movement”.

3. Safety input 2 triggered e.g.: Photo eyes interrupted

When the safety input is triggered the drive reacts depending on the setting of the DIP switches. See chapter "Obstacle detection".

Factory settings:

- When closing the gate -> drive reversed
- When opening the gate -> no reaction

At the next command the drive moves in the opposite direction, see chapter “Pulse sequence of gate movement”.

Maintenance and care

Safety instructions

DANGER!

Never use a hose or high-pressure cleaner to spray down the drive or the controller housing.

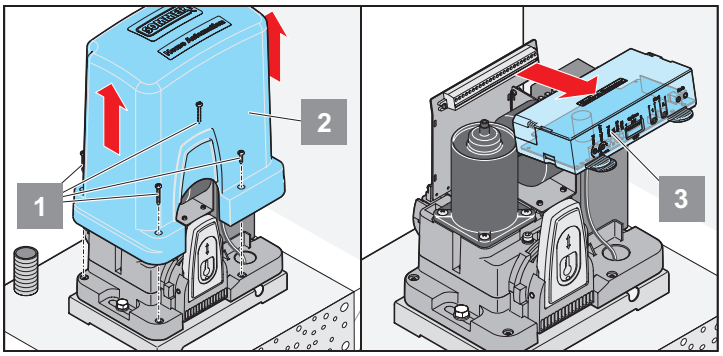
- Before any work on the gate or drive disconnect it from the power supply and lock it to prevent reconnection.
- Do not use acids or alkalis for cleaning.
- Wipe drive clean with a dry cloth as required.
- Never put your hand near the door when it is moving or near moving parts.
- Crush and shear hazards at the closing edges and the mechanical systems of the gate.
- Check the mounting screws and bolts of the drive for tightness and tighten if necessary.
- Check the door according to the manufacturer's manual.

Regular testing

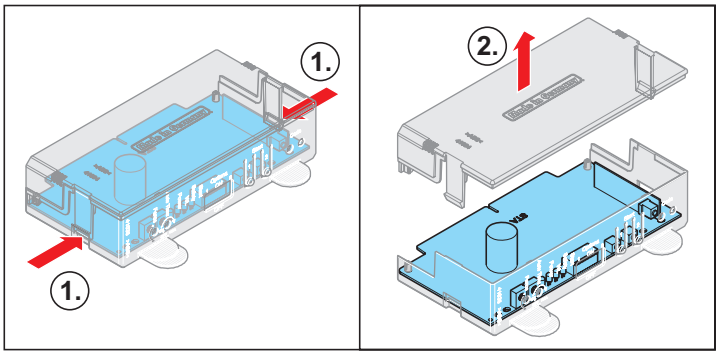
- Check that the safety devices function correctly regularly no less than every six months. See EN 12453:2000.
- Check that pressure-sensitive safety devices (e.g. safety contact strip) are operating correctly every four weeks (see EN 60335-2-95:11-2005).

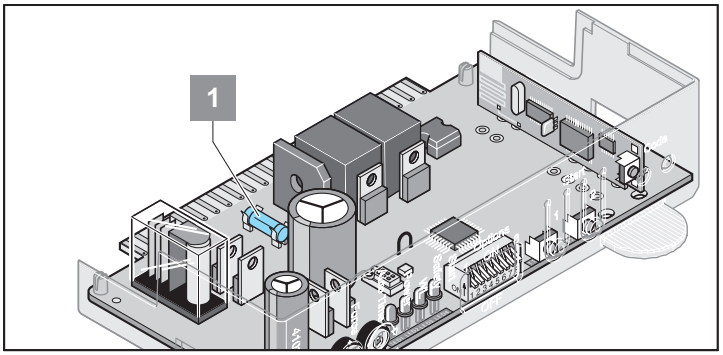
Testing	Behavior	Yes/no	Possible cause	Remedy
Force cut-off Try to stop the gate wing while it is closing with a 50 mm wide object.	Does the drive reverse when it hits the object?	Yes	• Power cut-off functions.	
		No	• Force tolerance too high, adjust with TorMinal.	• Reduce the force tolerance until the test is successful. First open and close the gate completely twice under supervision. See TorMinal owner's manual.
			• Door incorrectly adjusted.	• Adjust door, call a technician.
Emergency release Proceed as described in the "Emergency Release" chapter.	The gate must be easily opened and closed by hand. (Gate is balanced)	Yes	• Everything is OK.	
		No	• Emergency release defective.	• Repair emergency release.
			• Door jams.	• Check door, see door owner's manual.
Safety contact strip, if present Open and close the gate and actuate the strip at the same time.	Adjust the behavior of the door, as set with DIP switch 1, 2 or 3. Safety LED lights continuously.	Yes	• Everything is OK.	
		No	• Cable breakage, terminal loose.	• Check the wiring; retighten the terminals.
			• DIP switch adjusted.	• Setting the DIP switches.
			• Strip defective.	• Decommission the system and lock it to prevent reactivation. Then, contact customer service.
Photo eye, if present Open and close the door while interrupting the photo eye.	Adjust the behavior of the door, as set with DIP switch 1, 2 or 3. Safety LED lights continuously.	Yes	• Everything is OK.	
		No	• Cable breakage, terminal loose.	• Check the wiring; retighten the terminals.
			• DIP switch adjusted.	• Setting the DIP switches.
			• Photo eye dirty.	• Clean the photo eyes.
			• Photo eye out of adjustment (holder bent).	• Adjusting photo eyes.
			• Photo eye defective.	• Decommission the system and lock it to prevent reactivation. Then, contact customer service.

Change the fuse.

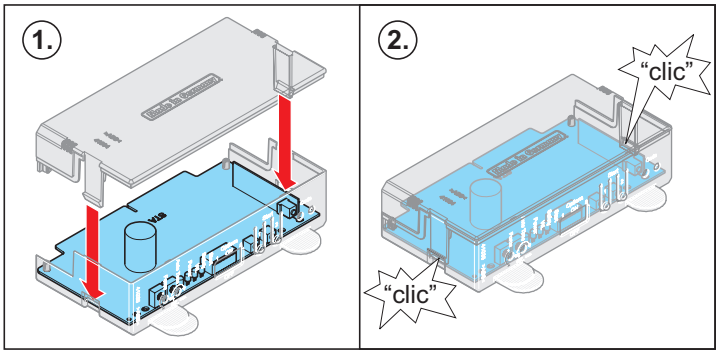


1. Interrupting power supply.
2. Unscrew screws (1).
3. Lift cover.
4. Remove controller (3).

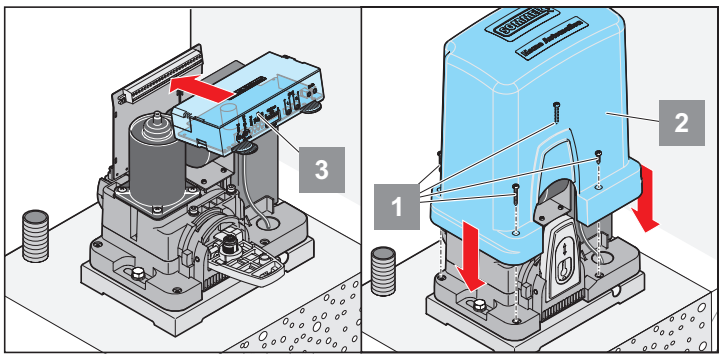




5. Open controller housing and replace defective fuse (1).
   Fuse "1 A fast-acting“ for connection of warning light-1, terminal 16 + 17



6. Close controller housing.



7. Install controller (3).
8. Position cover (2) and fasten.
9. Switch on power supply.

Miscellaneous

Tips on troubleshooting

IMPORTANT!
Many malfunctions can be resolved by a controller reset (delete force values), then reprogram the drive.

If you cannot find the malfunction in the table and eliminate it, take the following action:

- Disconnect connected accessories (e.g. photo eyes) and reconnect the jumper for a safety connection.
- Set all DIP switches to the factory setting.
- Set potentiometer to the factory setting (center position).
- If settings have been changed using TorMinal, perform the controller reset with TorMinal.
- Check all connections on the direct connectors and terminal strip and retighten if necessary.

If this does not help, contact your specialist dealer for assistance or consult our website at http://www.sommer.eu.

Malfunction	Possible cause	Corrective action
Gate does not open or close.	• No mains voltage, LED power light off.	Check the supply line fuse switch on main switch.
	• Controller not installed.	Install controller.
	• Fuse for power circuit tripped, power LED off.	Replace fuse. Check circuit with a different consumer (e.g. drill).
	• Controller incorrectly installed.	Plug controller correctly into terminal strip.
	• Automatic closing function activated.	Door closes automatically after the set time. Switch off automatic closing, turn potentiometer completely counterclockwise.
	• Photo exes interrupted, safety LED on.	Remove interruption.
	• Safety contact strip (8.2 kohm) is defective or DIP switch 2 OFF. • Safety LED lights continuously.	Replace safety contact strip or set DIP switch 2 to "ON".
	• Optoelectronic safety contact strip switched on but photo eye or safety contact strip (8.2 kohm) connected, safety LED on.	Switch off the optoelectronic safety strip; set DIP switch 6 to OFF.
Gate does not open or close when a hand-held transmitter or Telecody is actuated.	• The battery is flat; the LED on the hand-held transmitter does not light.	Replace battery with new one.
	• The hand-held transmitter or Telecody has not been learned on the radio receiver.	Program the hand-held remote control or Telecody.
	• Incorrect radio frequency.	Check frequency.
	• The command is constantly pending because the button of the hand-held remote control is stuck. Start LED and LED on hand-held transmitter on.	Release key or replace hand-held transmitter or Telecody.
Gate does not open or close when actuated with a button (e.g. key switch).	• Button not connected or defective. Start LED does not come on when button is pressed.	Connect button or replace it.
	• A constant signal is pending - water in the button housing; Start LED on.	Replace button and protect against moisture.
Door stops while closing, moves about 10 cm in the opposite direction, and stops.	• Force cut-off actuated by an obstacle.	Remove obstacle, open door completely.
	• Incorrect force values programmed or force tolerance set too low.	Delete force values and reprogram. Only if this does not help increase the force tolerance.
	• End switch magnet incorrectly adjusted, gate travels to block.	Adjust end switch magnet, see chapter "Adjusting gate CLOSE + OPEN end positions".
	• Gate incorrectly adjusted or defective.	Have door adjusted or repaired by a technician.
Door stops while opening, moves about 10 cm in the opposite direction and stops.	• Force cut-off actuated by an obstacle.	Remove obstacle. Move gate completely to gate close with button.
	• Incorrect force values programmed or force tolerance too low.	Delete force values and reprogram. Only if this does not help increase the force tolerance. Possible only with TorMinal, see TorMinal manual.
	• Limit switch magnet incorrectly adjusted.	Adjust end switch magnet, see chapter "Adjusting gate CLOSE + OPEN end positions".

Disassembly

IMPORTANT!
Observe safety information.

The sequence is identical to that described in the "Installation" section, but in reverse order. Ignore the setting instructions.

Disposal

Observe applicable national regulations.

Warranty and customer service

The warranty complies with statutory requirements. The contact person for warranties is the specialist retailer. The warranty is only valid in the country in which the drive was purchased.

Batteries, fuses and bulbs are excluded from the warranty.

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

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

Fax.: 0049 / 7021 / 8001-403

Email: doku@sommer.eu

Troubleshooting

Malfunction	Possible cause	Corrective action
Door stops while opening.	• Connected photo eye interrupted and DIP switch 1 ON.	Eliminate interruption or turn DIP switch 1 to OFF.
Drive does not close the door.	• Photo eyes power supply interrupted.	Check connection. Replace fuse.
	• Drive has been disconnected from mains power supply.	The drive always opens the door completely upon first command after the power supply has been restored.
Drive opens gate, then no reaction more on a command with button or transmitter.	• Safety input triggered (e.g. photo eye defective), safety LED on.	• Remove object from photo eye. • Repair photo eyes. • Controller not properly plugged in.
Connected warning light doesn't light up.	• Defective fuse.	Replace fuse; see chapter "Maintenance and care".
	• Defective light bulb.	Replace bulb.
Speed varies during opening and closing.	• Drive starts and slows down before reaching the end position.	Completely normal, drive starts at maximum speed. The drive reduces speed before reaching the other end position (soft running).
Gate can only be operated with the buttons, e.g. key button, held down - the internal lights flash during this process (deadman's operation).	• Deadman's function activated.	Deactivate deadman's function; see the TorMinal manual.
Start LED lights up continuously.	• Continuous signal at button connection 1 or 2.	Check connected button (key switch if connected).
	• Continuous signal from radio receiver, LED 3.1 or 3.2 on radio receiver on. Radio signal is being received; button of hand-held remote control might be defective or an external signal is being received.	• Remove the battery from the hand-held transmitter. • Wait until the external signal falls off.
Only radio receiver!!		
All LEDs flashing.	• All memory locations occupied, max. 112.	• Delete any hand-held remote controls that are no longer needed. • Install additional radio receivers.
LED 3.1 or 3.2 lights up continuously.	• The radio signal is being received; the button of a hand-held remote control might be defective or an external signal is present.	• Remove the battery from the hand-held transmitter. • Wait until the external signal falls off.
LED 3.1 or 3.2 lights up.	• The radio receiver is in the Learning mode and awaiting a radio code from a hand-held remote control.	Press the desired hand-held transmitter button.

Connection diagram