

## marathon tiga 800 SLX, marathon tiga 1100 SLX



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# General information

## Symbols



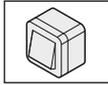
Exclamation mark:  
Indicates a potential risk! Failure to follow instructions may result in serious injuries!



Note symbol:  
Information, useful advice!



Refers to the relevant illustration in the introduction or main text.



This illustration of a button represents all types of buttons: such as key-activated buttons, pull-cord switches, etc...

## Preface

- During normal operation, this drive is always set to automatic closing mode.
- This drive unit does not include internal lighting.
- This drive is equipped with a radio receiver that differs from that of the marathon 800 SL + 1100 SL garage doors.
- The settings (e.g. warning, clearing and door open times) of the drive can only be modified with a TorMinal device.

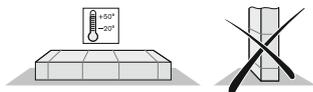
## Safety instructions

### General

- These installation and operating instructions must be read, understood, and complied with, by the person who installs, operates, or maintains the operator.
- Only specialised personnel should assemble, connect, and commission the operator.
- Only install the operator to correctly aligned and weight-balanced doors. An incorrectly aligned door can cause serious injury or damage to the operator.
- The manufacturer cannot be made liable for any damage or disruptions to operation occurring due to non-compliance with the Installation and Operating Instructions.
- Ensure that these Installation and Operating Instructions remain in the garage in an easily accessible location.
- Observe and comply with accident prevention directives and applicable standards in the respective countries.
- Observe and comply with the directive on "Power-driven Windows, Doors and Gates – BGR 232" issued by the Employers' Liability Insurance Association. (Applicable in Germany for the operator)
- Always disconnect (unplug) the operator from the mains supply before performing any work on the operator.
- Use only manufacturer's original replacement parts, accessories, and mounting material.

### Storage

- The operator may only be stored indoors, in a dry, enclosed environment at an ambient temperature between -20 °C and +50 °C.
- The operator should be stored horizontally.



## Operation

- The operator may only be activated if a hazard-free force tolerance has been set, or if safety is ensured at all times through other safety fixtures. The force tolerance must be set as low as possible in order to ensure that the door's closing force does not constitute a danger, see section "Force setting".
- Keep your hands clear of a moving door or any moving parts.
- Keep children, disabled persons and animals away from the door.
- Only drive into the garage when the door is completely open and the signal light is green.
- There is a risk of persons getting trapped or cutting themselves in/on the door system's moving parts or the edges where it closes.
- If the door is not equipped with a slip door, or if there is no separate access to the garage, then install an emergency release system (emergency release lock or Bowden cable) that can be activated from outside of the garage.

## Radio remote control

- The radio remote control may only be used for equipment and systems where defective remote operation of the transmitter or receiver does not constitute a risk to people, animals or objects, or in cases where this risk is eliminated by means of additional safety fixtures.
- The user must be made aware of the fact that the remote control of equipment with accident risk potential may only occur, if at all, when the equipment concerned is clearly visible.
- Radio remote control may only be used if door travel can be supervised, and if there are no persons or objects in the travel range.
- Store the remote control transmitter so that there is no risk of it being accidentally activated; e.g. by children or animals.
- The operator of this radio-controlled equipment is in no way protected from interference from other telecommunications systems and facilities (e.g. other radio-controlled equipment that is licensed to operate at the same frequency range). Should serious interference be encountered, then please contact your nearest telecommunications office with interference measuring facilities (radio signal localisation)!
- Do not use the remote control transmitter near locations or installations that are susceptible to radio interference (such as airports or hospitals).

## Rating plate

The rating plate is located on the cover of the control unit housing. Exact type designation and date of manufacture (month/year) of the operator are indicated on the rating plate.

# General information

## Intended use

 **Attention! There is a risk of injury or property damage!**  
Always connect the slip-door safety mechanism to safety input 2 (terminals 8 + 9). If the slip-door safety mechanism is connected to the trolley, then the operator will not recognise the door position.

 **Caution! Risk to life and limb!**  
Remove all ropes and loops that are required for the manual operation of the door.

 **Attention! Risk of serious damage to operator!**  
Do not open or close the door using the operator without first adjusting the balance weight (springs tensioned). Otherwise, the motor (gear system) might be seriously damaged.

- The operator is designed for the exclusive purpose of opening and closing doors. Any other use does not constitute intended use. Manufacturer is not liable for damages that arise due to non-intended use. The risk is borne solely by the operator. Non-intended use renders the warranty null and void.
- Doors operating automatically with an operator must comply with the standards and directives valid at the given time: e.g. EN 12604, EN 12605.
- The operator may only be used in a technically perfect condition, as intended, in a safety-conscious and hazard-conscious manner, in compliance with the installation and operating instructions.
- Malfunctions that can impair safety must be resolved immediately.
- The door must be stable and warp-proof, i.e. it should not bend or warp during opening or closing operations.
- The operator is unable to compensate for any defects in the door or for its incorrect installation.
- Only use the operator in a dry, indoor environment where there is no risk of explosion.
- Do not use the operator in rooms where a hostile environment prevails (e.g. salty air).

## Terms

### Abbreviations

- GI Signal light green inside
- RI Signal light red inside
- GO Signal light green outside
- RO Signal light red outside

### TorMinal

Programming device The door operator can be adjusted, or special functions can be set, with this unit. See "Accessories".

### "Teaching"

The operator "learns" the required time and the force that it requires to open and close the door. The operator stores these values, which remain intact even if there is a power failure.

### Door OPEN

The door opens or it is already opened.

### Door CLOSE

The door closes or it is already closed.

### Warning time

Time prior to opening or closing; during this time the red signal lights flash and thus indicate that the operator is in motion:

Door OPEN:

Warning time can be adjusted with the TorMinal in a range from 0...63.75 seconds, in intervals of 0.25 seconds, memory slot (mem) 027.

Factory setting is door OPEN: 4 seconds

Door CLOSE:

The warning time can be adjusted with the TorMinal in a range from 0...63.75 seconds, in intervals of 0.25 seconds, memory slot (mem) 027. Factory setting is door CLOSE: 5 seconds

### Hold open time

Time that the door remains open. The side (inside / outside) that initiated the command to open the door gets the green signal. The door can only be opened by a command issued via a push-button or remote control transmitter; it cannot be closed. When the door is opening, no command issued can stop it from doing so.

If the door is closing automatically and a command is reissued, then the door opens fully. Any command issued during the hold open time restarts the hold open time.

The hold open time can be adjusted with the TorMinal in a range from 2...255 seconds, in 1 second increments, memory slot (mem) 031. Factory setting: 30 seconds

### Clearance time

Time in which the red signal lights are illuminated after expiration of the hold open time; thus providing time for the persons or vehicles who had the green light to clear the entries.

Clearance time can be adjusted with the TorMinal in a range from 0 ... 63.75 seconds, in 0.25 second increments, memory slot (mem) 032. Factory setting: 10 seconds

### Inside

The side which is inside the garage or the parking area.

### Outside

The side which is outside the garage or the parking area.

### Command inside

Radio channel 1 or button connection 1 on terminal 2 + 3 (button line connected to the control unit)

Button or radio signal for opening the door from inside and thus drive authorisation for inside, signal light (GI) is green.

### Command outside

Radio channel 2 or button connection 2 on terminal 4 + 5

Button or radio signal for opening the door from outside and thus drive authorization for outside, signal light (GO) is green.

### Command side

The side (inside or outside) that issues a command.

## Functional description

The command inside/outside, which was first transmitted to the control unit, has priority, regardless of whether it was transmitted via radio or button connection.



**Priority for "Command Outside" is set with DIP switch 3. As soon as "Command Outside" is received the hold open time for inside will be aborted and switched to drive authorization for outside after the clearance time.**

## Operator behaviour at factory setting

### Behaviour after power connection

Door closed and operator "taught". All signal lights are switched off. Operator waits for a command from inside/outside. The first travel direction is always door OPEN; if the door is already open, then the operator recognises this and switches the signal light to green on the side that gave the command. Then the operator closes the door after the following individual times expire: Warning, clearance and hold open time.

# General information

## Behaviour after inside/outside command, door CLOSE

### Sequence and display behaviour:

1. Command from inside/outside.
2. Door OPEN warning time starts. Red signal lights flash. Green signal lights are switched off.
3. The operator opens the door. Red signal lights light up. Green signal lights are switched off.
4. Door OPEN. Command side green signal light on. Red signal light is on for the other side.
5. The set hold open time expires.
6. Warning time starts for door CLOSE. Red signal light flashes on the command side. Red signal light lights up on the other side. Green signal lights are switched off.
7. Clearance time starts. Red signal lights switch on. Green signal lights are switched off.
8. The operator closes the door Red signal lights switch on. Green signal lights are switched off.
9. Door CLOSED All signal lights are switched off.

## Behaviour after command inside and then command outside, door CLOSE

### Sequence and display behaviour:

1. Command from inside.
2. Door OPEN warning time starts. Red signal lights flash. Green signal lights are switched off.
3. The operator opens the door. Red signal lights light up. Green signal lights are switched off.
4. Door OPEN. Command side green signal light on. Red signal light is on for the other side.
5. Command from outside. The hold open time which was set for the previous command expires.
6. Clearance time starts. Red signal lights switch on. Green signal lights are switched off.
7. Outside gets drive authorization. Command side green signal light lights up. Red signal light is on for the other side.
8. The set hold open time expires.
9. Warning time starts for door CLOSE. Outside red signal light blinks. Inside red signal light lights up. Green signal lights are switched off.
10. Clearance time starts. Red signal lights switch on. Green signal lights are switched off.
11. The operator closes the door Red signal lights switch on. Green signal lights are switched off.
12. Door CLOSED All signal lights off.

## Maximum door dimensions\*

marathon tiga	800	1100	SLX
<b>max. width:</b>			
–Up-and-over door	6000	8000	mm
–Sectional door:	6000	8000	mm
–Swing door **:	2800	2800	mm
–Side-opening sectional door or lateral shutter door Rail 2600	2350	2350	mm
–Canopy and non-protruding door:	5500	7500	mm
<b>approx. height</b>			
–Up-and-over door: Rail 2600	2600	2600	mm
–Sectional door: Rail 2600	2350	2350	mm
–Swing door **:	3000	3500	mm
–Side-opening sectional door or lateral shutter door	3000	3500	mm
–Canopy and non-protruding door: Rail 2600	1900	1900	mm
Duration of operation:	40	40	%

\* Door conforming to EN 12604, EN 12605

\*\* with standard wing-door hinges prod. no. 1501.

If a higher door is required, rails of the respective length must be ordered. Alternatively, the necessary height can be achieved by installing rail extensions (see accessories). Please contact your stockist for more information.

## Technical data

### General

Rated voltage:	220 ...240	AC V
Rated frequency:	50/60	Hz
Operating temperature range:	-20 ...+50	°C
Safety class:	IP 20	
Workplace-specific emission value < 75 dBA – operator only		

marathon tiga	800	1100	SLX
max. traction and pressure force:	800	1100	N
Rated traction	240	330	N
Rated current consumption:	0,8	0,9	A
Rated power consumption:	160	190	W
Max. speed:	130	130	mm/s
Power consumption, stand-by:	~ 5	~ 5	W
Weight with rail 2600:	18,5	19,0	kg
Verpackung (L x B x H):			
– Control system	560 x 370 x 190		mm
– Rail 2600	1980 x 240 x 180		mm

## EU Manufacturer's Declaration

The company

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

herewith declares that its operators:

- marathon tiga 800 SLX
- marathon tiga 1100 SLX

comply with the following directives:

- Machine Directive 98/37/EC
- Low Voltage Directive 73/23/EEC
- EU Directive for Electromagnetic Compatibility 89/336/EEC.

The following standards/draft standards were particularly applied:

- EN 12 453:2000, EN 12 445:2000, EN 60204-1:1997, EN 954-1:1996
- DIN V VDE 0801, EN 60335-1:1994

Note:

The door system may not be commissioned until such time as it has been established that the system in which the given operator is to be installed, satisfies the specifications of all relevant EU directives.

Kirchheim, 31.01.2008

Frank Sommer  
Managing Director



# General information

## EU Declaration of conformity

The company

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

herewith declares that the product identified below, if used properly, conforms to the requirements of article 3 of the R&TTE Directive 1999/5/EC and that the following standards were applied in its production:

Product: RF Remote Control for Doors & Gates

Type:

- RM04-868-2, RM03-868-4, RX01-868-2/4, RFSDT-868-1, RFSW-868-1
- RM02-868-2, RM06-868-2, RM04-868-1, RM02-868-2-TIGA
- RM08-868-2, RM01-868, RM02-434-2, RM03-434-4, RM04-434-2

Applied directives and standards:

- ETSI EN 300220-1:09-2000, -3:09-2000
- ETSI EN 301489-1:07-2004, -3:08-2002
- DIN EN 60950-1:03-2003

Kirchheim/Teck, 04.08.2004 Frank Sommer  
Managing Director



# Preparations for installation

## Safety instructions

- The power cable supplied as standard may neither be shortened nor lengthened.
- The power supply voltage must correspond to that indicated on the operator's rating plate.
- All devices requiring external connection must be equipped with safe contact separation as per IEC 364-4-41, in order to isolate them from the mains voltage supply.
- Live parts of the operator (voltage-carrying parts e.g. C-rails) may not be connected to earth or to the live parts, or to protective conductors of other circuits.
- IEC 364-4-41 must be observed when laying the external device conductors.

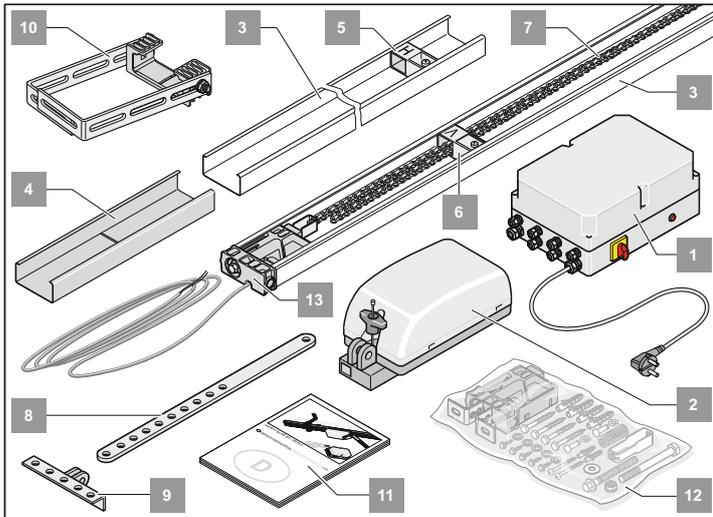
**⚠ Caution!**  
**Risk to life and limb! Remove all ropes and loops that are required for the manual operation of the door.**

## Installing the slip-door safety mechanism or release lock

- If your garage door is fitted with a slip door but not with a slip-door safety mechanism, then you need to have one installed (see "Accessories").
- If your door does not have a slip-door and your garage does not have a separate entrance, then install a release lock or Bowden cable for operator release from the outside (see "Accessories" instructions).

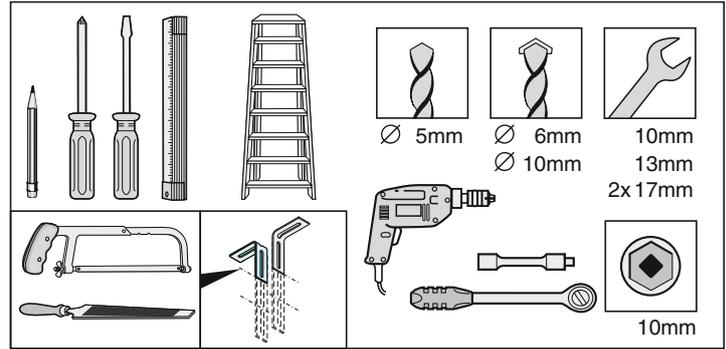
## Scope of supply

- The scope of supply can vary according to the type of operator supplied.

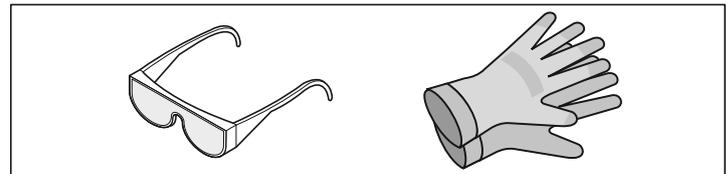


Item	Component	
1.	Control housing (including push-button, control, traffic light control and transformer)	1
2.	Trolley	1
3.	C-rails (coated)	2
4.	Slide-on module (coated)	1
5.	Switch trigger "H"	1
6.	Switch trigger "V"	1
7.	Chain (marathon)	1
8.	Connecting rod	1
9.	Door hinge	1
10.	Suspension bracket	1
11.	Installation and operating manual	1
12.	Assembly kit (sprint/marathon)	1
13.	Slide-in module with control line (length 5,000 mm)	1

## Required tools



## Personal protective equipment



- Goggles (for drilling)
- Protective gloves (for handling cut perforated steel strips, etc.)

# Assembly

## Safety instructions

- Installation, connection and initial operation of the operator may only be carried out by qualified specialists.
- Do not operate the door if people, animals or objects are in its range of travel.
- Keep children, disabled persons, and animals away from the door.
- Safety goggles should be worn when drilling the mounting holes.
- Cover the operator when drilling to ensure that no grime penetrates the unit.

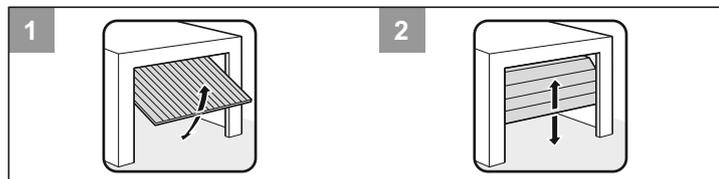
**⚠ The walls and ceiling must be firm and stable. Only fit the operator to a correctly aligned door. A door that has not been aligned correctly can cause serious injuries.**

- Doors must be stable because they are subjected to high traction and pressure forces. Light doors made of plastic or aluminium must be reinforced before installation if necessary. Ask your dealer for advice.
- Remove door locking system or disable same.
- Only use approved fixing material (e.g. plugs, screws). The fixing materials must be suitable to the wall and ceiling material.
- Check that the door runs easily.
- The door must be balanced.  
**Test:** Manually open the door half-way. The door must remain in this position. If the door moves downward or upward, then mechanically readjust it. Ask your dealer for advice.

- Check the clearance between the door's highest up-position (DHP, see fig. 7) and the ceiling. The minimum clearance is 35 mm and the maximum clearance is 100 mm; the push arm can be at a max angle of 30°. If clearance is less than that specified, then the operator must be shifted towards the rear and an extended operator rail must be fitted. Ask your local dealer for advice.

## Door types and special accessories\*

\* Accessories are not included in the delivery specification.



Door type	Accessories
1 Up-and-over door	No special accessories required
2 Sectional door with single guide rail	Sectional door fitting with boomerang *
2 Sectional door with double guide rail	Sectional door fitting without boomerang *

## Installation tips

- Check that all the parts have been supplied before you start installation work in order to save time and unnecessary work if a part is missing.
- Installation work can be carried out quickly and reliably by two people.
- The operator can be installed to one side of the door if it cannot be installed at the centre. In this regard, you must ensure that the door does not bend and thus jam in the guide rails.

**Test:** Open and close the door several times by hand, holding it at the point where you intend fitting the operator. If the door can be moved at this point without difficulty (in compliance with the prescribed forces), then the operator can be fitted.

### • Emergency release:

If the garage has no separate entrance (e.g. slip-door), the user must be able to operate the emergency release mechanism from the outside. Consequently, route the emergency release to the outside. This can be done with a Bowden cable or an emergency release lock. The backjump (DIP switch 6 ON) should always be activated in this process.

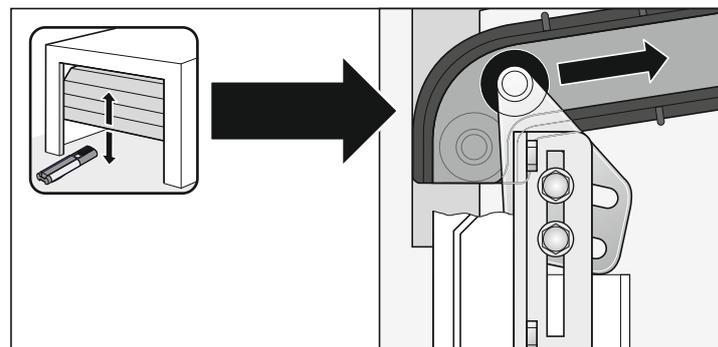
### • Up-and-over doors

As the mechanical lock of a door with an operator must be dismantled or deactivated, it is possible to open the door manually up to app. 50 mm depending on the door design.

To counter this situation, spring latches can be installed that lock the door, in addition to the operator. These spring latches are connected to the operator via a locking set in order to first unlock the spring latches before the operator opens the door. Ask your dealer for advice.

**i Other pulse generators include: Remote control transmitters, Telecody, radio-operated interior switches and key-operated buttons. No connection line to the operator needs to be installed for the remote control transmitters, Telecody or radio-operated interior switches, ask your dealer.**

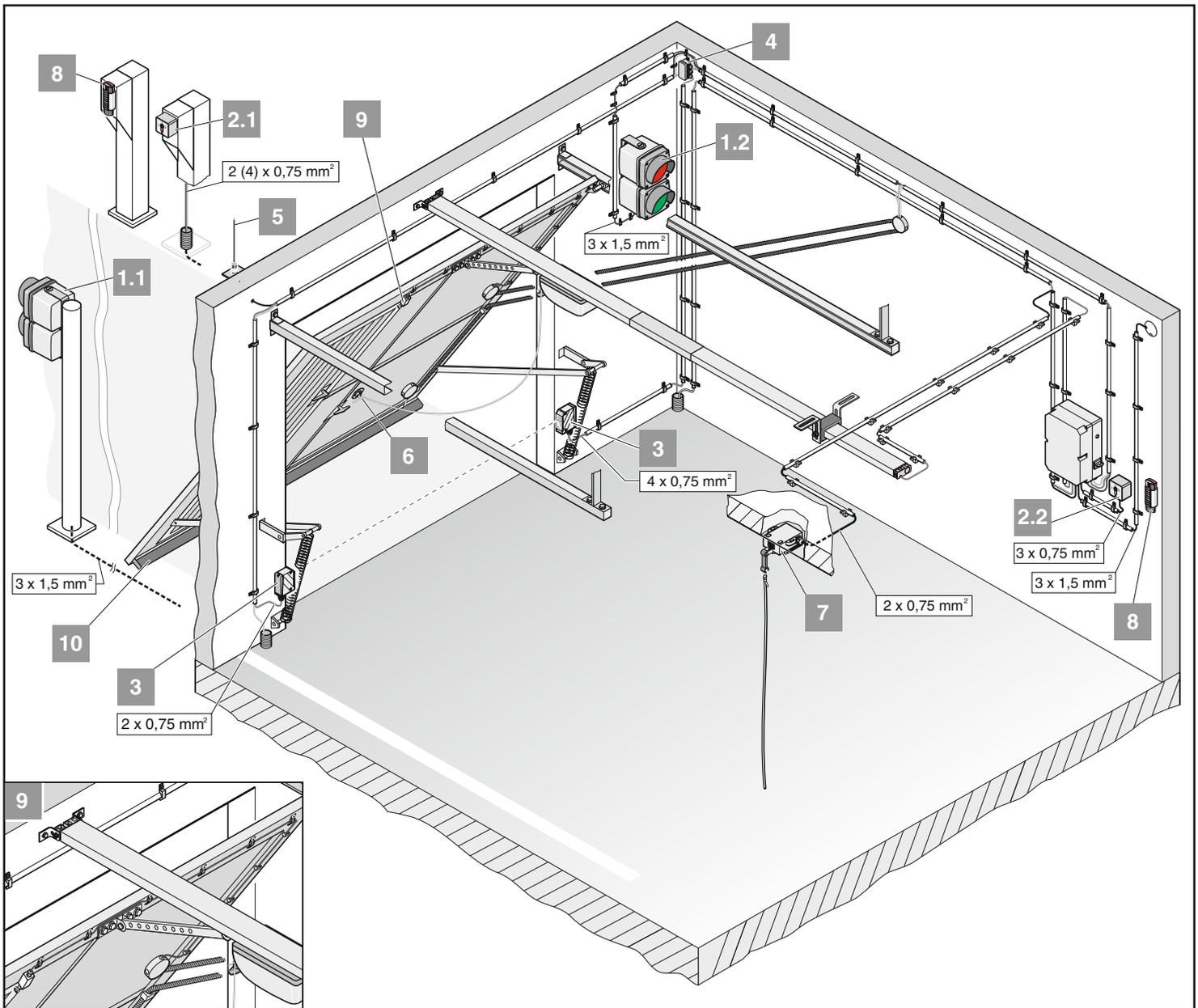
## Adjustment of the top roller in a sectional door



## Installation tips

- Determine the mounting points for the operator and the signal light control unit together with the operator.
- Determine the mounting point of the signal lights and additional accessories together with the operator.
- Do not install the housing where it can be seen from the street, otherwise passersby could damage the control unit.

# Assembly



## Accessories

**i** Other pulse generators include: Remote control transmitters, Telecode, radio-operated interior switches and key-operated buttons. No connection line to the operator needs to be installed for the remote control transmitters, Telecode or radio-operated interior switches, ask your dealer.

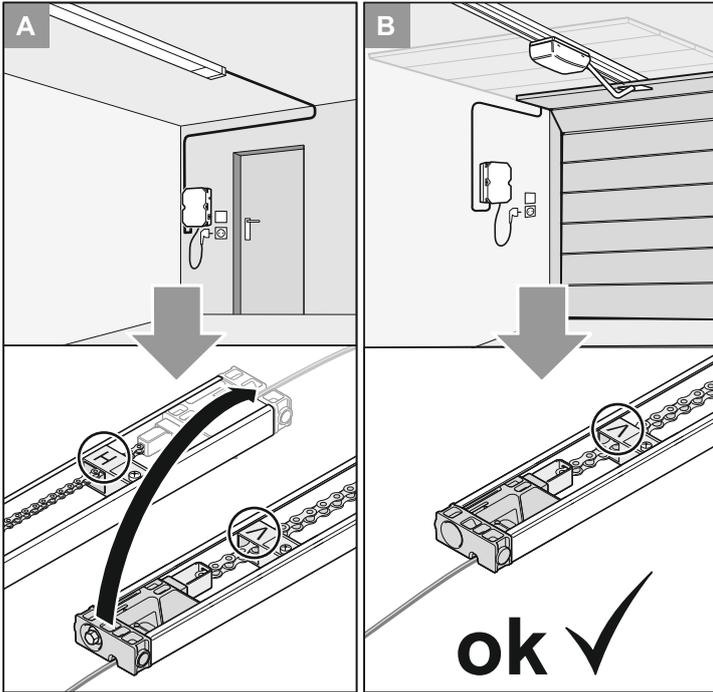
- 1.1 Red / green signal light: outside
- 1.2 Red / green signal light: inside
- 2.1 Key-operated button, outside
- 2.2 Key-operated button, inside
- 3. Photoelectric cell
- 4. Junction box
- 5. Flagpole aerial (incl. 6 m, 10 m or 16 m cable)
- 6. Release lock
- 7. Pull-cord switch
- 8. Telecode
- 9. Slip-door safety mechanism
- 10. Safety contact strip: 8.2 k Ohm or Fraba

Additional accessories on request.

# Installation

## Selection of installation option

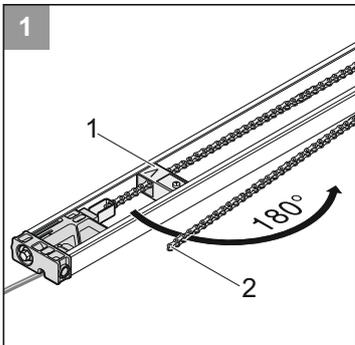
**i** Select the desired installation option. For option (A), change the position of power supply unit.



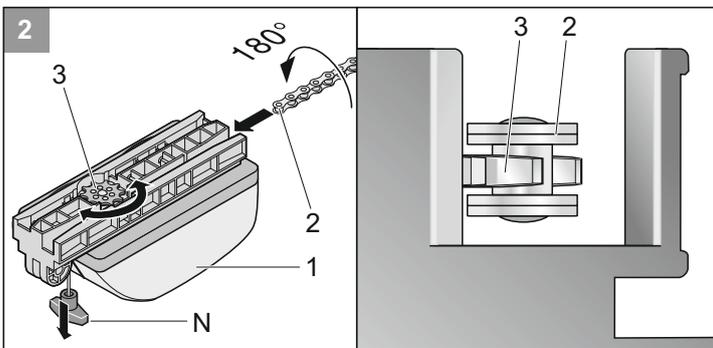
## Pre-assembly for installation option A

**i** Dispose of packaging material according to the applicable statutory regulations.

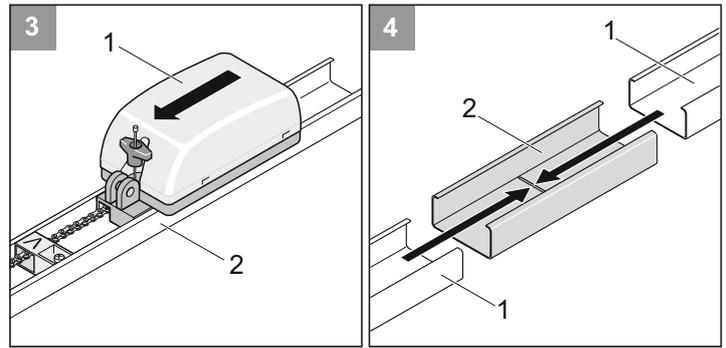
- Remove the drive system from packaging.



- 1** • Release the switch trigger (1) and move it in the direction of the arrow. Open the chain case (2).

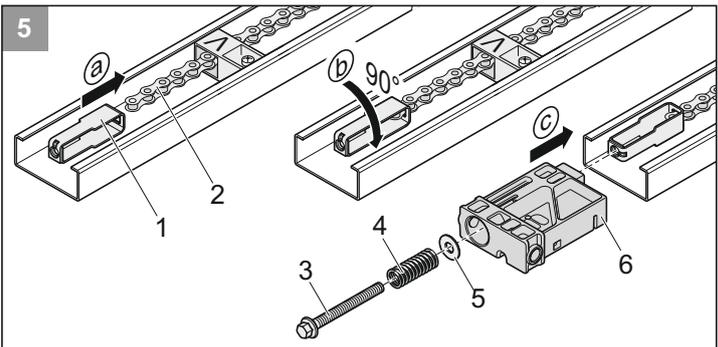
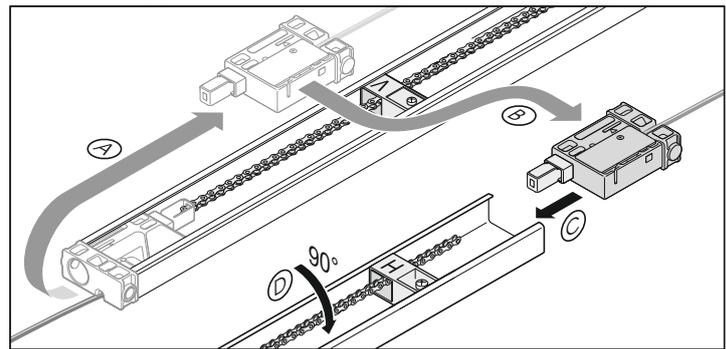


- 2** • Slide the trolley (1) onto the chain (2) with the chain case (4). The chain (2) engages in the chain wheel (3). If the chain wheel (3) does not turn, pull the emergency release (N) once. The chain wheel (3) is released.

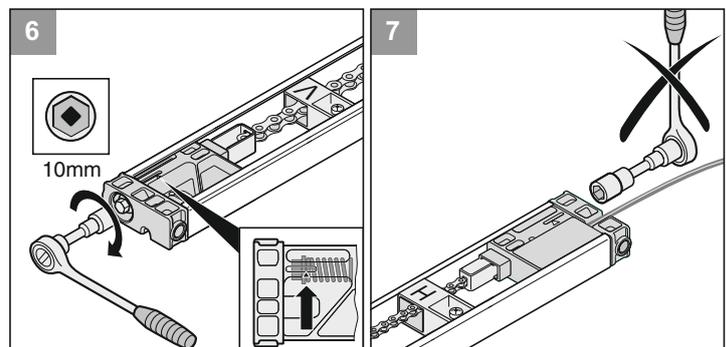


- 3** • Slide the trolley (1) into the C-rail (2).

- 4** • Connect two C-rails (1) by inserting them to the stop in the slide-on module (2).



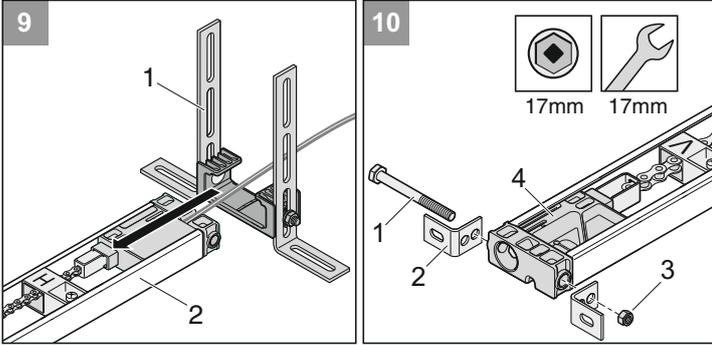
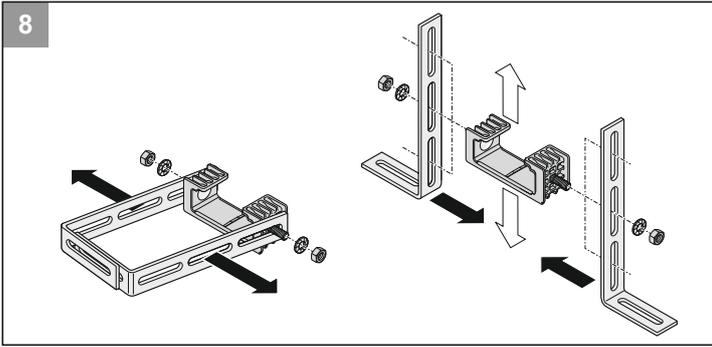
- 5** • Attach tensioner (1) to chain (2) and turn it by 90°. Mount side-in module (6) and push tensioner (1) through it. Place washer (5) and spring (4) onto the tensioning bolt (3) and screw it into the tensioner (1).



- 6** • Tighten chain until the mark (arrow) is reached.

- 7** • Do not tighten on this side, as the unit is supplied pre-tensioned.

# Installation

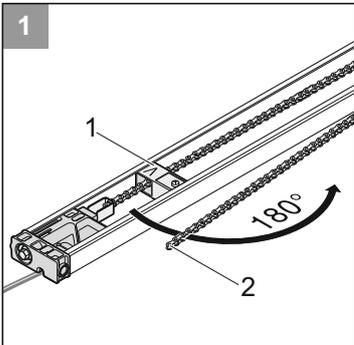


- 9 • Slide the suspension bracket (1) into the C-rail (2).
- 10 • Secure the bracket (2) with the screw (1) and the nut (3) to the slide-in module (4).

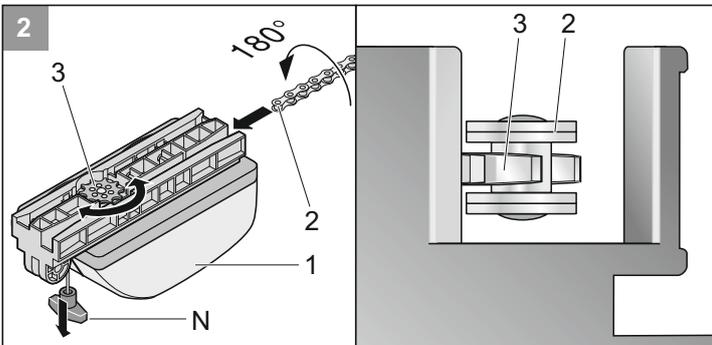
## Pre-assembly for installation option B

**i** Dispose of the packaging material according to the applicable statutory regulations.

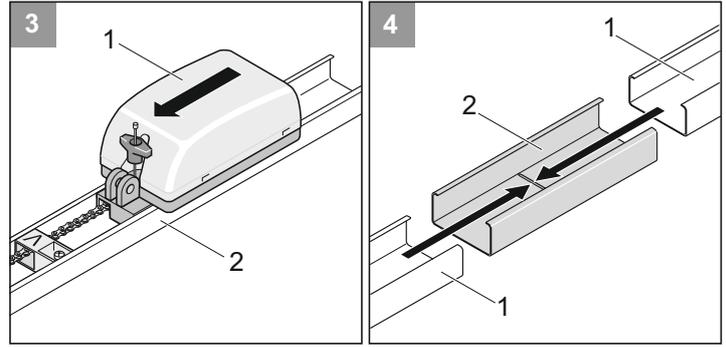
- Remove the drive system from the packaging.



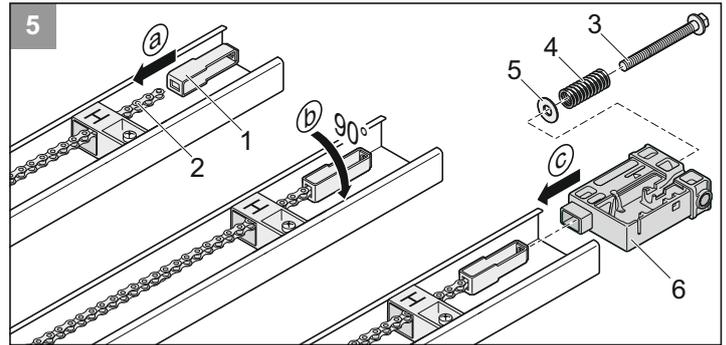
- 1 • Release the switch trigger (1) and move it in the direction of the arrow. Open the chain case (2).



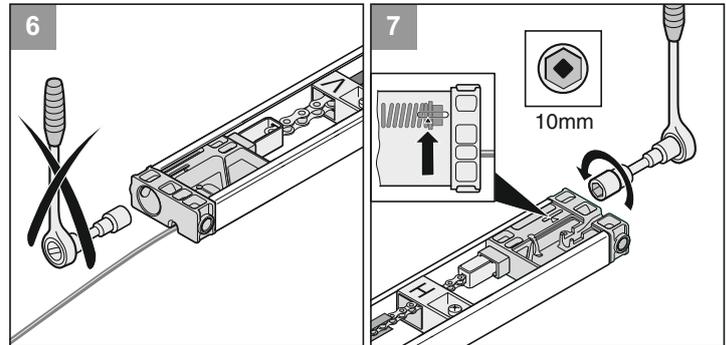
- 2 • Slide the trolley (1) onto the chain (2) with the chain case (4). The chain (2) engages in the chain wheel (3). If the chain wheel (3) does not turn, pull the emergency release (N) once. The chain wheel (3) is released.



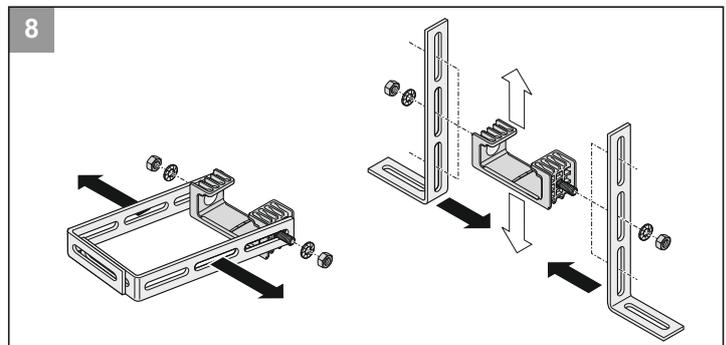
- 3 • Slide the trolley (1) into the C-rail (2).
- 4 • Connect two C-rails (1) by inserting them to the stop in the slide-on module (2).



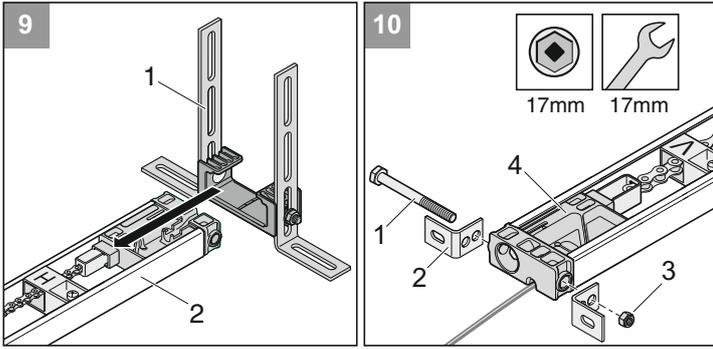
- 5 • Attach tensioner (1) to chain (2) and turn it by 90°. Mount slide-in module (6) and push tensioner (1) through it. Place washer (5) and spring (4) onto the tensioning bolt (3) and screw it into the tensioner (1).



- 6 • Do not tighten on this side, as the unit is supplied pre-tensioned.
- 7 • Tighten chain until the mark (arrow) is reached.



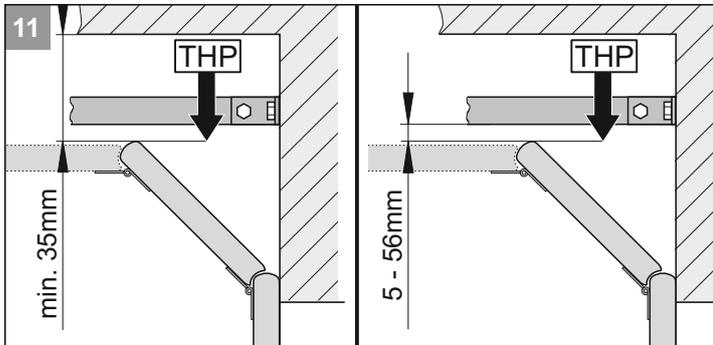
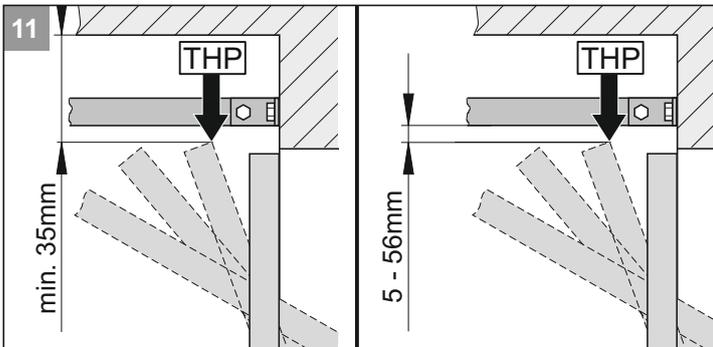
# Installation



- 9** • Slide the suspension bracket (1) into the C-rail (2).
- 10** • Secure the bracket (2) with the screw (1) and the nut (3) to the slide-in module (4).

## Installation (example: option B)

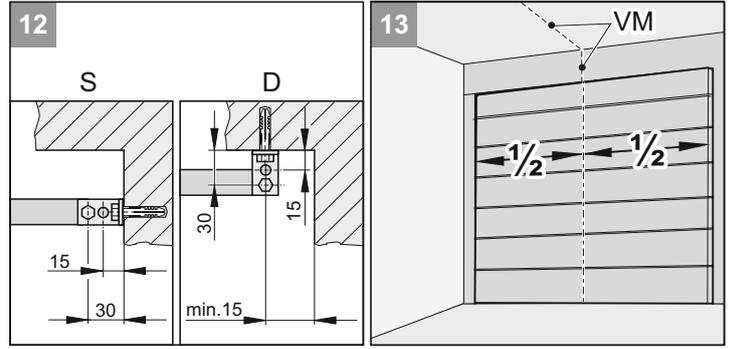
**⚠** Use a non-slip, stable stepladder!



**i** If the distance between the ceiling and the lower edge of the C-rail is greater than 245 mm, then extend the suspension bracket (with perforated steel strip).

- 11** • Determine door's highest up-position (DHP):  
Open door and measure smallest clearance (min. 35 mm) between top edge of door and ceiling. The clearance between the highest up-position and the bottom edge of the C-rails must be a min. of 5 mm and it may be a max. of 65 mm; the push arm must be at a max. angle of 30° (for up-and-over doors) (see Fig. 17)!

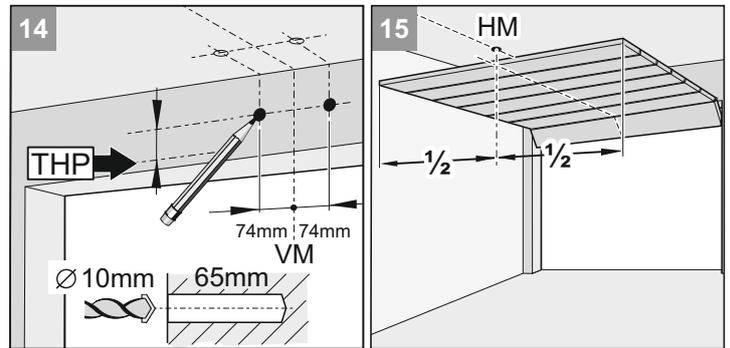
**i** Please note that this distance might be smaller, if the door handle is located at the centre of the door. Ensure that the door can move freely.



**i** For installation on the ceiling (D), drill holes at distances of 15 mm, if possible. Smaller angle of inclination of the fixing brackets.

- 12** • The operator can be mounted on the lintel (S) or ceiling (D).

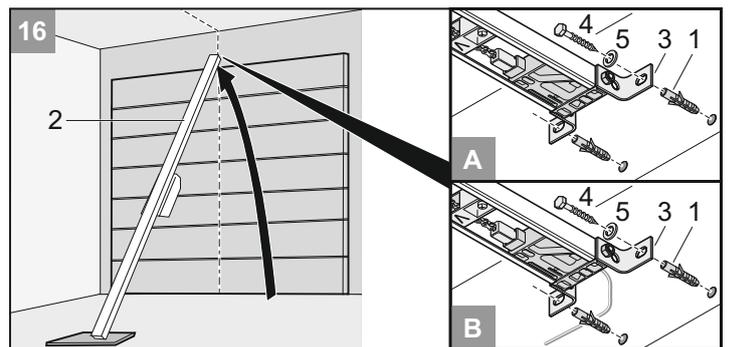
- 13** • Measure front centre point (VM) of door and mark on door and on lintel or ceiling.



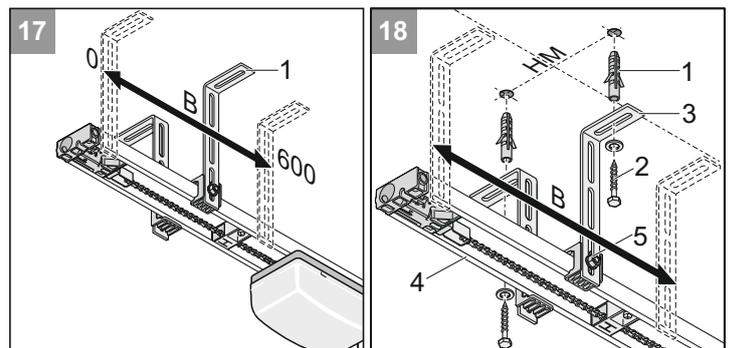
- 14** • Mark points 74 mm to right and left of the centre of door (VM), and at same height on lintel or ceiling (see Fig. 11).  
• Drill two holes (Ø 10 x 65 mm).

**i** Wear safety goggles when drilling!  
Check thickness of ceiling, particularly in the case of prefabricated garages!

- 15** • Open door. Transfer door centre mark (HM) to ceiling. Close door.

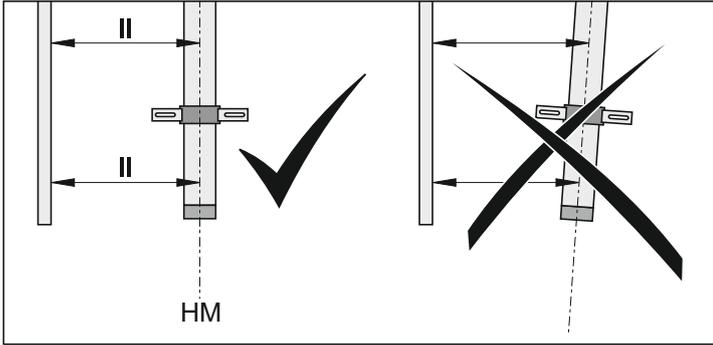


- 16** • Insert plug (1). Lift up operator (2) at front. Secure lintel fitting (3) at the front with two screws (4) and plain washers (5).  
• Lift up operator (2).



# Installation

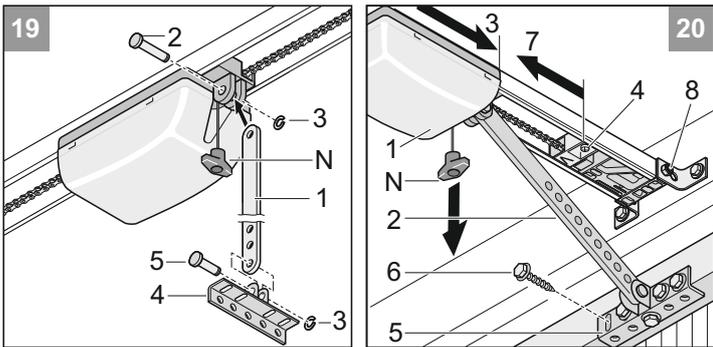
- Attention!**  
Always install operator parallel to the guide rails of the door.



- 17**
- Align ceiling bracket (1). It should be located within a range of ( $R = 0 \dots 600 \text{ mm}$ ).
  - Align operator mechanism horizontally to rear centre of door (HM). Mark position of holes. Drill two holes ( $\varnothing 10 \times 65 \text{ mm}$ ).

- i** **Wear safety goggles when drilling!**  
**Check thickness of ceiling, particularly in the case of prefabricated garages!**

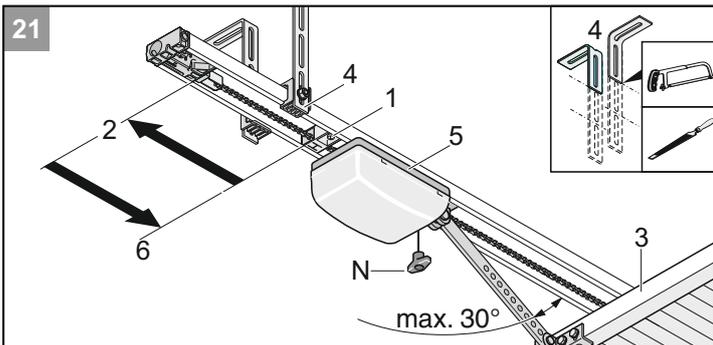
- 18**
- Insert plug (1). Fit two screws (2) with plain washers (3). Tighten the screws (2).
  - Align C-rail (4) at correct height. If necessary, change the positions of the screws (5). Tighten the screws (5).



- 19**
- Mount connecting rod (1): Insert the long bolt (2) and slide on the securing clip (3).
  - Attach the door hinge (4) to the connecting rod (1) using the short bolt (5) and slide on the securing clip (3).
- 20**
- Pull the emergency release rope (N) once. The trolley (1) is released. Tighten screw (8) at the lintel fixture.
  - Push the trolley (1) with the connecting rod (2) to the front stop (3). If necessary, release switch-trigger (4).
  - Align the door hinge (5) to the centre of the door and mark the 5 drill holes. Drill 5 holes ( $\varnothing 5 \text{ mm}$ ).

- i** **Insert screws that are suitable for securing the hinge to the door.**  
**Wear safety goggles when drilling!**

- Insert 5 hexagon-head screws (6) and tighten securely.
- Release switch-trigger (4) and push right up to trolley (7).
- Tighten switch-trigger buffer screw (4) securely.



- 21**
- Release rear switch-trigger buffer (1) and push right back to stop (2). Open door (3) by hand.

- i** Trim (e.g. saw off and debur) projecting part of ceiling bracket (4).

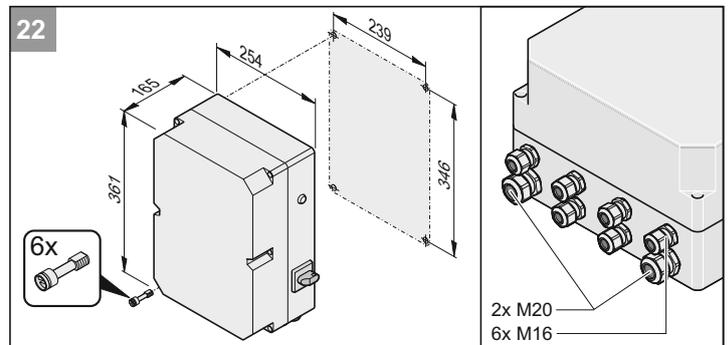
- Slide the switch trigger (1) to the stop (6) at the trolley (5) until it engages. Securely tighten screw on switch-trigger (1).

- Caution!**  
After installation, check the drive rail for dirt (e.g. drilling residue) and clean it, if necessary. Apply a little oil with conductive properties. See maintenance and care instructions.

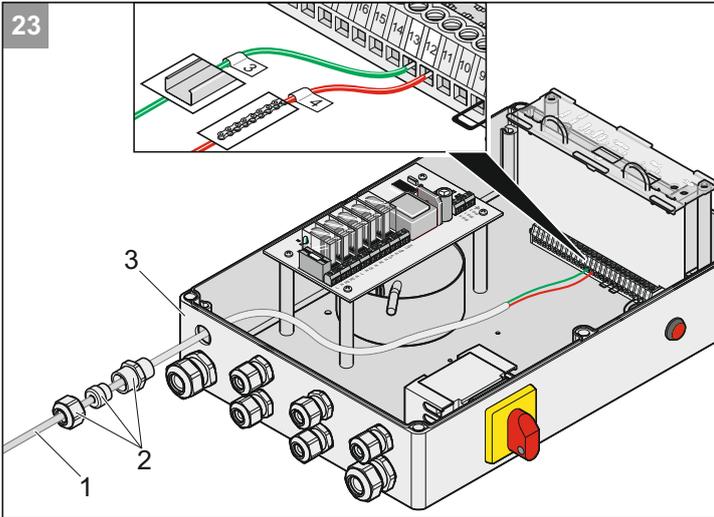
## Mounting the control unit

- i** Connect to mains voltage according to EN 12453 (all-pole separating fixture).
- i** Install cable in such a way that it is possible to expand the power supply in option A (if the cable is at right angles to the C-rail, install it with a loop).
- Caution!** Position the push button in such a way that the operator can see the door, while he/she is not inside the operating area of the door.
- Work on the control unit may only be executed if it is de-energised.
  - Dry any moisture that has penetrated with a blower.
  - Only qualified electricians may connect the control unit to the mains supply.
  - Always install the control unit housing vertically, with the cable channels downward, without deformation of the housing, so that water cannot penetrate and so that the lid forms a watertight seal.
  - Only attach the housing using the intended fixing points, do not drill through the rear wall of the housing. The housing will leak.

- Caution!** The power cable supplied with the control unit may only be used for the installation of the drive systems. After completion of the installation, disconnect the cable and replace it with a duct-laid cable. It is forbidden to use the supplied power cable for standard operation of the gate.



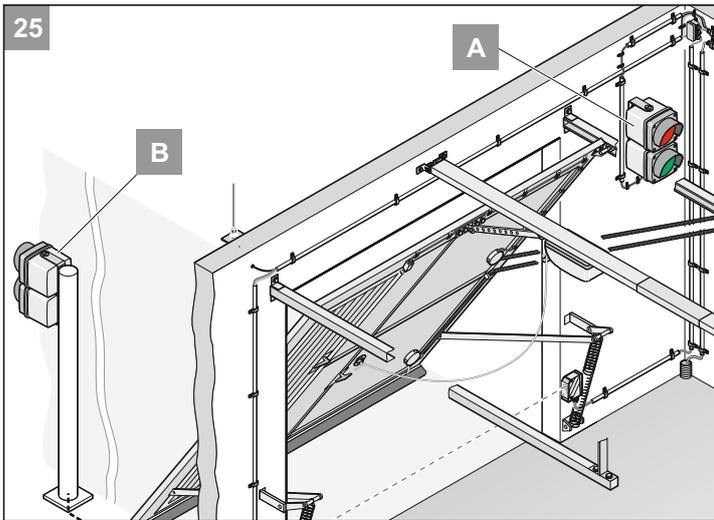
# Installation



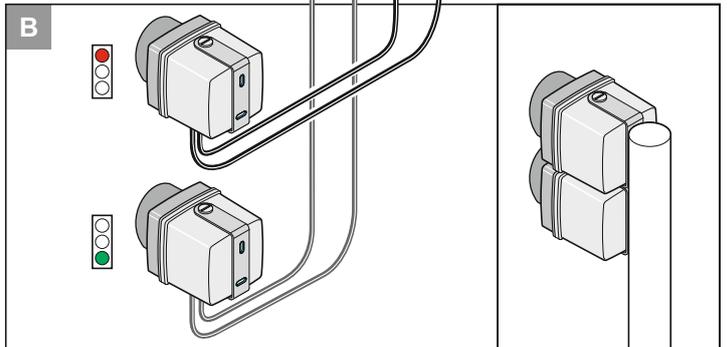
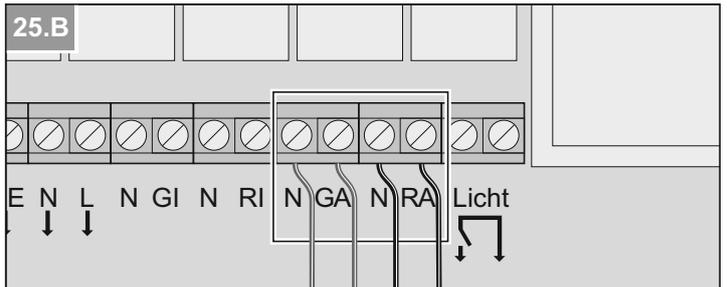
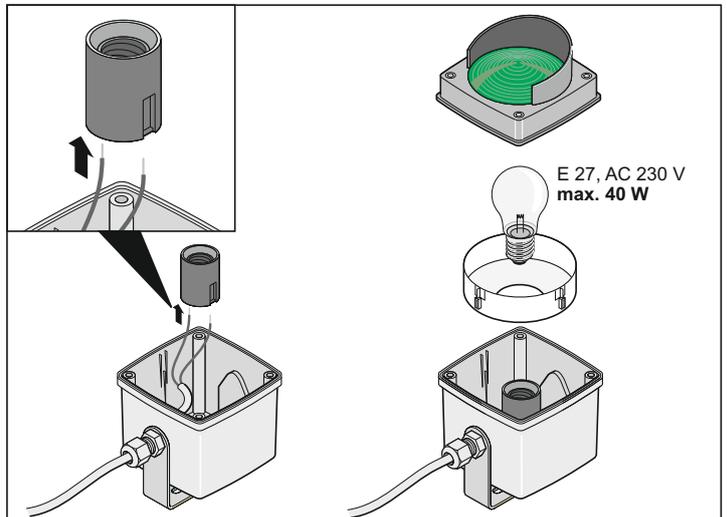
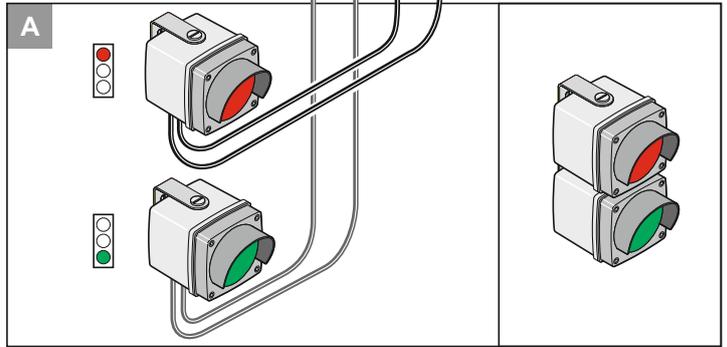
- 23**
- Insert control line (1) through the cable screw connection (2) into the housing (3).
  - Control line (1)
    - connect the wire labelled 3 (green) to terminal 13;
    - connect the wire labelled 4 (red) to terminal 12 of the terminal bar.
  - Tighten cable screw connection (2).

## Signal light: installation + connection

**⚠ Please note!**  
Connect all signal lights to the signal light controller.



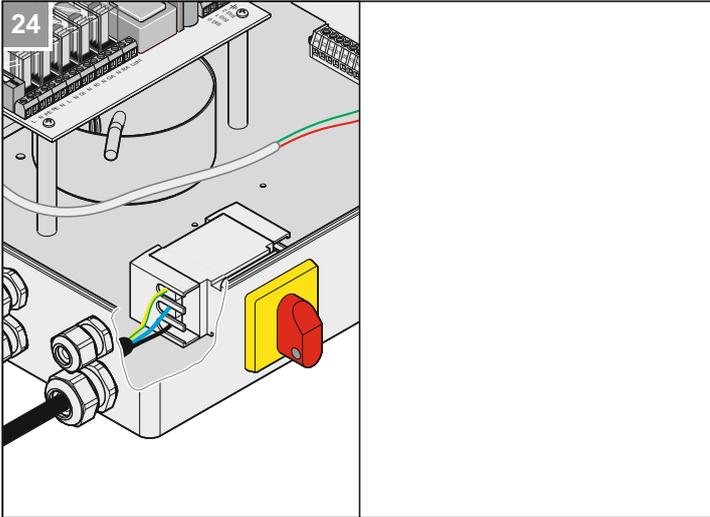
**i** Permissible cable cross-sections for all terminals:  
1 mm<sup>2</sup> ... 2.5 mm<sup>2</sup>



# Installation

## Connection to power mains

**i** Permitted cable cross-sections for main switch:  
0.75 mm<sup>2</sup> - 10 mm<sup>2</sup>.



Input	Output	Description
2T1	1L1	freely selectable
4T2	3L2	freely selectable
6T3	5L3	freely selectable
PE	PE	Earth conductor

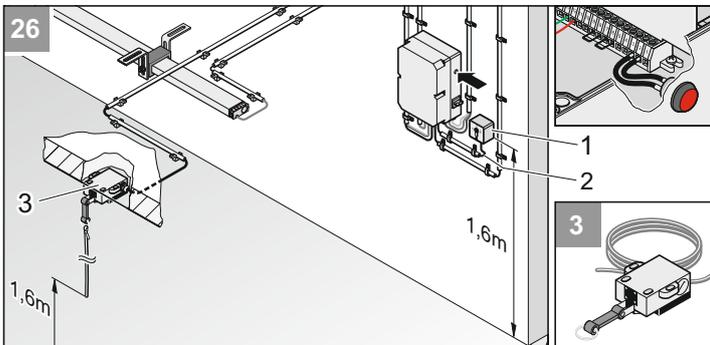
The connection to the power supply must be carried out by a qualified electrician.

## Accessories: Internal push-button Installation and connection

**i** The standard equipment includes a push-button in the control housing, which can be replaced at any time with another push-button (1 or 3).

**!** When pushing the button, the user should not stand in the door's travel range and the user must have a clear view of the door.

- Never lead the key switch cable along the power line, as this could cause interference to the control system.
- Lay button cable and secure in position.



- 22**
- Install push-button (1) in an appropriate, easily accessible location in the garage. Minimum height from the floor: 1.6 m
  - Install button cable (2) in garage. Connect end of cable to button (1).

**i** Alternatively a pull-cord switch (3) can be installed.  
Minimum height of the cable end from the ground: 1.6 m

# Commissioning

## Safety instructions

**i** After installing the operator, the person responsible for installation of the operator according to Machine Directive 98/37/EC must issue an EC Declaration of Conformity for the door system and affix the CE mark as well as a rating plate.

This also applies to doors installed for private purposes and in cases where the operator has been retrofitted to a manual door. These Instructions, as well as the operator's Installation and Operating Instructions should be kept by the user for reference purposes.

**!** The force setting is relevant to the system's safety and must therefore be made with due care and attention. If the force setting is impermissibly high then people or animals can be injured and objects can be damaged.

Select the force setting that is as low as possible so that obstructions are quickly and safely recognised.

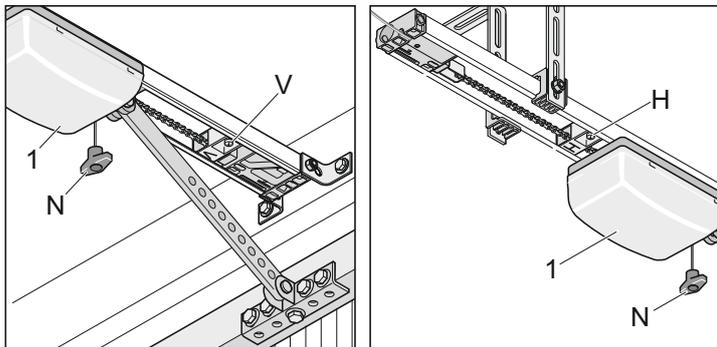
**!** Risk of damage!  
When operating the emergency release, it is possible that the door may open or close automatically due to the spring breaking or the weight balance being set incorrectly. Operator can suffer damage or be destroyed.

## Setting door CLOSED + OPEN end positions

**i** While adjusting the settings, open and close the door manually. Do not operate it with the operator engaged.

The distance that the operator moves the door can be increased/reduced by using the switch-triggers (1 + 4).

Check that the door opens and closes completely. If it does not, its travel must be adjusted.



### Door CLOSED end position

- Unlock the trolley if it is not unlocked. Pull once on emergency release cord (N). You should be able to move trolley back and forth manually.
- Shut the door manually.
- Loosen the switch trigger (4) and push the trolley forwards until it clicks in place (end switch trips), tighten the switch trigger (4).

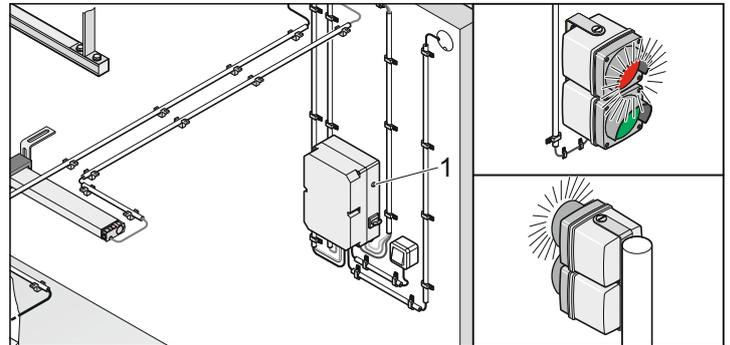
### Door OPEN end position

- Open the door manually.
- Loosen the switch trigger (1) and push the trolley forwards until it clicks in place (end switch trips), tighten the switch-trigger (1).
- Shut the door manually.
- Lock trolley (1):  
Pull the emergency release rope (N) once.  
Move the trolley (1) by hand a little bit forward until the chain wheel engages with a loud clicking sound.

## “Teaching” the operator

The control unit is equipped with an automatic force setting facility. Whenever the door “opens” or “closes”, the control unit automatically reads in the force required and memorises it when the end position is reached.

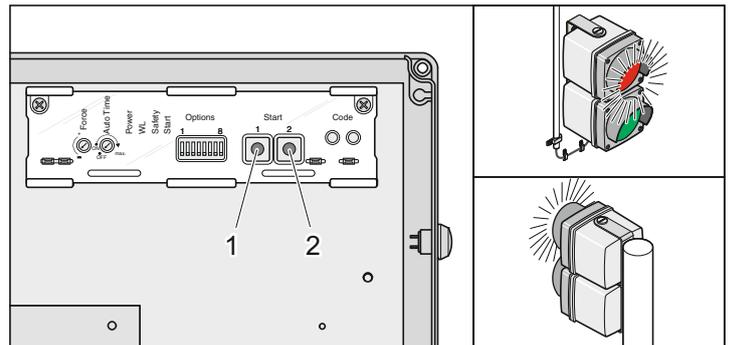
- Turn on mains power: Operator and signal light control unit.  
Red signal light flashes if a force setting has not been “taught”.



**i** The first movement of the operator after applying voltage must always be door OPEN. If this is not the case, then swap the cables on terminals 12 + 13.

- Press button (1), door opens until reaching door OPEN end position.
- Close door, push button (1).

### Reset the control unit



- Depress buttons (1 + 2) until the red signal lights flash.
- Red signal lights flash, force settings have been deleted; release button (1 + 2).

### Perform the following sequence 2x:

The red signal lights flash until operator has executed 2 complete cycles (cycle = 1x open + 1x close) without interruption.

- Push button (1) 1x  
door opens until the switch-trigger (H, door OPEN)
- Red signal lights flash.
- Push button (1) 1x  
door closes until reaching switch-trigger (V, door CLOSED)
- Red signal lights flash.

When the red signal lights no longer flash, the force values are read in and saved.

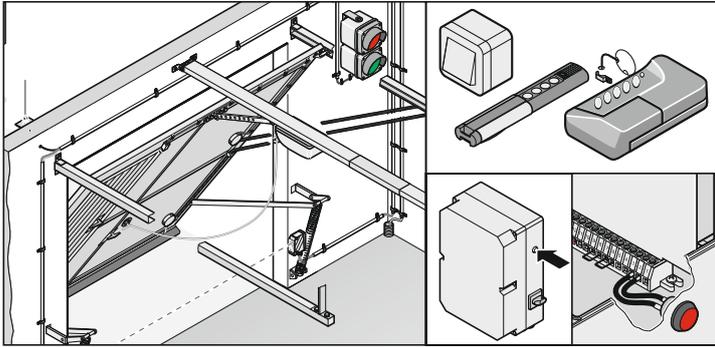
The operator has been “taught” successfully!

# Commissioning

## Checking end positions OPEN + CLOSED

Operator travel can be increased/reduced by using the switch-trigger.

Check that the door opens and closes completely. If it does not, its travel must be adjusted.

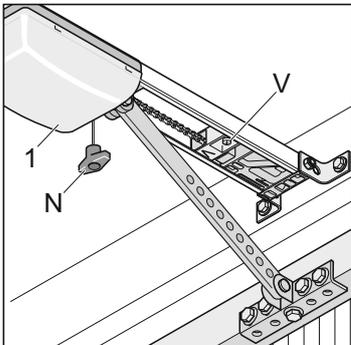


- Command transducers (for example button, hand transmitter etc.) activate 1x.  
Door opens.  
– Inside: Button connection 1 (terminals 2 + 3) / radio channel 1  
– Outside: Button connection 2 (terminals 4 + 5) / radio channel 2
- Door closes automatically, after expiration of the set times (warning time, clearance time, and hold open time).

If the door does not reach the desired door OPEN + CLOSE end positions, then readjust the end positions. See section on "Adjusting OPEN + CLOSED end positions".

## Checking the emergency release

**i** In vertical-sectional doors, you have the option of activating the backjump with DIP switch 6 in order to offload the operator system and the door. This is a simpler way to activate the emergency release.



- Close the door.
- Pull the emergency release (N) 1x.  
If the emergency release cannot be operated, loosen the end switch (4) and move it in direction (7).
- Open the door with the operator and close it again. Test emergency release again.

## Checking the force setting

Whenever the door is opened or closed, the control unit compares the memorised force setting with the force actually needed and automatically adjusts the memorised setting accordingly when the end positions are reached.

Check See "Maintenance and Care".

## Setting the maximum force

**i** It is only possible to make settings with the TorMinal. Reset the control unit prior to making any adjustments, otherwise you will not be able to change the values.

**i** Check the force setting regularly, at least once a year, to ensure correct functioning. See the section on "Maintenance and Care".

If the force that is set is not sufficient to either fully open or close the door, then a specialist can increase the force with the TorMinal. Once this has been done, the new force setting needs to be measured in accordance with EN 12453.

The maximum force automatically comprises the force it has been "taught", augmented by the additional force set via the TorMinal. The highest value that can be set represents the greatest additional force, the lowest value that can be set represents the smallest additional force.

Once the force tolerance has been set, you may have to re-adjust the door OPEN and CLOSED end positions if the required position is not reached.

### Adjustment with TorMinal

Memory	Setting range	Factory setting
037	16-60	48

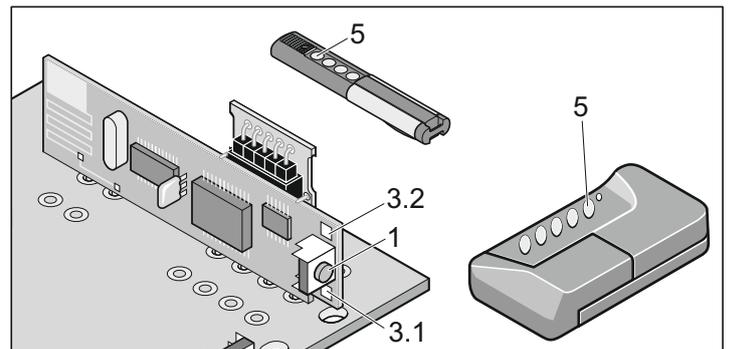
Setting range:

16 minimum additional force

60 maximum additional force

## "Teaching" the remote control transmitter

**i** Always delete the radio receiver completely prior to the initial "teaching" of hand transmitters.



### Deleting the radio receiver's memory

- Press "Learn" button (1) and keep it depressed.  
– After 5 seconds the LED flashes (3.1 or 3.2) – after an additional 10 seconds the LED (3.1 or 3.2) lights up.  
– After a total of 25 seconds, all the LEDs light up (3.1 + 3.2).
- Release "Learn" button (1) – delete process is complete.

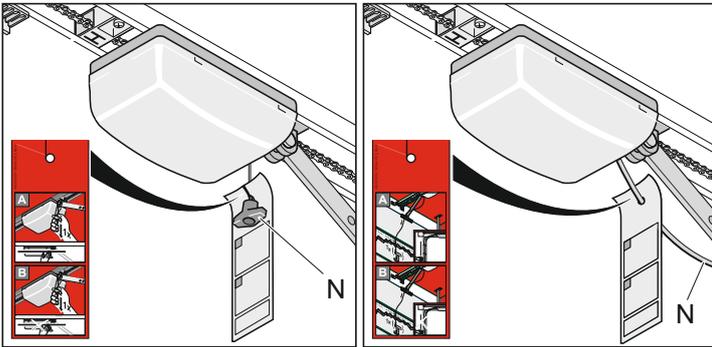
# Commissioning

## “Teaching” remote control transmitters

- Push the “Learn” button (1)
  - 1x for channel 1 (inside), LED (3.1) lights up
  - 2x for channel 2 (outside), LED (3.2) lights up
- If a radio code is not transmitted within 10 seconds, then the receiver switches back to normal operating mode.
- Abort “Learning” mode: Press “Learn” button (1) until all LEDs go out.
- Depress the desired remote control transmitter button (5) until the LED goes out – depending on which channel has been selected. Remote control transmitter has transferred the radio code to the radio receiver.
- LED goes out – “Learning” process is complete.

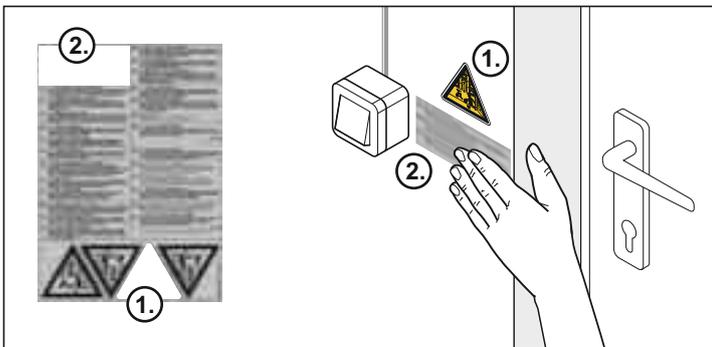
“Teaching” additional remote control transmitters. Repeat the above steps. A maximum of 448 memory slots are available per radio receiver.

## Attaching instruction sign



- Attach the instruction label for the operation of the emergency release to the emergency release rope.

## Attaching warning sign



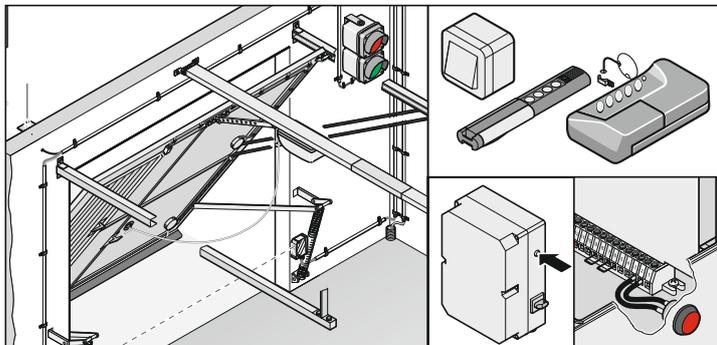
- Attach the warning signs (text + triangle sign) at a position where they are clearly visible, e.g. beside the push button (warning triangle) and on the door leaf (text + warning triangle).

# Operation and handling

## Safety instructions

- Keep children, disabled persons, and animals away from the door.
- Keep your hands clear of a door in operation and any moving parts.
- Only drive into and out of the garage when the door is fully opened.
- There is a risk of persons getting trapped or cutting themselves in/on the door system's moving parts or the edges where it closes.

## Open and close the door



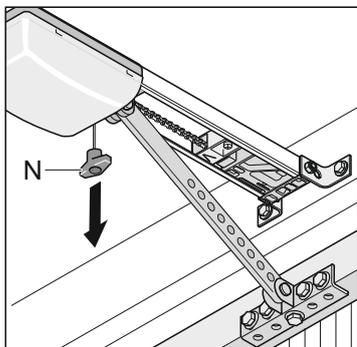
- Command transducers (for example button, manual transmitter, etc.) Activate 1 x.  
Door opens.  
– Inside: Button connection 1 (terminals 2 +3) / radio channel 1  
– Outside: Button connection 2 (terminals 4 + 5) / radio channel 2
- Door closes automatically after expiration of the set time (warning time, clearance time, and hold open time).

## Emergency release

**Caution!**  
The emergency release mechanism may only be used in the event of an emergency (power failure, drive failure, etc.) to open or close the door. Do not use it to open and close the door in other situations, as this could damage the door or the drive mechanism.

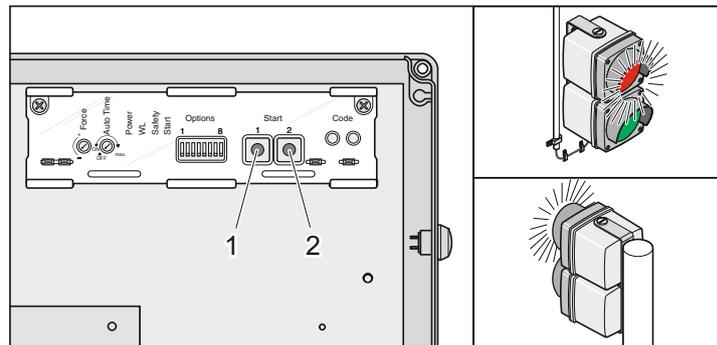
**Risk of damage!**  
When operating the emergency release, it is possible that the door may open or close on its own due to the spring breaking or the weight balance being set incorrectly. Operator can suffer damage or be destroyed.

**i** The operator can be engaged or disengaged in any door position.



- Pull once on the emergency release cord (N): the operator disengages and the door can be opened manually.
- Pull on the emergency release cord (N) once again: The operator locks into position; door can only be moved with the operator.
- If door is fitted with a slip door but no safety mechanism for the slip door – then install a slip-door safety mechanism (see “Accessories”).
- If the door does not have a slip door and if the garage does not have a second entrance – install a release lock or Bowden cable to provide outside release access (see “Accessories” instructions).

## Resetting the control unit



**i** After a control reset, the drive must be programmed again.

- Push buttons (1 + 2) until the red signal lights flash.
- Red signal lights flash, force settings have been deleted; release button (1 + 2).

## Overload protection

If the operator is subjected to excessive strain when opening or closing the door, this is recognised by the control unit which then stops the operator. After approx. 20 seconds or a control unit reset, the control unit deactivates the overload protection mechanism.

The operator can now recommence normal operation.

## Operation following a power failure

The force values remain in memory even during a power failure. The first travel movement of the operator following a power failure is always door OPEN.

## Setting the OPEN warning time

Adjustment with TorMinal \*

Memory slot (mem)	Setting range	Factory setting
027	0–255 (0 ... 63.75 seconds)	16 (4 seconds)

## Setting the CLOSE warning time

Setting with TorMinal \*

Memory slot (mem)	Setting range	Factory setting
028	0–255 (0 ... 63.75 seconds)	20 (5 seconds)

## Setting the clearance time

Setting with TorMinal \*

Memory slot (mem)	Setting range	Factory setting
032	0–255 (0 ... 63.75 seconds)	40 (10 seconds)

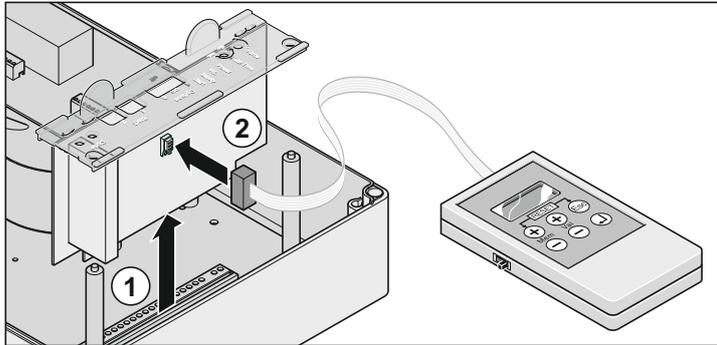
# Operation and handling

## Setting the hold open time

Setting with TorMinal \*

Memory slot (mem)	Setting range	Factory setting
031	2–255 (2 ... 255 seconds)	30 (30 seconds)

\* TorMinal



## Priority switching with time relay

If priority switching is applied to a button input for a command side (inside or outside) with a time relay, then the operator recognises this.

Example: Priority switching from inside (exit).

The green phase for inside will be aborted after an outside command and outside gets the drive authorization. After expiration of the times for outside, inside automatically gets the drive authorization again.

See "Priority switching (DIP 3)"

## Radio receiver

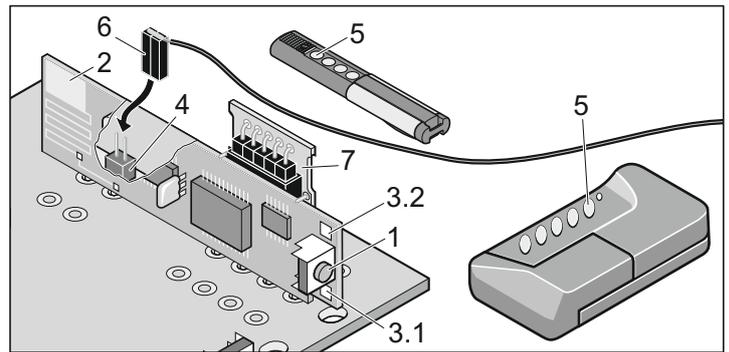
**i** If the controller/radio receiver is defective, then the stored radio codes can still be used by pulling off the memory module (7) and inserting it on the spare control unit.

**i** Homelink compatible!  
If your vehicle is equipped with a Homelink system (version 7), you can reach our drive/radio receiver at 868.6 MHz. With older Homelink systems, you must use a different frequency (40.685 or 434.42 MHz). For more information, please visit: "<http://www.eurohomelink.com>".

## Safety instructions

- For safe operation you must comply with local safety guidelines that apply to this type of equipment! Information is provided by electrical power utilities, VDE (Association of German Engineers) and Employers' Liability Insurance Associations (or similar institutions).
- The operator of this radio-controlled equipment is in no way protected from interference from other telecommunications systems and facilities (e.g. other radio-controlled equipment that is licensed to operate at the same frequency range).
- Try replacing the batteries should reception problems be encountered.

## Description of display and push-buttons



- (1) "Learn" button  
Puts radio receiver in a given operating mode: "learn", delete and normal
- (2) Internal aerial
- (3) LED  
indicates which channel has been selected.  
(3.1) LED radio channel 1 (inside)  
(3.2) LED radio channel 2 (outside)
- (4) Connection for external aerial (6)  
If the transmission range is not sufficient with the internal antenna, then you can use an external antenna. See "Accessories".
- (5) Manual remote control button
- (6) External aerial
- (7) Memory module for radio codes, insertable

## "Teaching" the remote control transmitter

- Press the "learn" button (1)
  - Press 1x for channel 1; LED (3.1) lights up
  - Press 2x for channel 2; LED (3.2) lights up
  - If a radio code is not transmitted within 10 seconds, then the receiver switches back to normal operating mode.
  - Abort "Learning" mode: Press the "Learn" button (1) until all LEDs go out.
- Press and hold the desired remote control transmitter key (5), until the LED is off
  - depending on the selected channel.
  - The respective code is transmitted to the radio receiver.
- LED goes out – "teaching" process is complete.

"Teaching" additional remote control transmitters. Repeat the above steps. A maximum of 448 memory slots are available per radio receiver.

## Delete remote control transmitter button from radio receiver

If a user of a multi-user garage facility moves house and wants to take his remote control transmitter with him, then all the codes of the given user's remote control transmitter must be deleted from the radio receiver.

**⚠ For security reasons, each button and/or combination of buttons of the remote control transmitter should be deleted!**

- Press the "Learn" button (1) and keep it depressed for 5 seconds until an LED starts to flash (any LED)
- Release the "Learn" button (1) – radio receiver is in delete mode.
- Press the push-button on the remote control transmitter, the one whose code must be deleted on the radio receiver – LED goes out – the delete process is complete. Delete process is ended.

Repeat procedure for all push-buttons and combination of buttons.

## Deleting a channel from the radio receiver

- Press the "Learn" button (1) and keep it depressed.
  - Press 1x for channel 1; LED (3.1) lights up
  - Press 2x for channel 2; LED (3.2) lights up
  - LED is illuminated depending on which channel has been selected. After 5 seconds, the LED starts to flash and then lights up after an additional 10 seconds.
- Release the "Learn" button (1) – delete process is complete.

## Deleting the radio receiver's memory

If a remote control transmitter is lost, then for security reasons all channels on the receiver must be deleted! After this has been done, all the remote control transmitters must be "re-taught" by the receiver.

- Press the "Learn" button (1) and keep it depressed.
  - After 5 seconds the LED flashes (3.1 or 3.2) – after an additional 10 seconds the LED (3.1 or 3.2) lights up.
  - After a total of 25 seconds, all the LEDs light up (3.1 + 3.2).
- Release the "Learn" button (1) – delete process is complete.

## Connecting an external aerial

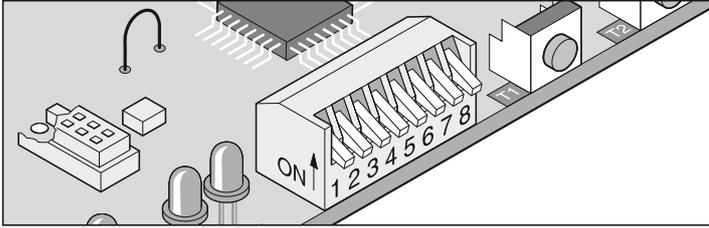
- An external aerial can be fitted if the range of the radio receiver's internal aerial is insufficient.
- The aerial cable should not place any mechanical stress on the radio remote control receiver, attach a strain relief device.
  - Connect the external aerial (6) to connection (4).

# Functions

## General tips

- At delivery, all DIP switches are in OFF position. All additional functions are disabled.

## Obstruction in the door travel path: recognition and behaviour (DIP 1)



### Obstruction with door OPEN

If the door strikes an obstruction (force switch-off) or if the safety input is interrupted (e.g. someone trips the photoelectric cell), the drive recognises this and reacts according to setting of DIP switch 1.

	DIP switch 1: OFF	DIP switch 1: ON
Safety input 1 (safety 1) Terminal 6 + 7	No reaction	Door stops if a photoelectric cell is connected. Red signal lights flash rapidly. With 8.2 k Ohm or Fraba strip there is no reaction. As soon as the obstruction is removed the operator continues its travel in door OPEN. Door closes after the times the expire.
Safety input 2 (Safety 2) Terminals 8 + 9	Door stops Red signal lights flash rapidly Next command, operator travels in door CLOSE.	See OFF
Power switch-off	Door stops Next command, operator travels in door CLOSE.	See OFF

### Obstruction with door CLOSE (DIP 1 without function)

If the door strikes an obstruction (force switch-off) or if the safety input is interrupted (e.g. someone trips the photoelectric cell), the operator recognises this and reacts.

Safety input 1 (Safety 1) Terminal 6 + 7	Door opens completely operator continues automatically in normal operating sequence after the obstruction has been removed. Operator moves to door CLOSED after the times expire.
Safety input 2 (Safety 2) Terminal 8 + 9	No reaction
Power switch-off	Door opens completely Operator moves to door CLOSED after the times expire.

## Safety connection function 1 (DIP 2)

**i** In OFF position, the operator recognises automatically whether a photoelectric cell or an 8.2 k Ohm is connected.

### DIP switch 2 (terminals 6 + 7)

- OFF Photoelectric cell / 8.2 k Ohm
- ON Fraba strip

## Priority switching (DIP 3)

If inside has green and a command comes from outside, the green phase inside is aborted and after the clearance time, it is switched to green for outside.

Implementation example:

Very short driveway, car protrudes into the street.

**i** This priority switching is also active if a permanent signal (continuous exit authorization) is applied to button connection 1).

### DIP switch 3

- OFF Deactivated
- ON Activated

## Premature closing (DIP 4)

5 seconds after driving through the photoelectric cell (connection on safety input 1: terminal 6 + 7) the door closes. Time is adjustable with TorMinal (mem 030).

DIP switch 4 has priority over DIP switch 5

### DIP switch 4

- OFF Deactivated
- ON Activated

## Extending the hold open time (DIP 5)

5 seconds after driving through the photoelectric cell (connection on safety input 1: terminals 6 + 7) the hold open time is extended by 5 seconds. Time is adjustable with TorMinal (mem 030).

DIP switch 4 must be OFF.

### DIP switch 5

- OFF Deactivated
- ON Activated

## Back jump (DIP 6)

**i** With sectional doors, or doors with ceiling guides, you have the option of activating the backjump with DIP switch 6 in order to offload the operator and door mechanisms. This is a simpler way to activate the emergency release.

This feature is used to off-load the door and operator mechanism. The operator travels briefly backward in the door OPEN direction once it has reached the door CLOSED end position, thus relieving the strain on the mechanism. Time is adjustable with TorMinal (mem 033).

### DIP switch 6

- OFF Deactivated
- ON Activated

## Display type red signal light (DIP 7)

Red signal lights (inside and outside) light up when the door is closed.

### DIP switch 7

- OFF Deactivated
- ON Activated

## Test mode (DIP 8)

All signal light functions are switched off. Warning, clearance and hold open time. Thus the operator can be adjusted or serviced without the signal light functions hindering the work or causing them to be improperly adjusted.

In test mode operation is switched off via radio channels 1 + 2 and button 2, only button 1 (command inside) is active.

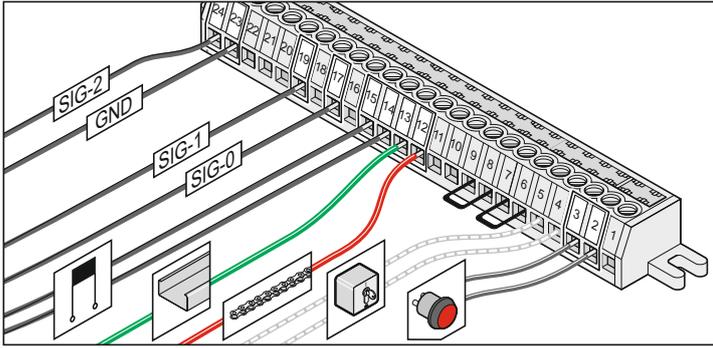
### DIP switch 8

- OFF Normal mode
- ON Test mode

# Functions

## Terminal bar, 24-pole

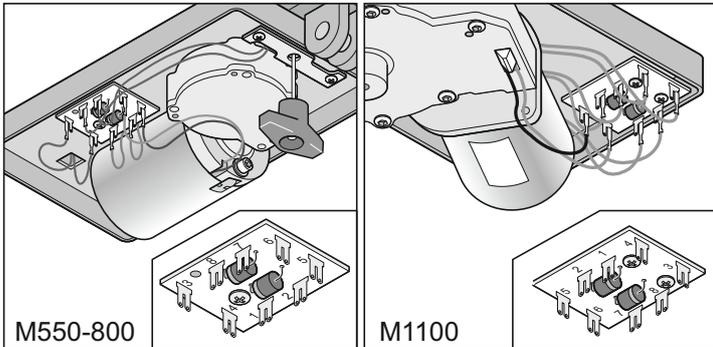
- Permissible cable cross-section: Max 1.5 mm<sup>2</sup>.



Terminal 1	Antenna connection 40 MHz
2 + 3	Button 1 (inside) *
4 + 5	Button 2 (outside)
6 + 7	Safety input 1 (bridge) *
8 + 9	Safety input 2 (bridge) *
10 + 11	Regulated 24 V/DC, max. 0.1 A
12 + 13	Chain (12) + rail (13) *
14 + 15	Transformer, secondary *
16	
17	SIG 0 *
18	
19	SIG 1 *
20 + 21	Regulated 12 V/DC, max. 0.1 A
22	
23	GND (Earth) *
24	SIG 2 *

\* Factory settings

## Trolley board

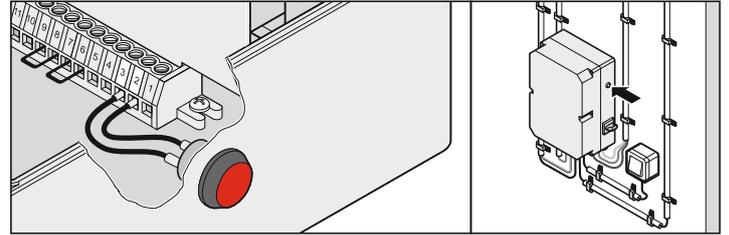


Terminal 1	Power supply to chain
2	Power supply to rail
3 + 4	Limit switch door OPEN
5	Motor cable
6	Motor cable
7 + 8	Limit switch door CLOSED

## Connect button 1 (inside)

- ⚠ Use the contact only for potential-free normally closed contacts. External voltage may damage or even destroy the control unit.

Delivery status: The push-button cable is connected to push-button 1.

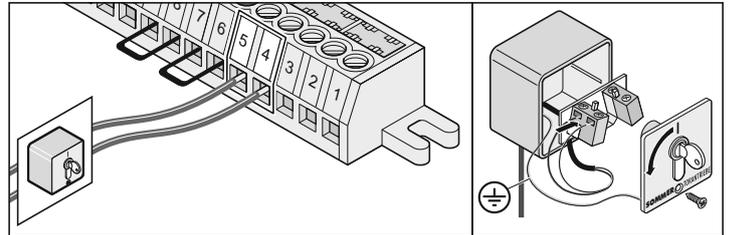


Terminal 2 + 3 Connection button 1 (inside)

## Connect button 2 (outside)

- ⚠ Use the contact only for potential-free normally closed contacts. External voltage may damage or even destroy the control unit.

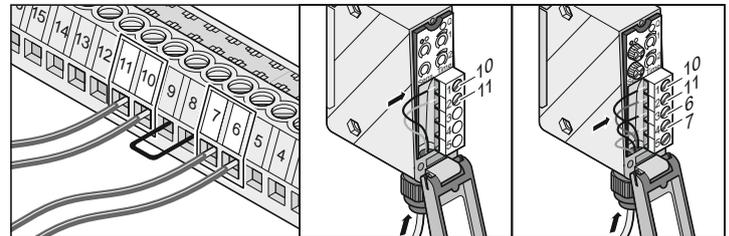
Delivery status: free



Terminal 4 + 5 Connection button 2 (outside)

## Connecting photoelectric cell 1

Delivery status: Jumper



Terminals 6 + 7 tested connection for potential-free contacts, only if DIP switch 2 is set to OFF

Terminal 10 regulated DC 24 V, max. 0,1 A

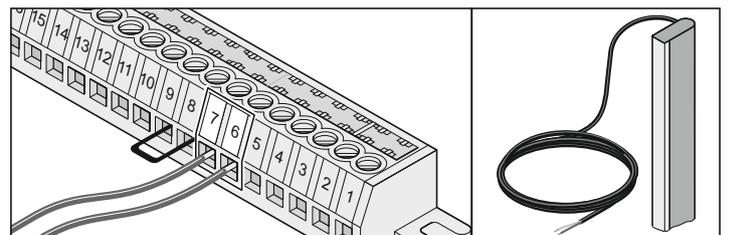
Terminal 11: Earth

Settings: see "Obstruction in door travel path"

## Connect 8.2 k Ohm strip

Delivery status: Jumper

Analysis 8.2 k Ohm. Connection without special analyzer.



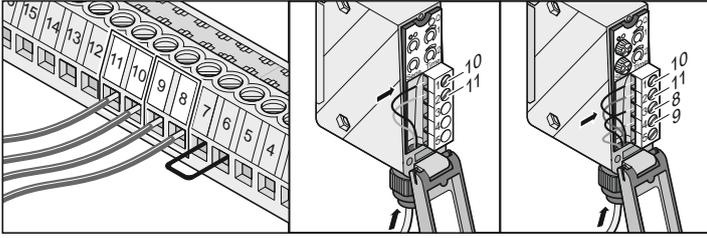
Terminals 6 + 7 Tested adapter for 8.2 kOhm resistor; DIP switch 2 set to OFF

Settings: see "Obstruction in door travel path"

# Connections

## Connecting photoelectric cell 2

Delivery status: Jumper



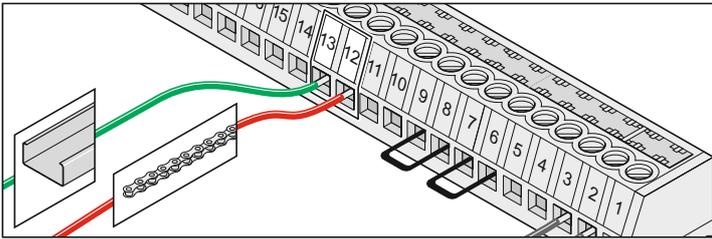
Terminals 8 + 9 Tested connection for potential-free contacts, **only reacts if door is open**

Terminal 10 regulated 24 V DC, max. 0.1 A

Terminal 11: Earth

## Chain and C-rail

Delivery status: Supplied connected as standard.



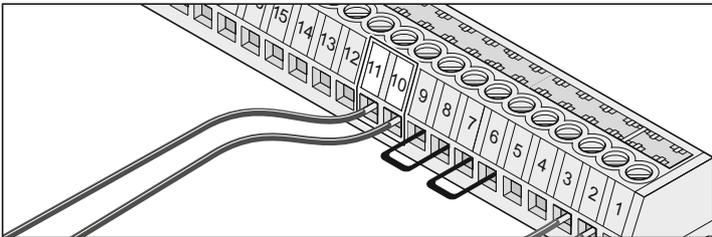
Terminal 12 Chain

Terminal 13 C-rail

Swap the connections when using the drive on an up-and-over door.

## 24 Volt Connection

Delivery status: free

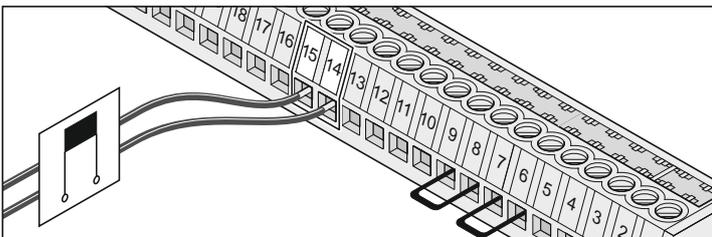


Terminal 10 regulated 24 V DC, max. 0.1 A

Terminal 11: Earth

## Transformer

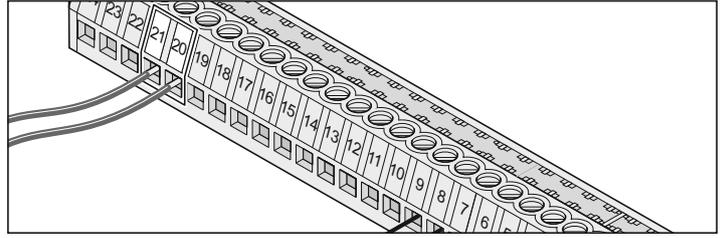
Delivery status: Supplied connected as standard.



Terminals 14 + 15 Transformer, secondary

## 12 Volt Connection

Delivery status: free

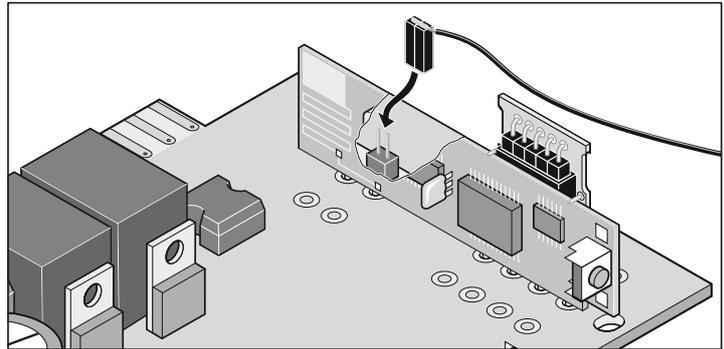


Terminal 20 regulated DC 12 V, max. 0,1A

Terminal 21: Earth

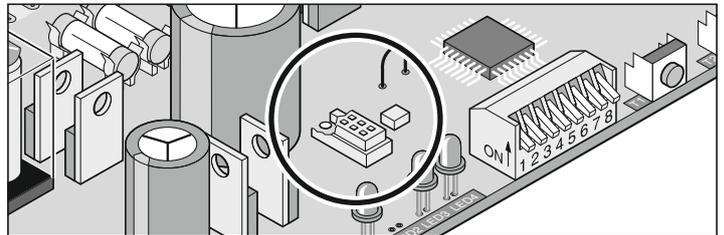
## Connecting an external aerial

Delivery status: free

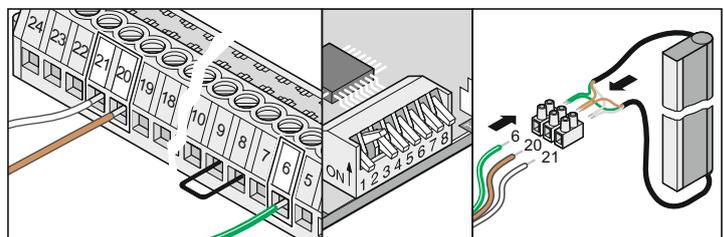


## Terminal interface

Functions, see accessories.



## Connecting Fraba system



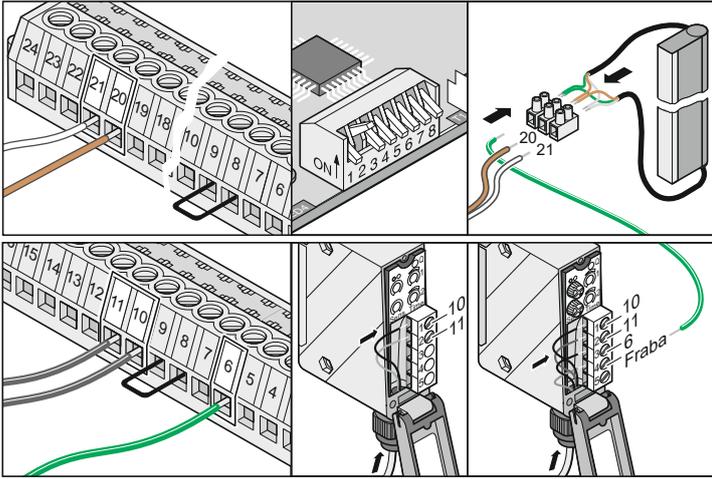
Terminal 6 Cable green from the Fraba system **only if DIP switch 2 is ON**

Terminal 20 Cable brown from the Fraba system (DC 12V)

Terminal 21 Fraba white system cable (ground)

# Connections

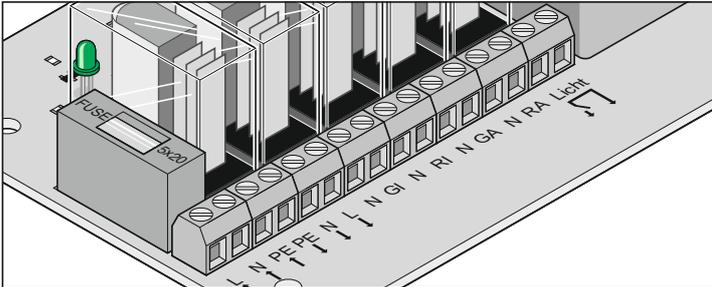
## Variant 1: Fraba system + photoelectric cell



- Terminal 6 Cable green from the Fraba system via photoelectric cell **only if DIP switch 2 is ON**
- Terminal 10 regulated 24 V DC, max. 0.1 A
- Terminal 11: Earth
- Terminal 20 Cable brown from the Fraba system (DC 12 V)
- Terminal 21 Cable white from Fraba system (Earth)
- Settings: see section on "Obstruction in door travel path"

## Connections for signal light controller 1

- Permissible cable cross-section: 1 mm<sup>2</sup> ... 2.5 mm<sup>2</sup>.

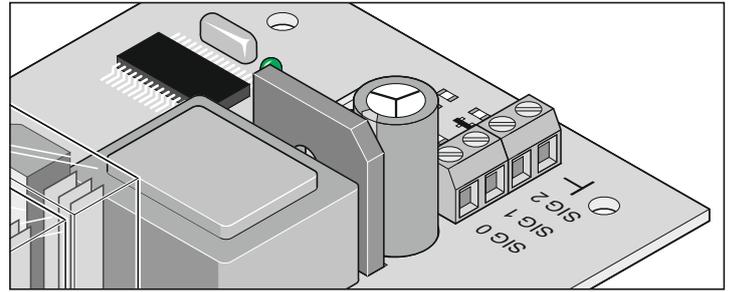


Connection strip for the signal lights (incl. mains supply) and potential-free relay contact (e.g. garage lighting).

Terminal	Designation/function
Mains supply	
L (1)	AC 220 ... 240 V
N (2)	Neutral conductor
PE (3)	Protective earth
Voltage tap mains power	
PE (4)	Protective earth
N (5)	Neutral conductor
L (6)	AC 220 ... 240 V
Signal light connections (max. 2 x 40 W each)	
N (7)	Neutral conductor GI
GI (8)	Signal light green inside
N (9)	Neutral conductor RI
RI (10)	Signal light red inside
N (11)	Neutral conductor RI
GA (12)	Signal light green outside
N (13)	Neutral conductor RA
RA (14)	Signal light red outside
Potential-free relay contact	
Light (15 + 16)	

## Connections for signal light controller 2

- Permissible cable cross-section: 0.5 mm<sup>2</sup> ... 2.5 mm<sup>2</sup>.

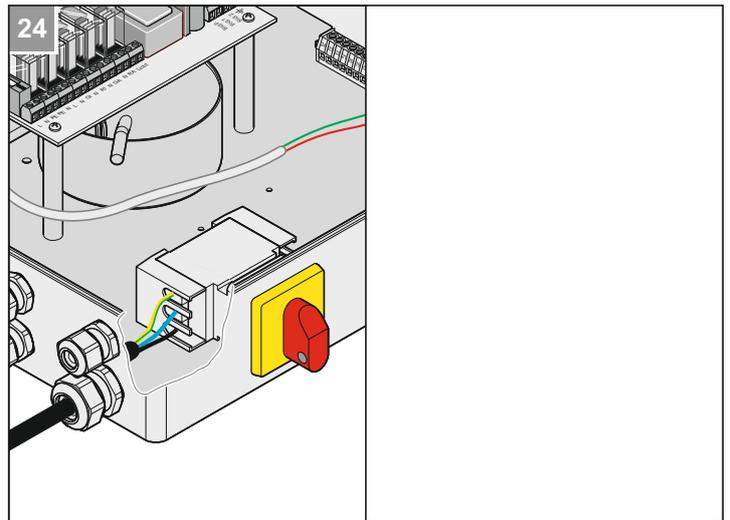


Connection strip for control cable that comes from the operator.

Terminal SIG 0	Terminal 17 on control unit
SIG 1	Terminal 19 on control unit
SIG 2	Terminal 24 on control unit
	Terminal 23 on control unit

## Connection to power main

 Permitted cable cross-sections for main switch: 0.75 mm<sup>2</sup> - 10 mm<sup>2</sup>.



Input	Output	Description
2T1	1L1	freely selectable
4T2	3L2	freely selectable
6T3	5L3	freely selectable
PE	PE	Earth conductor

The connection to the power supply must be carried out by a qualified electrician.

## Special functions

### Cycle counter

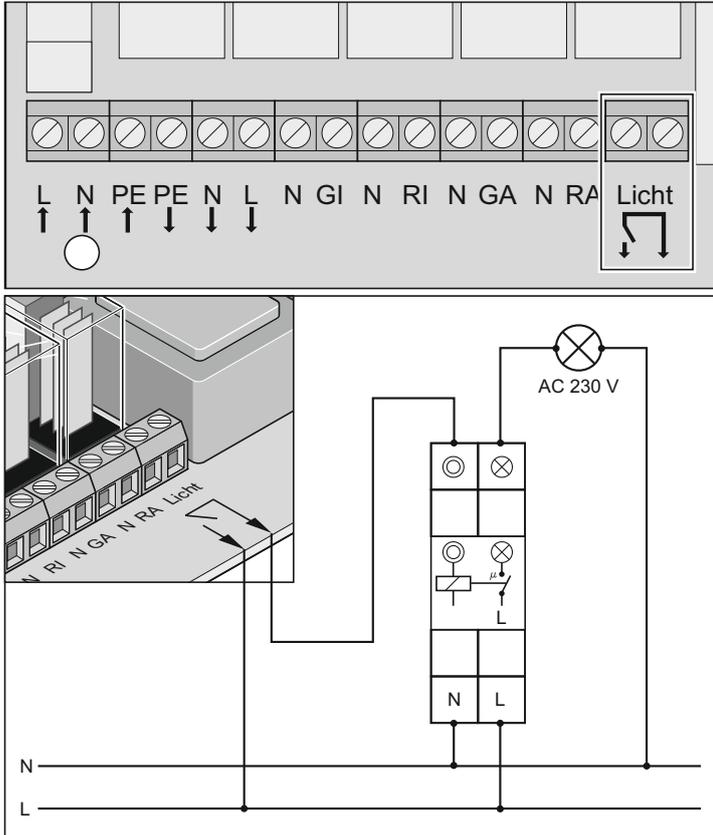
### Maintenance monitoring

These functions and other functions or settings can only be made with the TorMinal.

## Example: garage lighting

- Permissible cable cross-section: 1 mm<sup>2</sup> ... 2.5 mm<sup>2</sup>

Example: Stairwell light – timer “Eltako TLZ12.1-230V+8..24V UC”



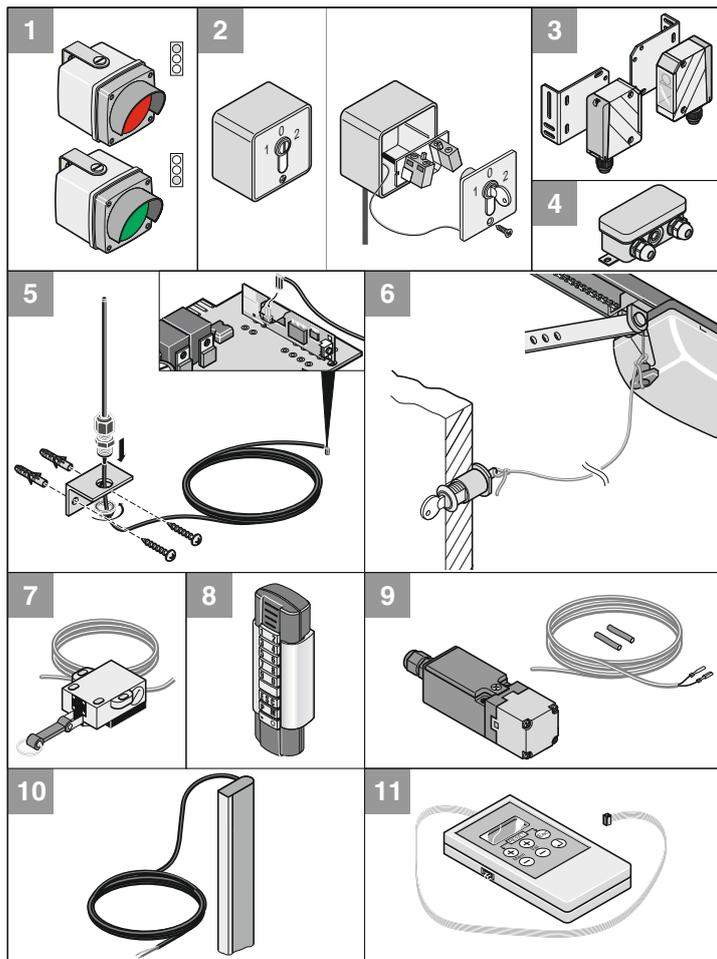
### Potential-free relay contact

Terminal Licht (15 + 16)

Can be used for controlling a stairwell light timer/time relay. The contact is closed for 1 second.

# Accessories

**i** The accessories depicted here are not included in the scope of delivery. They must be ordered separately.



**i** Other pulse generators include: Remote control transmitters, Telecody, radio-operated interior switches and key-operated buttons. No connection line to the operator needs to be installed for the remote control transmitters, Telecody or radio-operated interior switches, ask your dealer.

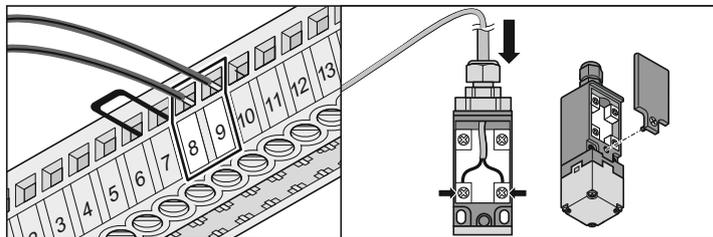
1. Red / green signal light
2. Key-activated button (1 contact or 2 contact)
3. Photoelectric cell
4. Junction box
5. Flagpole aerial (incl. 6 m, 10 m or 16 m cable)
6. Release lock
7. Pull-cord switch
8. Telecody
9. Slip-door safety mechanism
10. Safety contact strip: 8.2 k Ohm or Fraba
11. TorMinal

Additional accessories on request.

## 9. Slip-door safety mechanism

**!** Attention!  
Always connect the slip-door safety mechanism to safety input 2 (terminals 8 + 9). If the slip-door safety mechanism is connected to the trolley, then the operator will not recognise the door position.

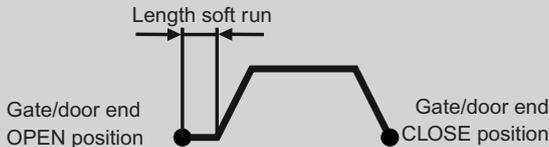
**i** Always connect the slip door switch as opener.



Terminals 8 + 9 Tested connection for potential-free contacts, only reacts if door is open

# Accessories

## 11. TorMinal

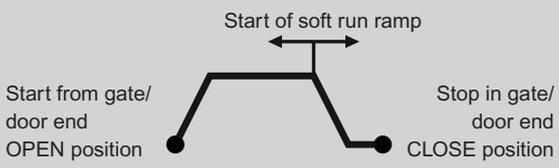
Memory slot Mem	Setting range Val	Description of respective functions	Default setting = Val marathon tiga SL(X)
003	- <sup>1)</sup>	Force taught when opening gate/door (OPEN)	255 <sup>3)</sup>
004	- <sup>1)</sup>	Force taught when closing gate/door (CLOSE)	255 <sup>3)</sup>
005	- <sup>1)</sup>	Runtime when opening gate/door (OPEN) Value in steps of 0.25 seconds Example: value shown 40 = 10 seconds	255 <sup>3)</sup>
006	- <sup>1)</sup>	Runtime when closing gate/door (CLOSE) Value in steps of 0.25 seconds Example: value shown 40 = 10 seconds	255 <sup>3)</sup>
011	- <sup>2)</sup>	Cycle counter (Z0) Number of cycles: counter status times 16.536	255 <sup>3)</sup>
012	- <sup>2)</sup>	Cycle counter (Z1): Number of cycles in total: 256	255 <sup>3)</sup>
013	- <sup>2)</sup>	Cycle counter (Z2) counts from 0 to 255 Total number of cycles: $Z0 \times 16.536 + Z1 \times 256 + Z2 = \text{number of cycles}$	255 <sup>3)</sup>
017	0–255	Length of soft run from gate/door end OPEN position or gate/door end CLOSE position Up until acceleration to maximum speed 0 – no soft run, 255 – max. length  	0
018	0–8	Length of soft run ramp High value = long ramp, low value = short ramp	4
019	15–60	Soft run speed when opening	25
020	15–60	Maximum speed when opening	55 <sup>4)</sup>

### Note!

**Memory position (020) can only be modified after the control system has been reset (force values deleted). Such a system reset cannot be completed with the TorMinal software.**

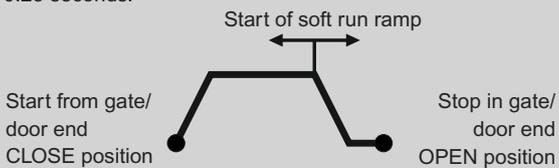
- <sup>1)</sup> Value displayed cannot be changed, and is read and memorised by the control unit when the force values and travel times are taught.
- <sup>2)</sup> Value displayed cannot be changed.
- <sup>3)</sup> Value factory-set. Once the force values and travel time have been taught, the values that are actually needed are then memorised.
- <sup>4)</sup> Perform reset, otherwise these values cannot be changed.

# Accessories

Memory slot Mem	Setting range Val	Description of respective functions	Default setting = Val marathon tiga SL(X)
021	0–40	<p>Start of soft run ramp for gate/door end OPEN position</p> <p>Start of soft run ramp prior to drive mechanism moving into gate/door end OPEN position. Adjustable in steps of 0.25 seconds.</p> 	15
022	15–60	Soft run speed when closing	25
023	15–60	Start of soft run ramp for gate/door end	45 <sup>4)</sup>

**Note!**

**Memory position (023) can only be modified after the control system has been reset (force values deleted). Such a system reset cannot be completed with the TorMinal software.**

024	0–40	<p>Start of soft run ramp for gate/door end CLOSE position</p> <p>Start of soft run ramp prior to drive mechanism moving into gate/door end CLOSE position. Adjustable in steps of 0.25 seconds.</p> 	15
026	0–255	<p>Cycle counter for maintenance</p> <p>Indication of a set value which when reached should activate the maintenance signal.</p> <p>Example: input of a set value of 2 means that after 512 cycles the equipment should be serviced. If the next service is required after a further 512 cycles, then a value of 4 has to be input during the given maintenance session.</p>	0
027	0–255	<p>Early warning period OPEN</p> <p>Duration of early warning period, adjustable in steps of 0.25 seconds. 4 = 1 second, 40 = 10 seconds</p>	16
028	0–255	<p>Early warning period CLOSE</p> <p>Duration of early warning period, adjustable in steps of 0.25 seconds. 4 = 1 second, 40 = 10 seconds</p>	20
030	1–20	<p>Closing time with light barrier or extension of gate open time</p> <p>Depending on DIP switch positions 4 or 5, whereby DIP switch 4 has precedence:</p> <p>DIP 4 OFF: Standard gate open time</p> <p>DIP 4 ON: Gate closes X seconds after the light barrier has been triggered.</p> <p>DIP 5 OFF: Standard gate open time</p> <p>DIP 5 ON: After the light barrier has been triggered, the gate open time is extended by X seconds</p> <p>Adjustable in steps of 1 second.</p>	5

# Accessories

Memory slot Mem	Setting range Val	Description of respective functions	Default setting = Val marathon tiga SL(X)
031	2–255	Gate open time Adjustable in steps of 1 second.	30
032	0–255	Clearing time Adjustable in steps of 0.25 seconds.	40
033	0–255	Back jump Adjustable in steps of 1 millisecond.	20
034	4–255	Reversing period Duration of reversing period when safety input has been tripped or when automatic power cut-off occurs. Adjustable in steps of 0.25 seconds.	8
035	0–255	<p><b>1. Switching soft run ramps ON or OFF</b> This function enables the soft run ramps to be switched ON or OFF individually. All soft run ramps (1–4) activated = 15 Ramp 1 (start from gate/door end CLOSE position) ON = 1 Ramp 2 (stop in gate/door end OPEN position) ON = 2 Ramp 3 (start from gate/door end OPEN position) ON = 4 Ramp 4 (stop in gate/door end CLOSE position) ON = 8 Setting and memorising required values Example 1: Switch off ramp 1 + ramp 2: 15 - 1 - 2 = 12, input and memorise this value (12). Example 2: Switch on ramp 2 + ramp 4: 2 + 8 = 10, input and memorise this value (10). ..... .....</p> <p><b>3. Maintenance monitoring</b> Before the maintenance monitoring mode can be activated, the number of cycles requiring monitoring needs to be set on memory slot 026. – monitoring function OFF = 0 – monitoring maintenance cycles = 64 – maintenance alarm has been activated = 128 When the maintenance alarm has been activated, the value set on memory slot 035 is increased by 128. Deleting maintenance alarm: reduce value set on memory slot 035 by 128.</p>	15
037	16–60	Force tolerance Adjustable additional force tolerance 16 = min. additional force, 48 = max. additional force	48 <sup>4)</sup>
047	–	For factory testing purposes	–

**Note!**

**Memory position (037) can only be modified after the control system has been reset (force values deleted). Such a system reset cannot be completed with the TorMinal software.**

# Maintenance and Care

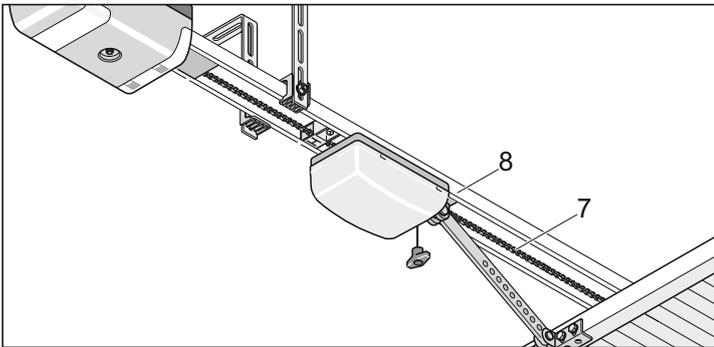
## Important information

**⚠** Never use a hose or a high-pressure cleaner to spray down the operator or the control unit housing.

**i** Every 10,000 cycles, check the contact springs of the trolley for wear.

- Always disconnect the mains plug prior to working on the operator mechanism.
- Never use alkaline solutions or acids for cleaning purposes.
- Wipe operator clean with a dry cloth as required.
- Keep your hands clear of a door in operation and any moving parts.
- There is a risk of persons trapping or cutting themselves in/on the door system's moving parts or edges where it closes.
- All fixing screws on the operator should be checked for firm seat and tightened if necessary.
- Check the door in accordance with the manufacturer's instructions.

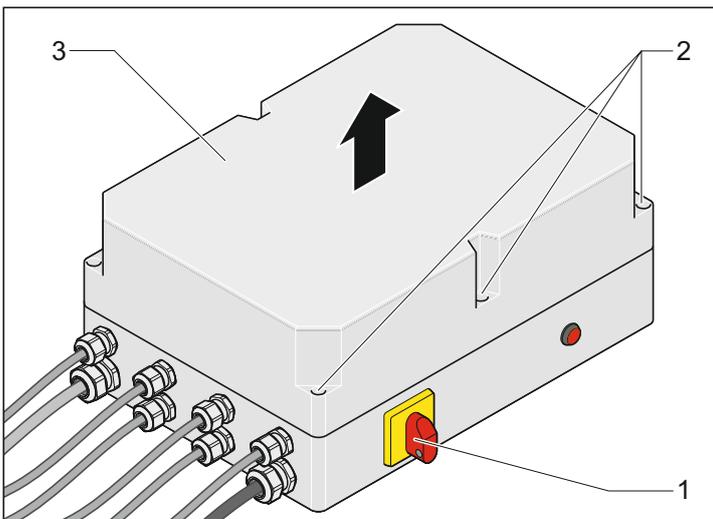
## Cleaning the chain and drive unit rail



- The chain (7) or the drive rail (8) is dirty – clean it with a cloth.
- If required, lubricate the chain (7) and the drive rail (8) with conductive oil.  
Do not use grease!

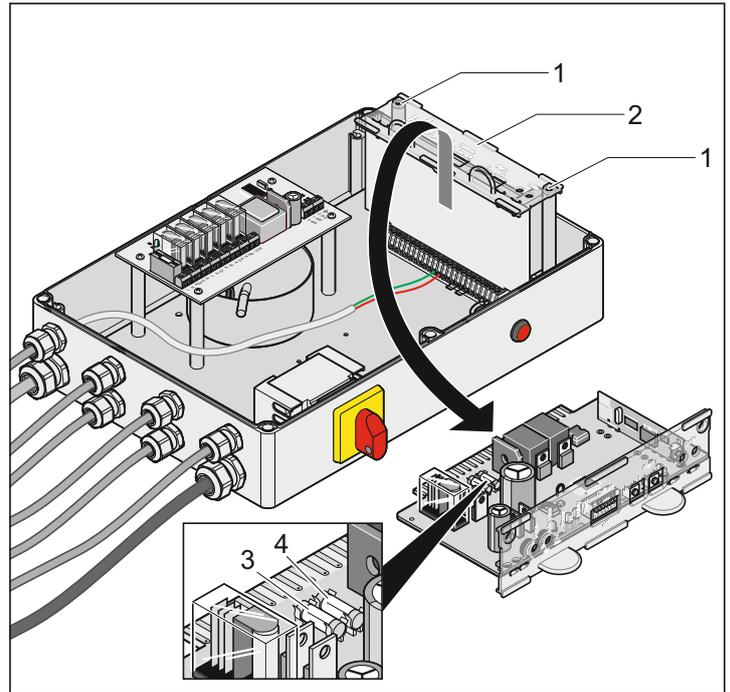
**i** Recommended oil types: Ballistol, WD40 contact spray

## Changing fuses



- Shut down mains power with the main switch (1).
- Loosen screws (2). Remove control housing cover (1).

## Motor Control Unit

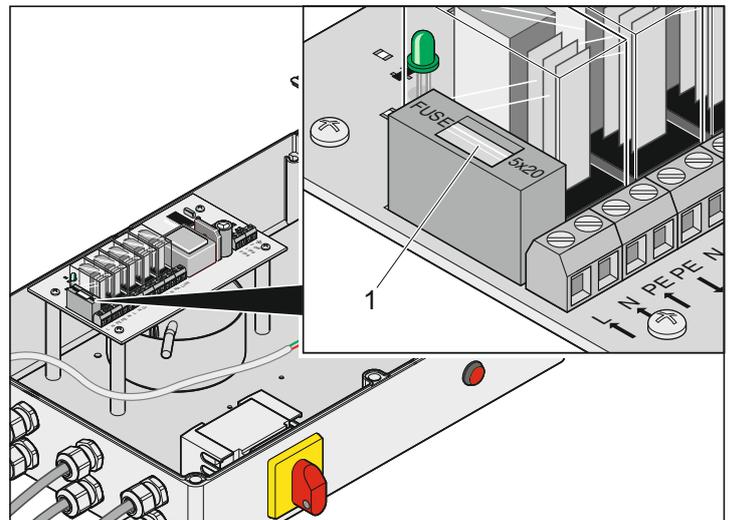


- Loosen screws (1) and remove the control unit (2)
- Replace defective fuses (1A fast-acting).

3. Fuse for warning light 1 connection, terminals 16 + 17.

4. Fuse for warning light 2 connection, terminals 18 + 19.

## Signal light control unit



Fuse for mains power connection, terminal L + N

- Replace defective fuses (1A fast-acting)

# Maintenance and Care

## Regular checks

Check safety devices regularly, (at least 1x annually), to ensure they function correctly (e.g. BGR 232).

Safety devices that are sensitive to pressure (e.g. safety switch unit) should be checked every four weeks to ensure that they function correctly; see EN 60335-2-95.

Test	Behaviour	yes/no	Possible cause	Remedy
<b>Power switch-off</b>				
Door wing to stop when closing with a 50 mm high object.	Operator reverses when encountering the object	yes	<ul style="list-style-type: none"> <li>Force switch-off functions without limitations</li> </ul>	<ul style="list-style-type: none"> <li>Leave all settings as they are.</li> </ul>
		no	<ul style="list-style-type: none"> <li>Force tolerance set too high.</li> <li>Door is incorrectly adjusted</li> </ul>	<ul style="list-style-type: none"> <li>Reduce the force tolerance. Decrease the setting with TorMinal. Beforehand, open and close the door completely 2x under supervision. See section on "Setting maximum force"</li> <li>Adjust door, call a specialist!</li> </ul>
<b>Emergency Release</b>				
Procedure as described in the section on "Emergency release".	Emergency release can be easily activated (pull 1x, operator is unlocked)	yes	<ul style="list-style-type: none"> <li>Everything is in order!</li> </ul>	
		no	<ul style="list-style-type: none"> <li>Operator pushes the door closed. Door and operator mechanisms are strained.</li> <li>Emergency release is defective.</li> <li>Door jams</li> </ul>	<ul style="list-style-type: none"> <li>Adjust end switch for door CLOSED, or activate back-jump (DIP switch 6 ON).</li> <li>Repair emergency release.</li> <li>Check door, see maintenance instructions for the door.</li> </ul>
<b>Safety contact strip if present</b>				
Open/close door and activate the strip in the process.	Behaviour of the door as set on DIP switch 1. Safety LED lights up	yes	<ul style="list-style-type: none"> <li>Everything is in order!</li> </ul>	
		no	<ul style="list-style-type: none"> <li>Broken cable, loose terminal</li> <li>DIP switch incorrectly adjusted</li> <li>Strip is defective</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring, tighten terminal connection.</li> <li>Correctly adjust DIP switch</li> <li>Remove door operator from operation and ensure that it cannot restart by accident. Contact after-sales service!</li> </ul>
<b>Photoelectric cell, 1 if present</b>				
Open/close door and activate the photoelectric cell in the process.	Behaviour of the door as set on DIP switch 1. Safety LED lights up	yes	<ul style="list-style-type: none"> <li>Everything is in order!</li> </ul>	
		no	<ul style="list-style-type: none"> <li>Broken cable, loose terminal</li> <li>DIP switch is set incorrectly</li> <li>Photoelectric cell is dirty</li> <li>Photoelectric cell is out of adjustment (bent bracket)</li> <li>Defective photoelectric cell</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring, tighten terminal connection.</li> <li>Set DIP switch correctly</li> <li>Clean photoelectric cell</li> <li>Correctly adjust photoelectric cell</li> <li>Remove door operator from operation and ensure that it cannot restart by accident. Contact after-sales service!</li> </ul>
<b>Photoelectric cell 2 if present</b>				
Open/close door and activate the photoelectric cell in the process.	Door stops Red signal lights flash rapidly Next command, operator moves in door CLOSED. Safety LED lights up	yes	<ul style="list-style-type: none"> <li>Everything is in order!</li> </ul>	
		no	<ul style="list-style-type: none"> <li>Broken cable, loose terminal</li> <li>DIP switch is set incorrectly</li> <li>Photoelectric cell is dirty</li> <li>Photoelectric cell is out of adjustment (bent bracket)</li> <li>Defective photoelectric cell</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring, tighten terminal connection.</li> <li>Set DIP switch correctly</li> <li>Clean photoelectric cell</li> <li>Correctly adjust photoelectric cell</li> <li>Remove door operator from operation and ensure that it cannot restart by accident. Contact after-sales service!</li> </ul>

## Disassembly



**Observe safety instructions!**

The work procedure is the same as in the "Assembly" section, however, in the reverse sequence. The adjustment work described is not necessary.

## Correct disposal

Observe appropriate local regulations!

## Warranty and after-sales service

The warranty granted complies with statutory requirements. Contact your local dealer for any warranty claims. Warranty entitlements only apply to the country in which the given operator was purchased.

Batteries, fuses and bulbs are not covered by the warranty.

If you require customer service, spare parts, or accessories, then please contact your dealer.

We have tried to make the assembly and operating instructions as clear as possible. If you have suggestions for a better format, or if information is missing in the assembly and operating instructions, then please send us your suggestions:

Fax.: 0049 / 7021 / 8001 - 403

email: [doku@sommer.eu](mailto:doku@sommer.eu)

# Help in case of malfunction

## Troubleshooting tips

**i** **Homelink compatible!**  
If your vehicle is equipped with the latest Homelink system (version 7), you can reach our drive/radio receiver at 868.6 MHz. With older Homelink versions, you must use a different frequency (40.685 or 434.42 MHz). For more information, please visit “<http://www.eurohomelink.com>” or contact your stockist.

**i** Many problems can be solved by a control unit reset (deletion of force values) and subsequent reprogramming of the operator!

Should you be unable to find and eliminate the fault with the help of this table, then take the following steps:

- Perform a complete control unit reset (deletion of programmed force values) and “re-teach” the operator.
- Disconnect any accessories that may have been connected (e.g. light barrier) and reconnect the jumper if there is a safety connection.
- Set all DIP switches to default settings (OFF).
- If settings have been changed using the TorMinal, reset the control unit using the TorMinal.
- Check all connections to the direct terminal strip and tighten as needed.

You can resolve malfunctions on the operator according to the following table. If you are encountering any difficulties, contact your stockist or visit “[www.sommer.eu](http://www.sommer.eu)” for support.

Fault	Possible cause	Remedy
Red signal lights flash	Operator is not programmed, no force values are saved	Teaching the Operator. See section on commissioning
	No mains power is present on the operator. LED power off	Plug in power plug
Operator does not function	No mains power is present on the operator. LED power off	Plug in power plug
	No control unit installed	Install control unit
	Fuse in garage circuit has tripped	Replace fuse, use a different device e.g. electric drill, to check the power supply
	Photoelectric cell tripped, safety LED lights up	Eliminate interruption
	Safety switch unit (8.2 Kohm) defective or DIP switch 2 is ON; safety LED is lit	Replace safety contact strip; set DIP switch 2 to ON
	Fraba system activated but photoelectric cell or safety switch unit (8.2 kOhm) is onnected; safety LED is lit	Switch off Fraba system; set DIP switch 2 to OFF
Operator does not function when operated with remote control unit	Battery in remote control transmitter is flat	Change battery
	Remote control transmitter has not been “taught” to radio receiver	Teach remote control transmitter
	Wrong radio frequency	Check frequency (40 MHz with wire aerial; 868 MHz without external aerial)
	Command is permanently applied because the button is jammed. Start LED is illuminated	Release button, replace manual transmitter (remove battery)
	No mains power	Plug in power plug
Operator does not function when operated using push-button	Push-button not connected or defective	Connect push-button or replace
	No mains power	Plug in power plug
Operator stops at door CLOSED and completely opens the door	Obstruction has tripped automatic force cut-off	Remove obstruction
	Incorrect force values “taught” or force tolerance is too low	Delete force values and “teach” new ones. Increase force tolerance only if these measures prove ineffective. See the “Setting Maximum Force” section
	Switch-trigger set incorrectly	Reset switch-trigger; see “Setting Limit Switches” section
	Door is incorrectly adjusted or is defective (e.g. spring shaft)	Have door adjusted correctly or repaired by a person qualified to do so
Operator stops at door OPEN	Obstruction has tripped automatic force switch-off	Remove obstruction. The operator will close the door with the next command.
	Incorrect force values “taught” or force tolerance is too low	Delete force values and “teach” new ones. Increase force tolerance only if these measures prove ineffective. See the “Setting Maximum Force” section
	Switch-trigger set incorrectly	Reset switch-trigger; see “Setting Limit Switches” section
	Connected safety fixture is tripped and DIP switch 1 is set to ON	Eliminate interruption or set DIP switch 1 to OFF

# Help in case of malfunction

Fault	Possible cause	Remedy
Operator does not close door	Mains power photoelectric cell is tripped Power supply to photoelectric cell interrupted Permanent signal on button input 1/2 or radio channel 1/2. Start LED lights up.	Check connection replace fuse The first command issued after the mains supply has been restored always has the operator fully open the door – Connected button defective – replace – Remote control transmitter defective or there is interference – Timer connected
Operator <b>opens</b> the door, then there is no more reaction on one command with key or remote control transmitter	Safety input tripped (e.g. photocell defective) Safety LED lights up Totally normal Door CLOSED limit switch in the trolley defective	– Remove obstruction from photoelectric cell path – Repair photoelectric cell – Terminal bar is not connected correctly Operator closes the door automatically, after expiration of the times (hold open time, clearance time, and warning time) Replace limit switch
The drive <b>closes</b> the door; subsequently no response to pressing of button or radio transmitter	Door OPEN limit switch in the trolley defective	Replace limit switch
Opening or closing speed varies	Operator starts slowly and then picks up speed Chain rail is dirty Chain rail has been lubricated with the wrong oil Chain tension incorrect	Soft run" mode – completely normal. Clean rail and re-lubricate, see "Maintenance and Care" section Clean rail and re-lubricate, see "Maintenance and Care" section Tension chain, see "Assembly"
Operator does not terminate "Learn" sequence.	End positions set incorrectly	Adjust end positions (see general instructions in "Commissioning").
"Start" LED is continuously on	Continuous signal on button connection 1 or 2 Permanent signal from radio receiver, LEDs 3.1 or 3.2 on the radio receiver light up. Radio signal is being received; a remote control transmitter button might be defective or an external signal is received.	Check connected buttons (e.g. key-activated button, if connected) – Remove battery from the remote control transmitter – Wait until the external signal decays
<b>Radio receiver only!!</b> All LEDs are flashing	All memory slots are occupied (max. 448 positions)	– Delete the data of all radio control devices that are not in use – Install additional radio receiver
LED 3.1 or 3.2 is continuously on	Radio signal is being received; a remote control transmitter button might be defective or an external signal is received	– Remove battery from the remote control transmitter – Wait until the external signal ceases
LED 3.1 or 3.2 is continuously on	Radio receiver is in "learning" mode and expects a code signal from a remote control device	Press desired button on remote control transmitter
Traffic lights not working	Traffic light control not powered (230 V AC) Traffic light control fuse defective Wrong drive control system	Repair power supply Replace fuse Traffic light control only works in conjunction with tiga control system
Traffic light behaviour incorrect	Four-wire control line connected incorrectly; wires not or incorrectly connected	Check connections

# Schematic diagram

