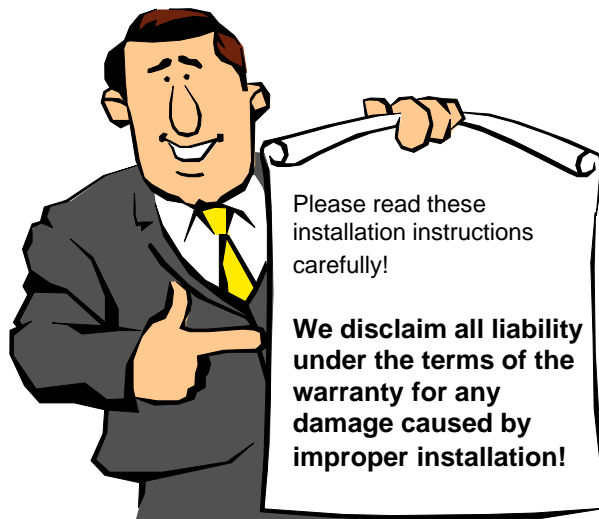


Installation Instructions

For Garage Door Openers

ST•77 M

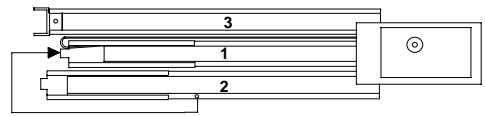
With automatic chain tensioner



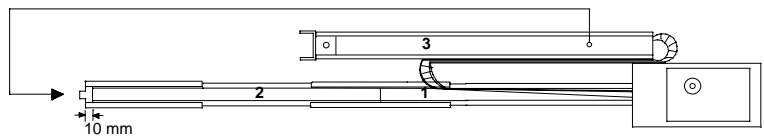
Serial number: _____

Preassembly

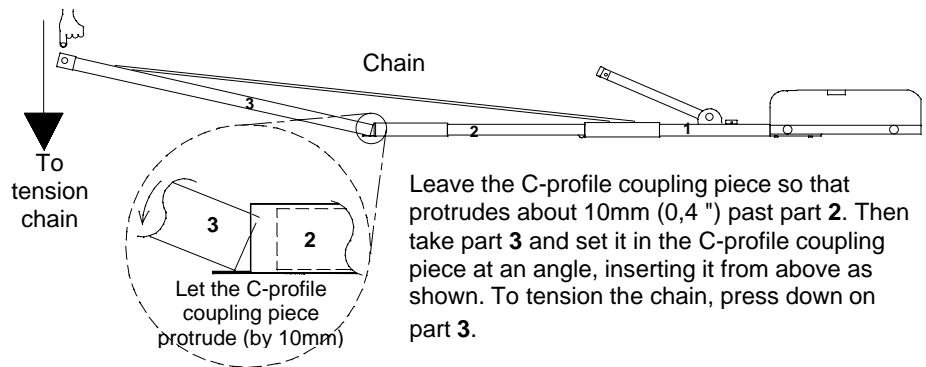
1. You have unpacked your ST 77 M garage door opener and have it in front of you.



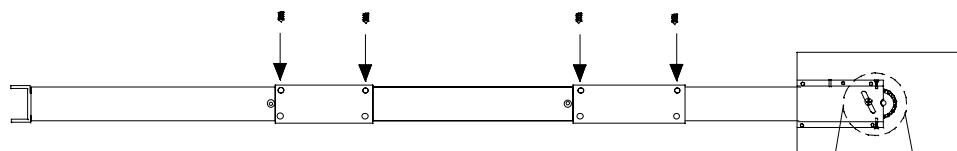
2. Take the part designated with a 2 in the drawing, and place it in front. Slide the C-profile coupling piece over part 2 all the way home. Part 1 and part 2 are now connected with one another.



3. When mounting part 3, make **absolutely sure not to twist the chain!**



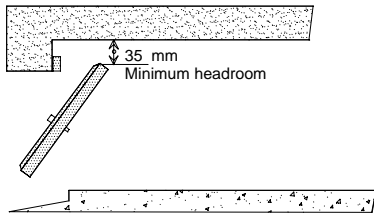
4. Push the C-profile coupling piece forward as far as it will go, then screw in at least one fixing screw to secure it.



5. If you want to impart even greater stability to your C-profile rail, then screw in all of the supplied fixing screws.

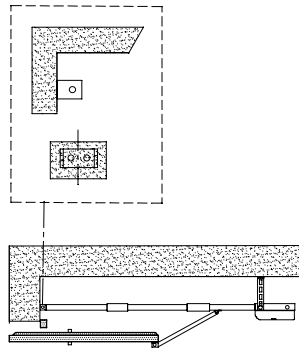
The chain has been pretensioned in the factory; do not change the chain tension!

Minimum headroom

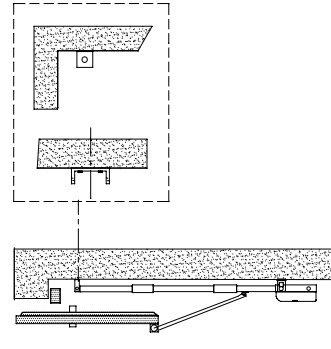


When mounting as shown in the diagrams at right, make sure there are at least 35 mm (1,37") of headroom between the ceiling and highest point reached by the door while pivoting.

Installation on lintel

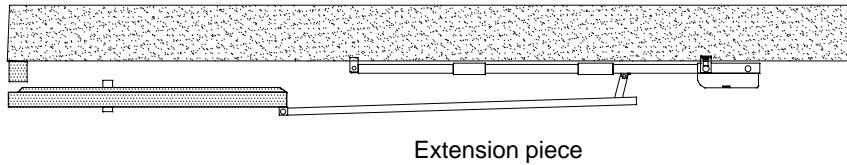


Installation on ceiling



Installation without the minimum headroom of 35 mm

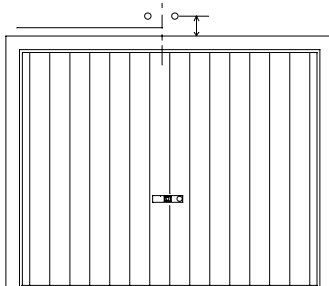
If there is not enough room to leave the minimum headroom of 35 mm, then the opener must be mounted with a drawbar extension (available as an optional extra).



Procedure

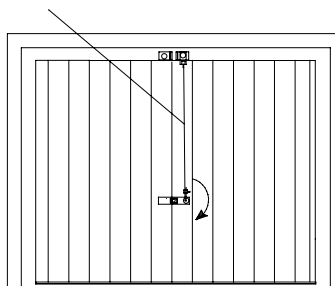
Lintel attachment angle

Mount the lintel attachment angle above the middle of your garage door, either on the lintel or on the ceiling. Make sure to leave the required minimum headroom.



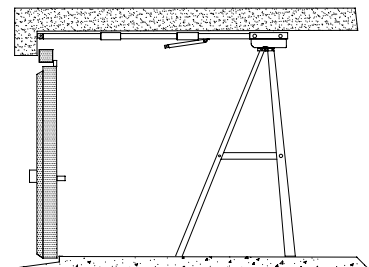
Emergency release

The Bowden pull-wire for the emergency release must be attached to the garage door. Handle in such a way that it is pulled downwards when the handle is turned.



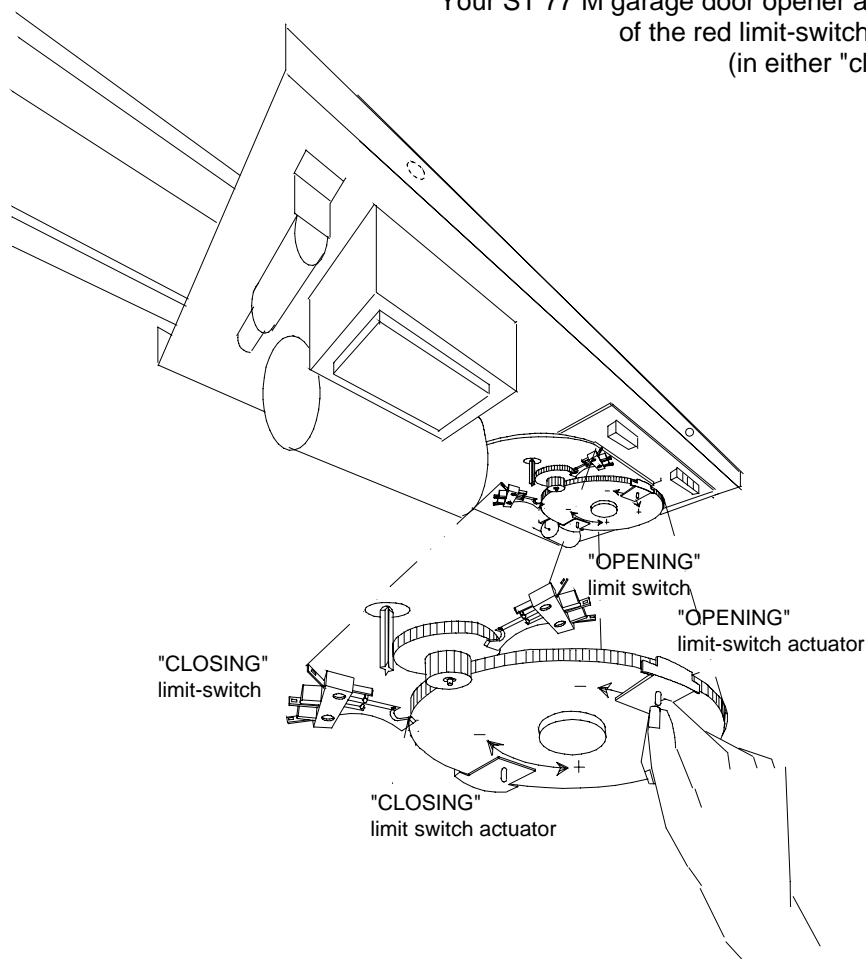
Attaching the drive unit

When attaching the drive unit to the ceiling, we recommend placing a ladder underneath it.



Adjusting the limit switches

Your ST 77 M garage door opener automatically stops when one of the red limit-switch actuators trips a limit switch (in either "closing" or "opening" direction).



Adjust the limit switches by hand

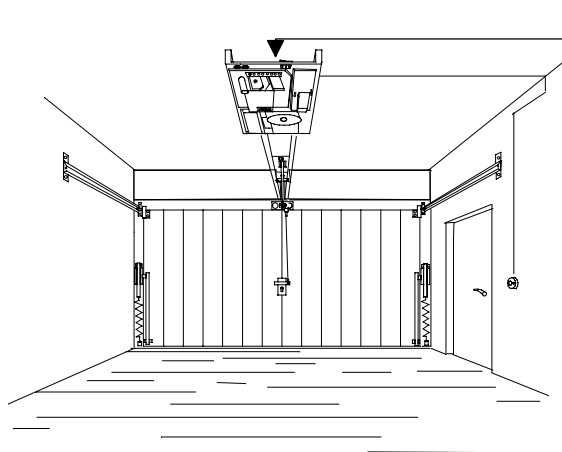
"Opening" direction

Please set the limit-switch actuator for the "opening" direction so that the door comes to a halt about 30 mm (1,2") before its final resting position

"Closing" direction

Please set the limit-switch actuator for the "closing" direction so that the door lightly touches the door frame when closed.

Setting of the speed



Speed switch S1

Your ST 77 M garage door opener lets you choose from among three different speeds.

Two speeds can easily be chosen with the switch **S1**, which is on the top of the drive unit. The following two speeds are preset in the factory:

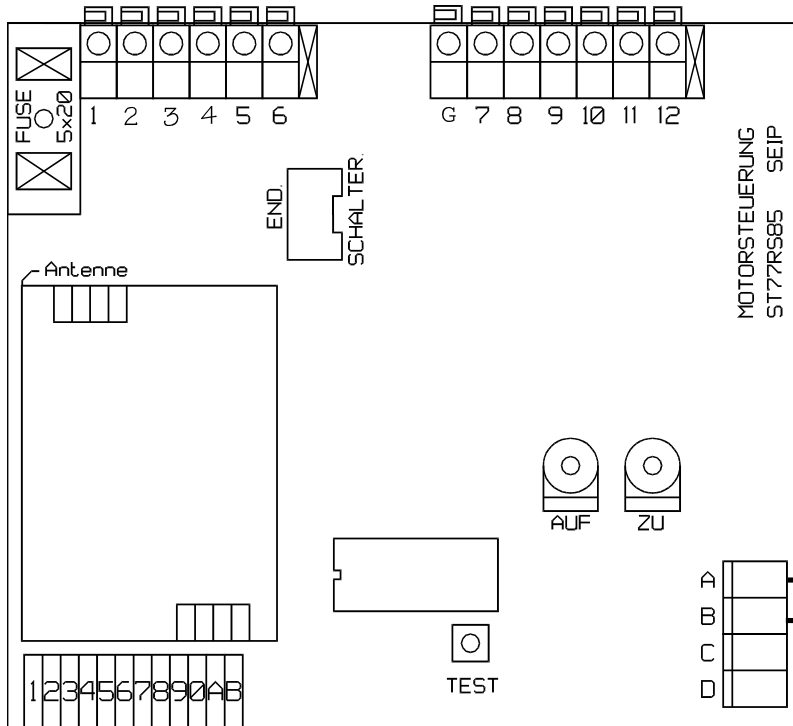
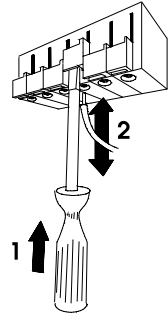
- 1: 18 cm/sec. (red cable, 30 V AC)
- 2: 15 cm/sec. (grey cable, 26 V AC)

You can easily select either of these speeds by changing the position of the speed switch.

Speed No. 3 (13cm/sec., pink cable, 23,5 V AC) can be selected by disconnecting the white cable (coming from the speed-switch S1) from the electronic board (see page 5 "Electronics", connections 11 and 12). Then you must connect the pink cable coming from the transformer to the connection the speed-switch cable was connected before. Now speed no. 3 is activated. **Please note, that after changing the cables as described the speed-switch function is no longer available!**

Please unplug power-cord before making any connections!

**Do not put any external electrical tension onto the electronic circuit board!
That would destroy the board!**



- 1: Ph, power cord, 230 V (brown)
- 2: Mp, power cord, (blue)
- 3: Ph, transformer (black)
- 4: Mp, transformer (black)
- 5: Ph, lighting (blue)
- 6: Mp, lighting (blue)
- 7: 24 V AC output
- 8: 24 V AC output
- 9: Motor (green)
- 10: Motor (red)
- 11: lilas, 0 V
- 12: white or pink, voltage dependant on selcted speed (23,5 V, 26 V or 30 V AC).

Fuse: T5 Amp., 250 V

The most important connections and functions for the installation are:

Test-button for running the operator without remote-control: **Test**

First push: OPENING, second push: STOP, third push: CLOSING and so on.

Regulation of force:

CLOSING force: **ZU**

OPENING force: **AUF**

The force for either OPENING or CLOSING can be adjusted seperately.

Adjustement of the force: turn down the forces to their minimum. When you let the mounted operator run, it then probably will switch off because it cannot move the garage door. Then rise the force steadily till it is high enough to move the door. Do not adjust the forces on their maximum if not necessary for door movement! The excess force will increase the damage on objects or persons being accidentally hit by the garage door (if there is no external security connected)!

(Turning to the right rises the force, turning to the left decreases the force).

Connection for external push-button or key switch: C and D

Connection for external security: A and B

Here you can connect a light barrier or a security contact. **Do not remove the bridge** between A and B if you **do not connect an external security!** This is a NC-contact: if the bridge is removed, the operator will not work.

Technical Data ST 77 M

DC motor	24 V- low noise
Gears	self-locking
Operating speed, fast	16 cm per sec.
Operating speed, slow	10 cm per sec.
Nett operating range	2640 mm
Overall length	3205 mm
Max. number of parking spaces	5
OPEN/CLOSE force, fast	5-75 kg adjustable
OPEN/CLOSE force, slow	5-60 kg adjustable
Power supply	190-260 volts AC
Main transformer	230V-26V-20 V AC
Lighting	230V AC - 25 Watt - E 14
Lighting duration	approx. 2 min.

Space required above door	35 mm
Motor unit length	360 mm
Motor unit width	210 mm
Motor unit height, inkl. housin	150 mm
Weight, incl. packaging	22 kg
Weight, excl. packaging	19 kg

Standard specification:
ST•77M garage door opener, complete with mounting components, remote control system, transmitter, receiver, pushbutton unit and packaging.

We reserve the right to make technical changes without notice.

Extension (optional)

An extension piece can be ordered to extend the length of the C-profile rail up to 4,15 m (163").

Mounting the extension piece:

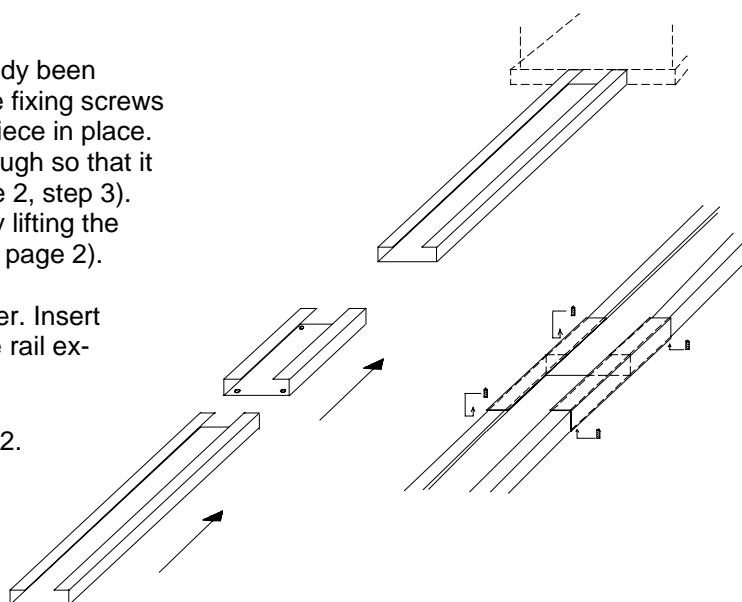
If your garage door opener has already been preassembled, start by loosening the fixing screws holding the front C-profile coupling piece in place. slide the coupling piece back far enough so that it protrudes by about 10 mm (see page 2, step 3). Now take the tension off the chain by lifting the front section of the C-profile rail (see page 2).

Open the chain on the chain tensioner. Insert the extension chain and the C-profile rail extension piece.

Now continue as described on page 2.

Each extension kit includes:

- C-profile rail
- C-profile coupling piece
- 1 chain
- 1 chain link (master link)
- 4 threaded studs



Remote Control Set

The receiver is fixed on the electric board. Besides you find the codification block with 12 switches.

1-channel hand-transmitters

Opening a 1-channel hand-transmitter as shown on the drawing besides, you will find the same codification block as the one for the receiver. You may adjust all 12 switches as you like. Be careful not to put all switches onto ON or OFF and make sure you have the same code on both, hand-transmitter and receiver. (The ON written on the codification block shall help you to orientate).

More-channel hand-transmitters (up to 4-channel)

Inside a more-channel hand-transmitter you will find a codification block with 10 switches. On these you may adjust any code you like. Make sure not to put all switches onto ON or OFF.

The switches 1 to 10 on the receiver-codification block must be adjusted like in your hand-transmitter.

The subscription on the bottom of this page shows you how to use the switches 11 and 12 on the receivers codification block. For example you might have two or three operators you wish to control with only one hand-transmitter. In that case you will have to use a two- or a three-channel hand-transmitter. The codification of the switches 1 to 10 will be the same in all components (all the receivers and all the hand-transmitters). Only the switches 11 and 12 will be adjusted different on each of the used receivers, dependent on which button of your hand-transmitter you want to use for which operator.

Transmission range:

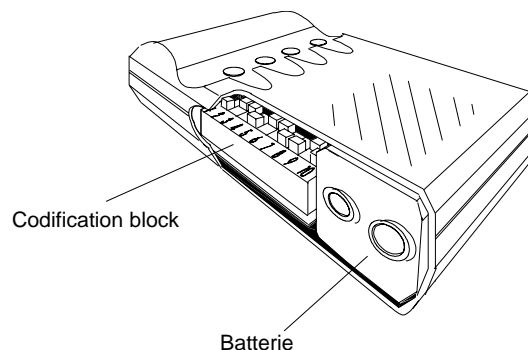
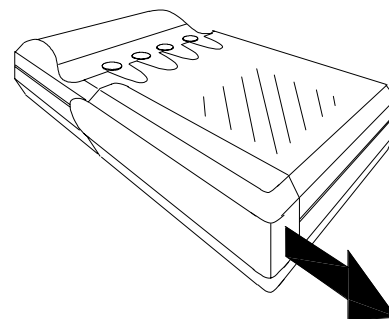
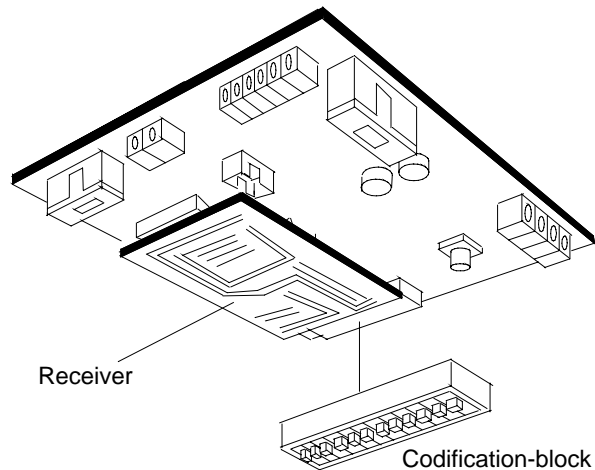
There is no fixed rule how to reach the maximum transmission range. The range will be influenced by:

- building-materials used for the garage
- surroundings of the garage
- area

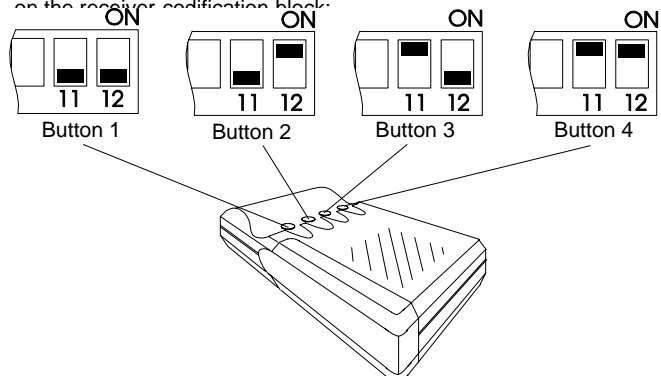
In some garages it might not even be necessary to unroll the antenna, in others you might not reach a high distance without extensioning the antenna. Try putting the antenna into different directions (into the back, into the front, to the side of the garage) and choose the position where the result is the best.

Avoid putting the antenna into contact with metal or electrical wires.

Trying the remote-control set make sure not to be too close to your operator (a minimum distance of 4 m should be held) otherwise you might overpower the receiver, what will not cause a damage but **the remote-control just might not work on that short distance!**



Adjustment of the switches 11 and 12: on the receiver codification block:



Problems? No problem....

The opener doesn't react on the transmitter nor on the push-button switch.

- Power failure?
- Disconnect and connect receiver.
- Is the door stuck because of snow and ice?
- Check the lines and the connections of the push-button switch.
- Is there water in the push-button switch or in the key operated switch?

The opener reacts on the transmitter but not on the push-button switch.

- Check the line of the push-button switch.
- Does the push-button switch work, when the receiver is disconnected? If so, your transmitter is defective.

The opener reacts on the push-button switch but not on the transmitter

- Check the accordance of the transmitter and the receiver code.
- Displace the antenna of the receiver. Avoid each metal contact (reduces the range).
- Check the battery of the transmitter

The door opens and closes without order.

- Change the code of your remote control (of transmitter and receiver).
- Disconnect the receiver or remove the transmitter battery. Use your push-button switch only. If this solves the problem, your sender may be defective.
- Disconnect the push-button switch and use your transmitter only. If this solves the problem, the push-button switch or the line of the push-button switch may be defective.

The door doesn't open completely.

- Is the limit switch "OPEN" correctly set?
- Is the door jamming while opening?
- Unlock the carriage manually (make the door running well). Lubricate and oil the pivotal points of the door.
- Increase the power for the OPENING direction

The door doesn't close completely and opens again.

- Is the limit switch "CLOSE" correctly set?
- Is the door jamming while closing?
- Unlock the carriage manually (make the door running well). Lubricate and oil the pivotal points of the door.
- Increase the power for the CLOSING direction

The emergency release doesn't work very well.

- Is the limit switch "CLOSE" correctly set? If not, your opener switches off under pressure. In this case the chain is under tension and therefore the emergency release can hardly be unlocked. Make sure that the limit switch is correctly set, otherwise your opener can be damaged.

- Replace the bulb (24 V, E14, max. 15 Watt)

The light doesn't go on.

- Unlock the carriage of the opener. Move the door manually and make sure that the door is well balanced (must come to a stop at each position).
- The spring tension is too high or there is even a spring fracture.

The opener isn't running well.

- The door is jamming.

The motor is buzzing but the door doesn't move.

- The carriage is unlocked. If you want to lock it, open the door, but not completely, and let the opener run. The carriage locks automatically.

The opener works, but the door doesn't move.

- Unlock the carriage with the help of the emergency release and open the door manually. (If you have a garage where you can only enter from outside: Unlock the door with the key and turn the door-handle, then your opener will be unlocked. If you have a garage where you can also enter from inside: pull at the Bowden cable hanging from your carriage.)

The opener doesn't work because of a power failure.
