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OPERATOR

SECTIONAL-500//DIY-500



Installation and Operating Manual



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1. GENERAL INFORMATION

The Sectional-500/DIY-500 electromechanical chain operator is designed for automation of residential sectional doors.

It consists of a mechanical gear and an electric engine with a built-in control unit. The gear and the electric engine are incorporated into a housing.

It consists of an electromechanical motor reducer, an electronic control unit and an illuminating lamp, incorporated into a housing. The electric operator is easily secured on a track and mounted to the ceiling, opening of the doors is carried out by means of a chain/belt gear. The self-locking operator gear ensures mechanical interlocking of the doors, if engine is not functioning, but in the absence of electric power the manual emergency release allows you to open and to close the doors manually.

For maximum safety, the control unit has force protection.

Besides, optionally, the operator can be equipped by electronic protective sensors, which stop the doors closing, if there are obstacles or people within the operating range of automatic system.

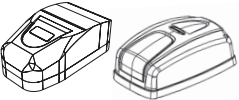


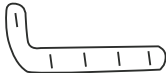
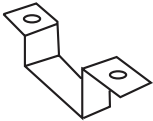
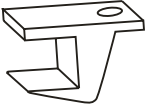
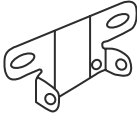
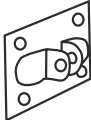

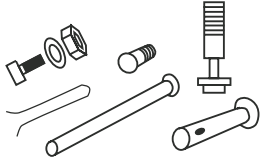
1.1. SPECIFICATIONS

Parameter	Units
Power supply	220–240 V
Consumed power	150 W
Waiting mode	6 W
Force	500 H
Control	Stepped (pulse) mode
Motor	24 V DC
Light	25 W
Opening speed	7.8 m/min
Door area	8 m ²
Operating temperatures range	–20...+55 °C
Fuses	Power supply — 2.5 A; light — 2.5 A
Radio control	433 MHz
Transmission	Chain
Protection rating	IP 20

1.2. OPERATOR PACKAGE

When you receive your Sectional-500/DIY-500 operator, unpack it and check that the operator is not damaged. If any damages are found, contact the operator supplier.

The operator components included in the standard package are listed in the following table.

Electric operator 	Operating manual 	Guide 	Curved arm 	U-shaped bracket 
Guide fastening bracket 	Headroom bracket 	Straight arm fastening bracket 	Slotted bushing 	Fastening set 

No	Name	Quantity	No	Name	Quantity
1	Electric operator	1	6	Guide fastening bracket	1
2	Operating manual	1	7	Headroom bracket	1
3	Guide	1	8	Straight arm fastening bracket	1
4	Curved arm	1	9	Slotted bushing	1
5	U-shaped bracket	2	10	Fastening set	1

1.3. TRACK

Guide model	Guide length, L	Travel	Opening height
SK-3300	3 320 mm	3 100 mm	< 2 600 mm
RK-3300*	3 320 mm	3 100 mm	< 2 600 mm

* The guide for the drive DIY-3300

2. SAFETY INSTRUCTIONS



IMPORTANT! You should observe the safety regulations to preserve people's health. You must keep the present Manual.

- You should follow all the recommendations of the given Manual, as incorrect equipment installation could lead to serious damages.
- The Sectional-500/DIY-500 operator is designed for automation of residential sectional doors. It should be used only for the purpose intended; any other use is forbidden.
- DoorHan is not liable for personal injuries, if the product was used for purposes other than intended.
- Make sure that the doors are balanced and function smoothly before installing the operator.
- The installation is to be carried out according to the standards EN 12453 and EN 12445. For providing the required safety level, these requirements should be observed in non-EU countries.
- You should check if the doors conform to the standards EN 12604 and EN 12605 (see documentation on the doors). For non-EU countries these measures are to be observed for ensuring the normal safety level.
- The mechanical door assembly units must conform to the provisions of the standards EN 12604 and EN 12605.
- Before installing the operator, make sure that the mounting location by its climatic conditions corresponds to the operator's specifications.
- You should not install the equipment in rooms with highly flammable substances or other hazardous media, as this can result in explosion or fire.
- You should use tools, indicated in Section "Tools" of the given Manual, during assembly, installation and adjustment of the operator.
- You should use a stable support when working at height.
- The operator is allowed to install at more than 2.5 m height.
- You should use hand and face protection when drilling holes.
- You should use metal goods from the operator package or other goods equivalent to them for fastening the product.
- You should power off when performing installation, cleaning or maintenance of the operator.
- When mounting the operator on doors with the infitting pass door, it is necessary to install an additional safety device, which prevents the operator activation, when the door is open.
- Make sure, that there will not be trapping of articles between movable and fixed elements of the operator when the doors move.
- You should use additional DoorHan accessories, since the accessories of third party manufacturers can damage the automatic system.
- DoorHan is not liable for unstable work of the automatic system, if you use safety devices and accessories, produced by other manufacturers without securing approval of DoorHan.
- You should not leave electric engines in a released state. This can lead to uncontrolled movement of the door wings and, as a result, to their damage.
- You should not use the operator, if it is necessary to repair or to adjust the equipment, since defects during the assembly of the operator or incorrectly installed doors can result in injury.
- DoorHan is not liable, if the product is not correctly installed or is damaged during operation.
- The electric operator is not equipped with the stationary power cord; therefore mains supply is to be fed to the automatic system via an automatic switch with a distance between the adjacent contacts minimum 3 mm. It is recommended to use double pole circuit breaker 10 A.
- Make sure, that there are no foreign bodies within the operating range of the electric operator before its start.
- You should not introduce changes, not stated in the given Manual, into the automatic system.
- You should remove the product package and dispose of it. You should not leave the packaging materials within the reach of children.
- You should not allow children to play in the door movement area during the operator operation. All remote control panels and also stationary control buttons must be absolutely inaccessible for possible use by children.
- It is allowed to drive in and to pass only when the doors do not move and the operator is switched off.
- The contents of the Manual could not serve as a basis for laying claims of any kind.
- The manufacturer reserves the right to introduce modifications into the structure and to improve it without prior notice.



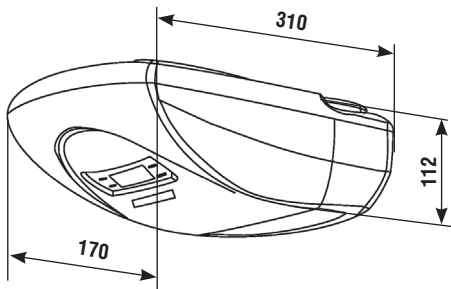
IMPORTANT! For safe and correct work of the operator it is necessary to install a mechanical stop to limit the door leaf motion.

WARNING! RISK OF INJURY! Have a qualified technician lay the cables 230 V AC. The cables must be laid in protective corrugated tubes. In case of supply cable damage, use the suitable type of the cable.

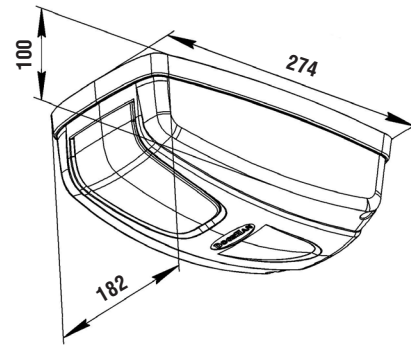
Cables needed for installation of sectional-500 operator and accessories (if available)

- Cable 2×0.5 mm² (photocell transmitter)
- Cable 4×0.5 mm² (photocell receiver)
- Cable 3×1.5 mm² (power supply)
- The cables should be appropriately insulated

3. OPERATOR UNIT

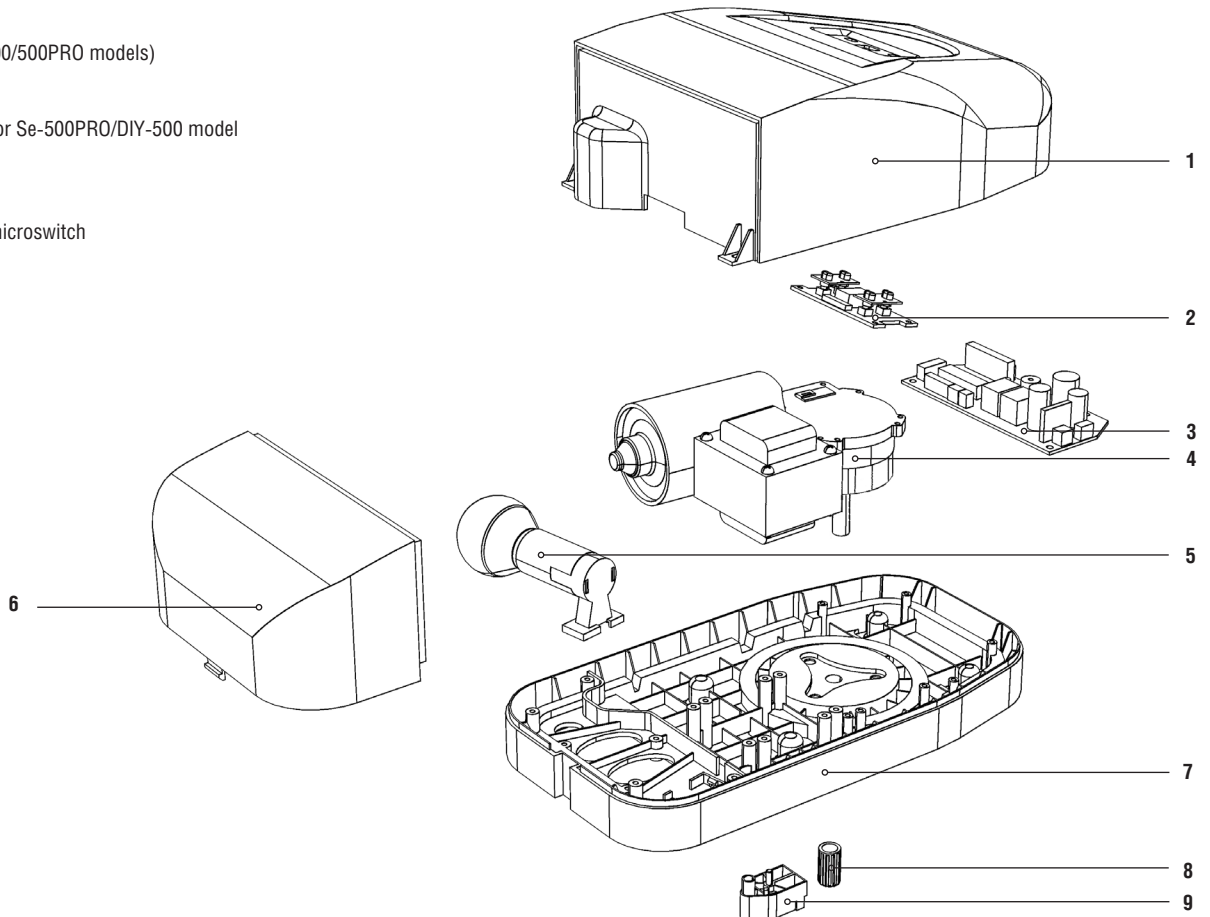


Sectional-500



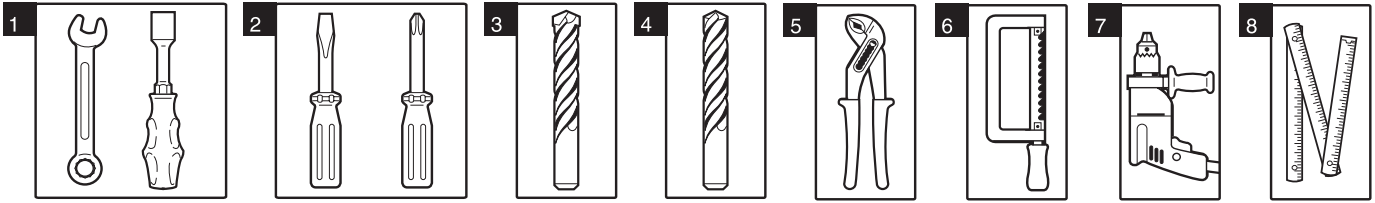
Sectional-DIY-500

1. Housing cover
2. Display (for Se-500/500PRO models)
3. Control board
4. Motor reducer
5. Lamp/LED lamp for Se-500PRO/DIY-500 model
6. Lamp housing
7. Housing
8. Splined bushing
9. Reference point microswitch



4. OPERATOR INSTALLATION

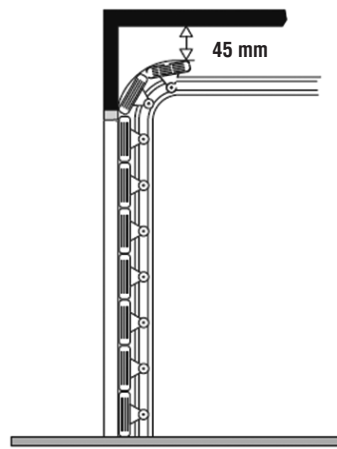
4.1. TOOLS



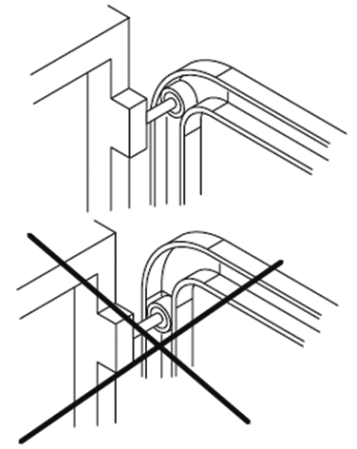
- | | | |
|--|-------------------------------|--------------------------------|
| 1. Set of spanners | 4. Set of drills for concrete | 7. Electric drill |
| 2. Set of slotted and cross screwdrivers | 5. Pliers | 8. Tape measure (folding rule) |
| 3. Set of drills for metal | 6. Hacksaw for metal | |

4.2. REQUIRMENTS TO DOOR INSTALLATION

- Prior to installation check if the door is properly balanced and moves smoothly when automatically operated.
- Make sure, that minimal clearance between the ceiling and the top point, when the door is moving, is not less than 45 mm (pic. 1).
- Check, that the door leaf top roller is in the horizontal part of the guide rail, when the door is completely closed (pic. 2).
- Mount the door control panel at a height not less than 1.5 m close to the door.



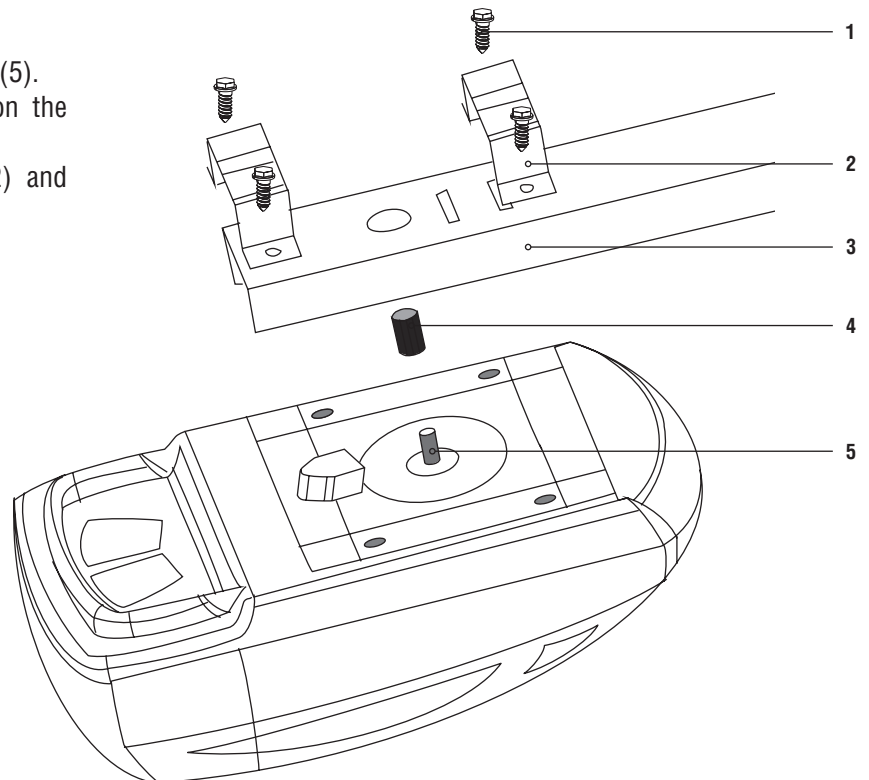
Pic. 1



Pic. 2

4.3. CONNECTION OF OPERATOR AND GUIDE

1. Put the operator bushing (4) on the shaft (5).
2. Insert the operator unit into the hole on the guide (3).
3. Fasten the operator with U-brackets (2) and tapping screws (1).

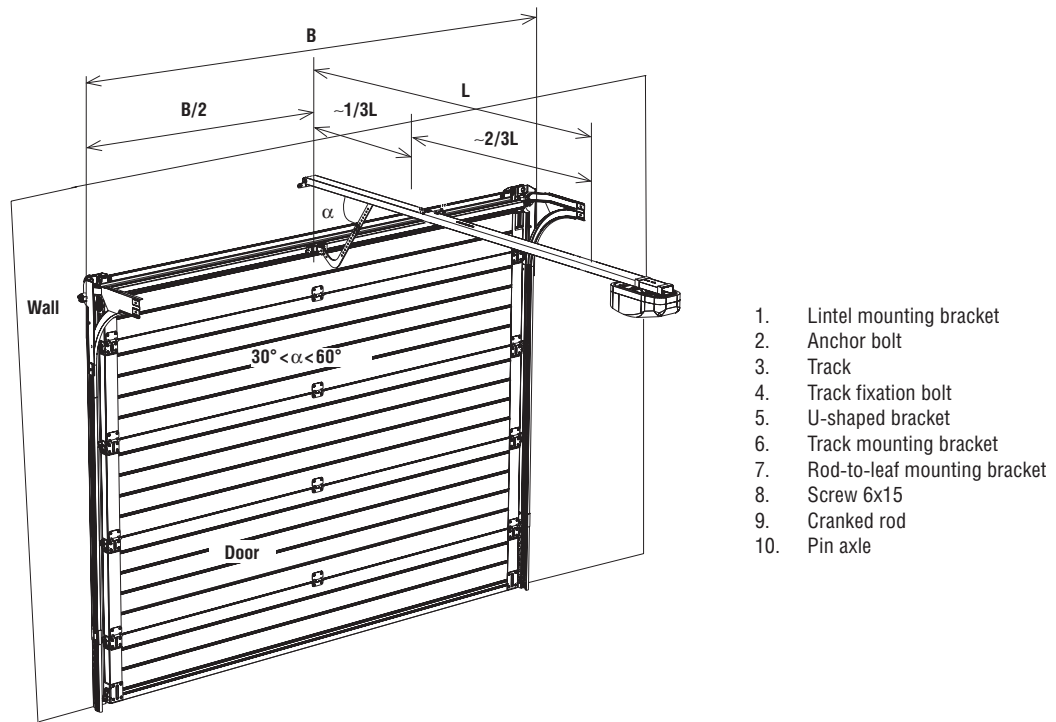


1. Tapping screws
2. U-bracket
3. Guide
4. Bushing
5. Motor shaft

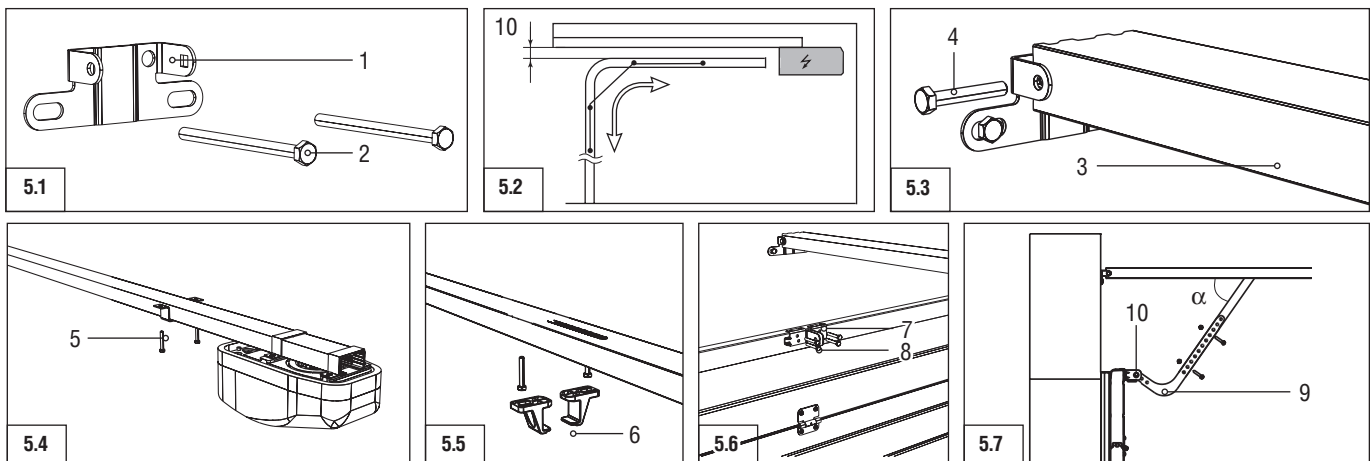
4.4. TRACK INSTALLATION

The operator suspension height is determined by the maximum lift of upper edge of the door leaf. After preliminary assembly (see p. 4.3) you can start to install the track:

1. If it is required to shorten a guide, it is necessary to fulfill operations, described in Appendix 1.
- 1.1. For conducting a guide assembly operation (for modular guides) it is necessary to fulfill operations, described in Appendix 2.
2. You should mark a vertical line, corresponding to the horizontal door centre (fig. 5).
3. You should place a lintel mounting bracket (1) in such a way that the distance from upper edge of the open door leaf to lower edge of the track amounted to minimum 10 mm (fig. 5.2) and fix it to the lintel using self-tapping screws (2) (fig. 5.1).
4. You should fasten the track (3) and the lintel mounting bracket by means of a track fixation bolt (4) (fig. 5.3).
5. You should install a U-shaped bracket (5) on the track approximately at a distance $2/3 L$ and attach it to the ceiling (fig. 5.4).
6. You should install track mounting brackets (6) on the track approximately at a distance $1/3 L$ and attach them to the ceiling (fig. 5.5).
7. You should install a rod-to-leaf mounting bracket (7) in the middle of the upper aluminium profile of the door leaf and fix it using self-tapping screws (8) (fig. 5.6).
8. You should attach a cranked rod (9) to the rod mounting bracket and fix it by means of a pin axle (10) (fig. 5.7). It is allowed not to mount the cranked rod, if α angle is observed.



Pic. 5



5. ELECTRICAL CONNECTIONS

5.1. SE-500 MODEL

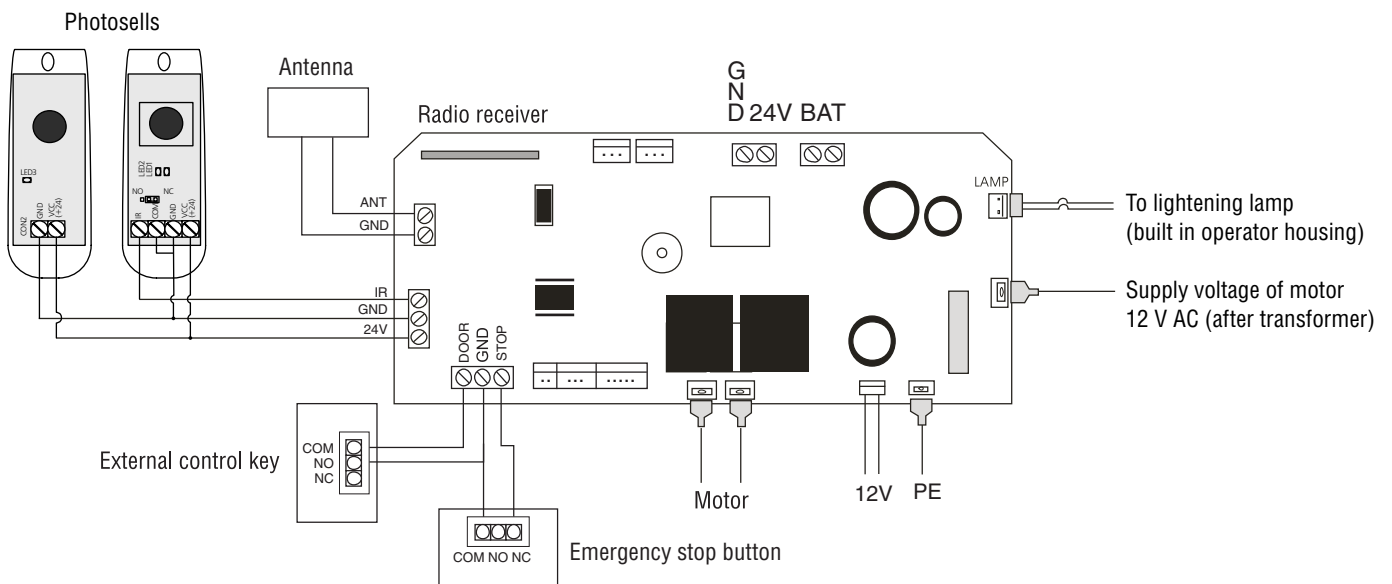
Control block specifications

Parameters	Characteristics
Power supply	180-240 V/50 Hz
Power supply of accessories	24 V DC
Maximal current of accessories	200 mA
Working temperature range	-20...+55 °C
Radio control frequency	433 MHz
Operating logics	Automatic/Semi-automatic
Connectors	Open button/Safety devices
Lamp turn-on time	3 min
Fuse type	Quick, cutoff fuse, 230 V, 2.5 A, SR F2,5A

Control block wiring diagram

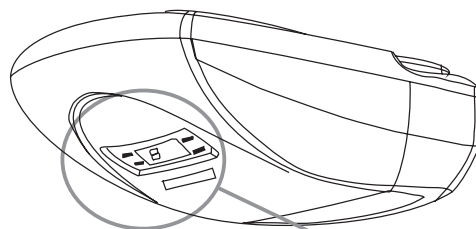


WARNING! The cable wires must be protected from contact with any rough or sharp parts. All connections shall be made only when power is off.

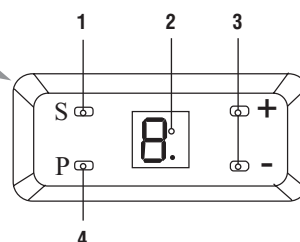


Operator programming

OPERATOR CONTROL KEYS



1. Radio code record button — "S"
2. Display
3. Setting selection buttons — "+", "-"
4. Programming button — "P"



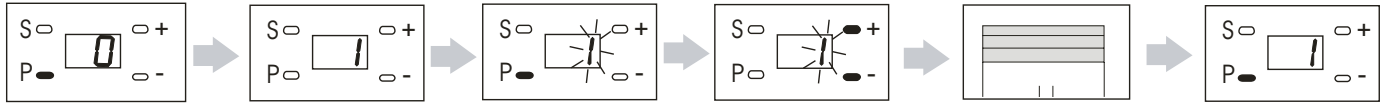
Preparation

Block the carriage.

Turn on power, the indicator of the operator will light, sound signal will be heard.

If programming has not been completed, the settings will not be stored. If there is a mistake in one of the settings, you can turn off power and reprogram.

UPPER DOOR POSITION



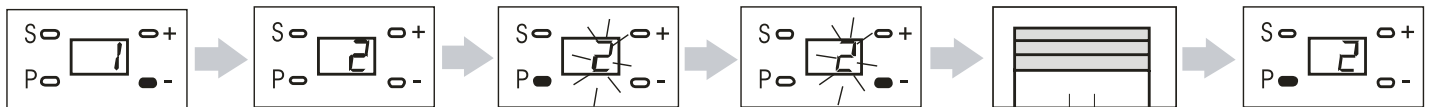
Press and hold the key "P" for about 5 sec

After the sound signal you'll see "1" on the display

Press "P", the "1" will blink

Pressing "+" for opening or "-" for closing of the door, put the leaf in the required opening position and press the "P" for storing

A setting will be stored only when you program the UPPER door position. The upper position shall be programmed before setting of the lower door position.



Press the "-"

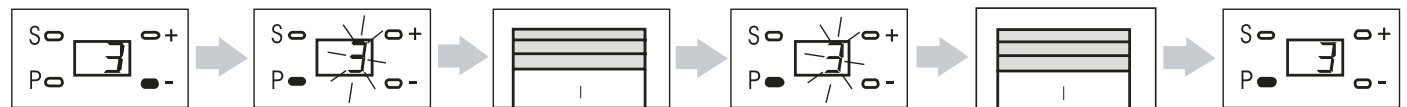
The "2" will light

Press the "P" and the "2" will blink

Pressing "+" for opening or "-" for closing of the door, put the leaf in the required closing position and press the "P" for storing

A setting will be stored only when you program the LOWER door position.

AUTOMATIC FORCE SETUP



Press the "-" and the "3" will light

Press the "P" and the "3" will blink

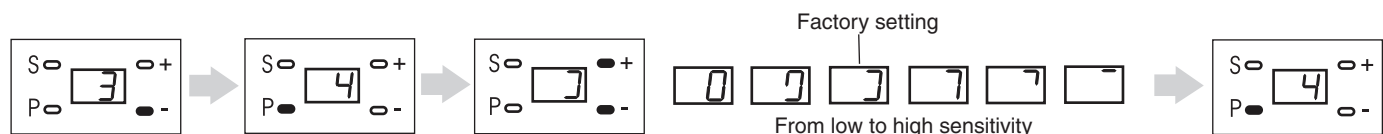
The leaf will move up automatically

After the door stops in open position, press the "P", press the "P" again and the leaf will start to close, after it stops, press the "P" for storing

After the automatic force setup is performed, programming can be completed, as all other parameters have factory settings. To finish programming, pressing the "+", select the menu "1", press "P" and hold it unless the "0" appears on the display.

FORCE LIMIT SETUP

The operator has a default setting of sensitivity level 4. Usually the user doesn't need to change this setting.



Press the "-"

"4" will light up, you should press "P" again

By pressing "-", you should set the required sensitivity on the assumption that the more dots are displayed, the less force sensitivity

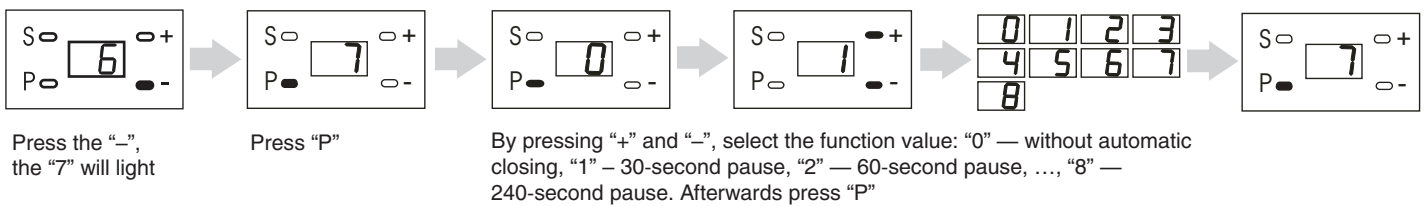
Factory setting

From low to high sensitivity

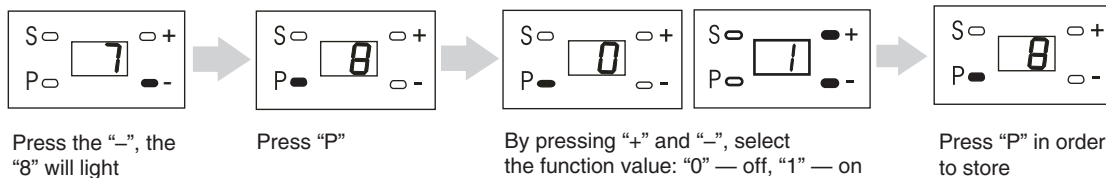
Door operation can fail, if the set sensitivity is too high.

You should press "P" to store the information

PAUSE TIME SETUP

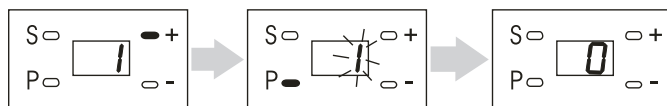


ALARM ACTUATION AFTER 2000 CYCLES



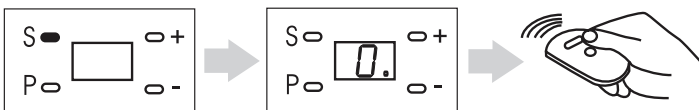
TO FINISH PROGRAMMING

Pressing the “+”, select “1”. Press and hold “P” for 5 seconds. The number “0” will appear on the display. Programming is over.



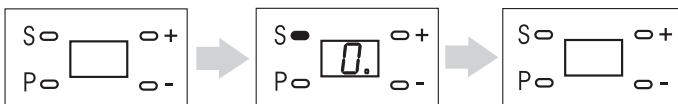
Remote control programming

TO ADD A REMOTE CONTROL



- 1) You should press and hold down the button “S”, until the indicator (dot) at the bottom of the display lights up. Release the button.
- 2) Select the button on the control panel, with the help of which you will control the operator’s work, and double press it.
- 3) Repeat operations for other panels (maximum quantity — 16 pc.).

TO ERASE A REMOTE CONTROL



To delete panels from the receiver memory, press and hold down the button “S” for 8–10 seconds, until the indicator (dot) at the bottom of the display goes out, and the short sound signal is heard.

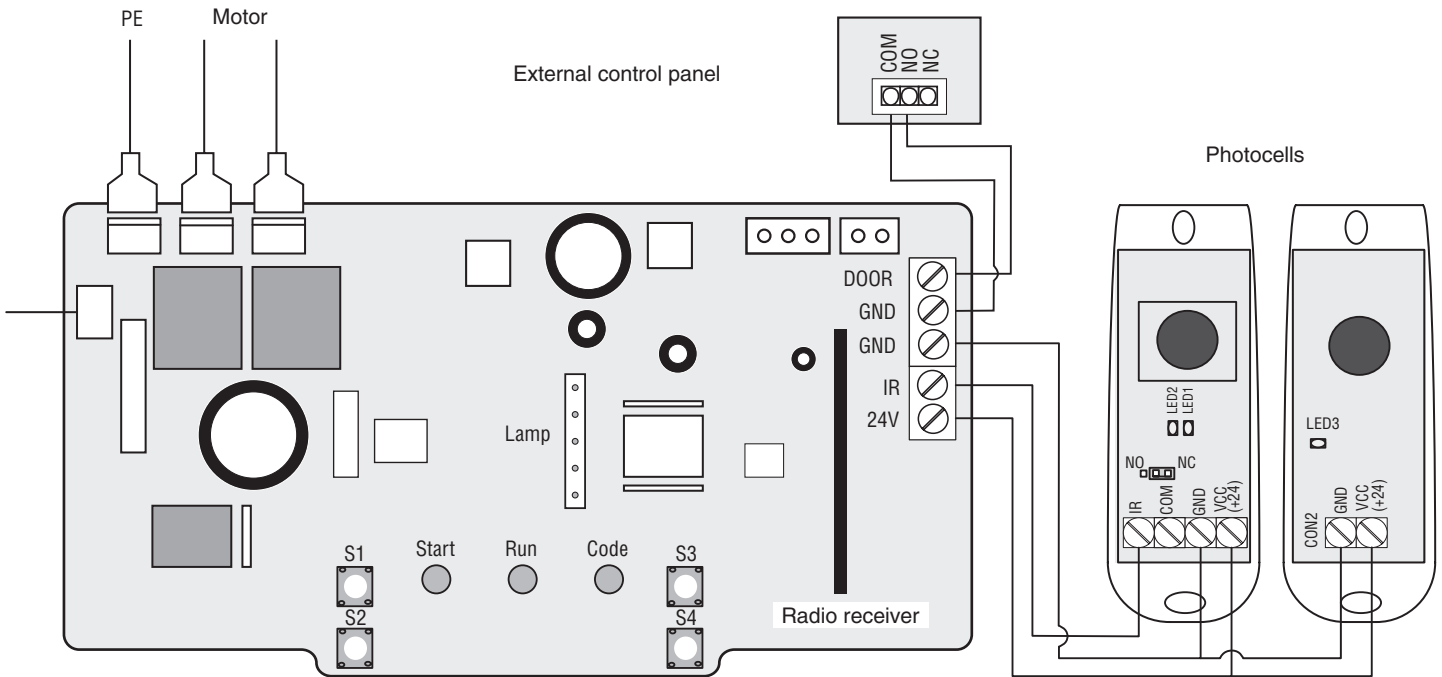
5.2. SE-DIY-500 MODEL

WARNING! The cable wires must be protected from contact with any rough or sharp parts. All connections shall be made only when power is off.

Control block specifications

Parameters	Units
Power supply, V/Hz	230/50
Power supply of accessories, V dc	24
Maximal current of accessories, mA	200
Working temperature range, °C	-20...+55
Radio control frequency, MHz	433
Operating logics	Automatic/Semi-automatic
Connectors	Open button/Safety devices
Lamp turn-on time (min)	3
Fuse type	Quick, cutoff fuse, 230 V, 2.5 A, SR F2,5 A

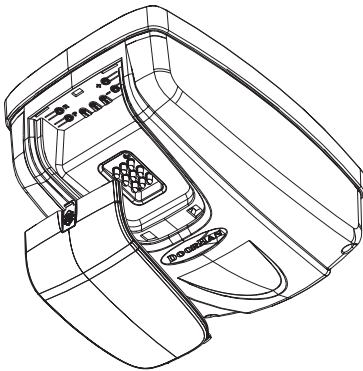
Control block wiring diagram



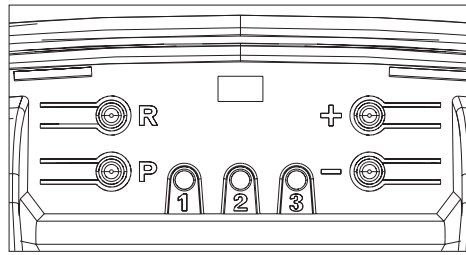
WARNING! If no photocells are installed set a jumper between terminals IR and GND.

Operator programming

Open the lamp housing to reach key panel.



OPERATOR KEY PANEL



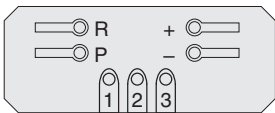
“P” — programming key
 “R” — remote control storing key
 “+” and “-” — setting keys
 Indicators “1”, “2”, “3” — show the settings

PREPARATION

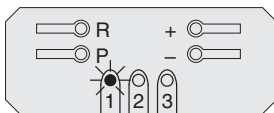
Block the carriage.

If programming has not been completed, the settings will not be stored. If there is a mistake in one of the settings, you can turn off power and reprogram.

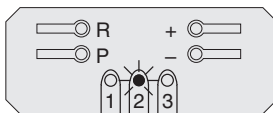
UPPER AND LOWER DOOR POSITIONS



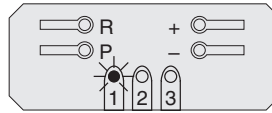
Press and hold down the button “P” for about 5 seconds



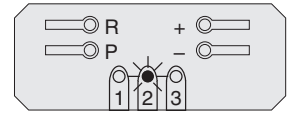
Indicator “1” will flash. Release the button. By pressing “+” and “-”, set the leaf into the required upper position



Press “P” for going into the next mode. Indicator “2” will flash. By pressing “+” and “-”, set the leaf into the required lower position



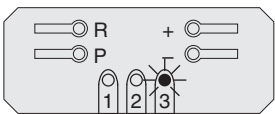
Press “P”. Indicator “1” will flash. The doors will automatically open



After the doors are open, indicator “2” will flash and the doors will automatically close. LED lamp will light up, this means the end of programming

After that programming may be completed.

FORCE SETTING



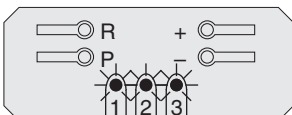
Press and hold down the buttons “P” and “R” simultaneously, indicator 3 will flash.

By pressing “+” and “-”, set the force level:

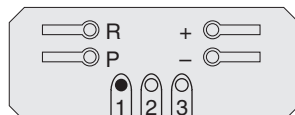
- 1 flash means the first force level;
- 2 flashes mean the second force level;
- 3 flashes mean the third force level.

Press the button “P” in order to store and to exit the force menu, otherwise you will automatically exit the setting mode in 15 seconds. The settings will be stored by default.

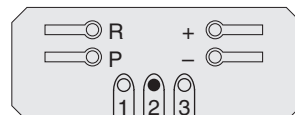
AUTOMATIC CLOSING SETUP



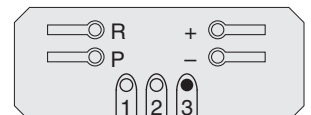
Open the door. Press and hold the “+”. Indicators “1”, “2”, “3” will start blinking. Automatic closing is switched off. Release the “+”



Use the “+” to choose one of the automatic closing modes. Press the “+” one time to choose automatic closing in 30 sec, indicator “1” will glow steadily



Press the “+” twice to choose automatic closing in 60 sec, indicator “2” will glow steadily



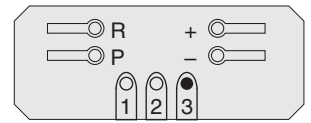
Press the “+” three times to choose automatic closing in 90 sec, indicator “3” will glow steadily

Wait for the indicators to go out and LED-lamp to light to exit the programming menu.

Remote control programming

TO ADD A REMOTE CONTROL

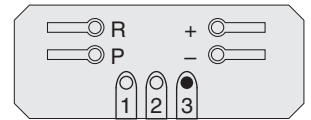
To store a remote control code, press and hold the “R” for 3 seconds. Indicator “3” will glow. Release the button. Press twice the button on the remote control that you wish to operate your garage door, indicator “3” will go out, meaning that the remote control code has been added. If no control commands are given, the system will automatically exit from the waiting mode in 10 seconds.



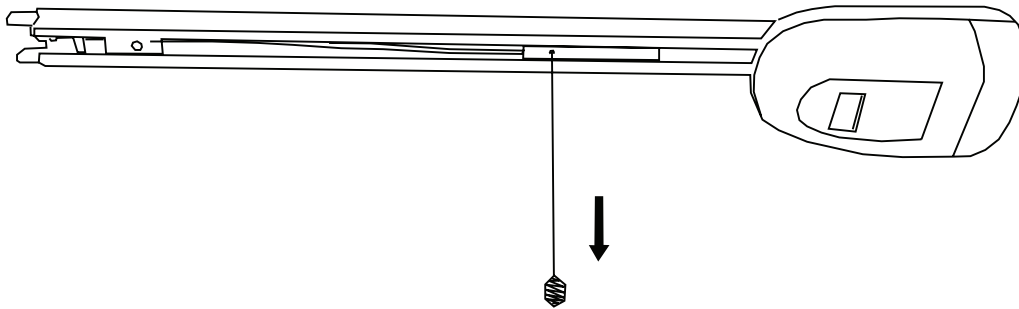
To add several remote controls, repeat the procedure of code storing for each remote control. You can add 16 remote controls.

TO ERASE A REMOTE CONTROL

When power is on, press and hold for 10 seconds the “R” key. Indicator “3” will glow for 10 seconds and then go out, meaning that all remote control codes are erased.



6. MANUAL OPENING



In case of power cut:

1. Check the carriage (if it is unblocked or blocked).
2. If the carriage is blocked, pull carefully the cord to release the operator:
 - the carriage is released and the cord is in tension;
 - release the cord and the carriage will be engaged automatically.

 **IMPORTANT!** When the carriage is blocked, the door will move automatically only after the carriage meshes with the chain support.

7. MAINTENANCE

- The Sectional-500/DIY-500 automatic system does not require any special servicing.
- Repairs may be carried out only by a qualified technician trained and certified at an authorized DoorHan centre.
- Be sure that after completion of installation the installer has shown the user how to release the door in case of emergency and has given instructions on proper operation and maintenance of the automated system.
- When carrying out maintenance, it is recommended to use DoorHan original spare parts.
- Carry out maintenance of the automatic system at least every six months.
- Regularly check if the door is properly balanced and moves smoothly when automatically operated.
- Regularly check if the safety devices are in good working condition.
- In case of power failure you may need to restore operator’s settings. Once the power supply is restored, check the automatic system for proper operation. If the operator settings have changed reprogram them following the instructions given in the corresponding paragraph of this manual.
- In case of power failure the door will stop. As soon as power supply is restored you can control the operator as usual.
- After expiration of life time, the item shall be delivered in a specialized disposal point!

- If you have lost this Manual, you may request for the duplicate copy to the following address: Kralovsky VRCH 2018, Kadan, 43201, Czech Republic, or by email: europe@doorhan.com.
- The producer (DoorHan) does not supervise the installation of operators, or carry out their maintenance, thus DoorHan cannot be held liable for safety of installation, operation and maintenance of the equipment.

8. TROUBLESHOOTING

Symptom	Possible reason	Possible solution
Operator does not run	1. No power 2. Fuse is broken	1. Turn on the power 2. Replace the fuse
Remote control does not run	Remote control is not entered. Remote control battery is discharged	Re-entry the remote control Replace the battery
Remote control actuation distance is too small	Remote control battery is discharged	Replace the battery
Chain moves and door does not move	Carriage is disengaged and is not meshed with chain support	Engage the carriage. Connect it to chain support
Door does not reach end positions or does not work	Programming error	Reprogram the door
Noise when operator runs	Chain is not properly lubricated	Lubricate the chain
Chain makes noise and rubs against the guide	Chain has stretched	Tighten the chain using chain tension screw, lubricate the gear wheel
The doors have suddenly stopped, "F" indicator is on	The doors ran into obstacle, or mechanics is blocked	Check the door mechanics, remove the obstacle

APPENDIX 1

GUIDE ASSEMBLY PROCEDURE

Unpack a guide and inspect it. Make sure that the guide is not damaged. If you have found any damages, please contact the supplier (fig. 1).

1.

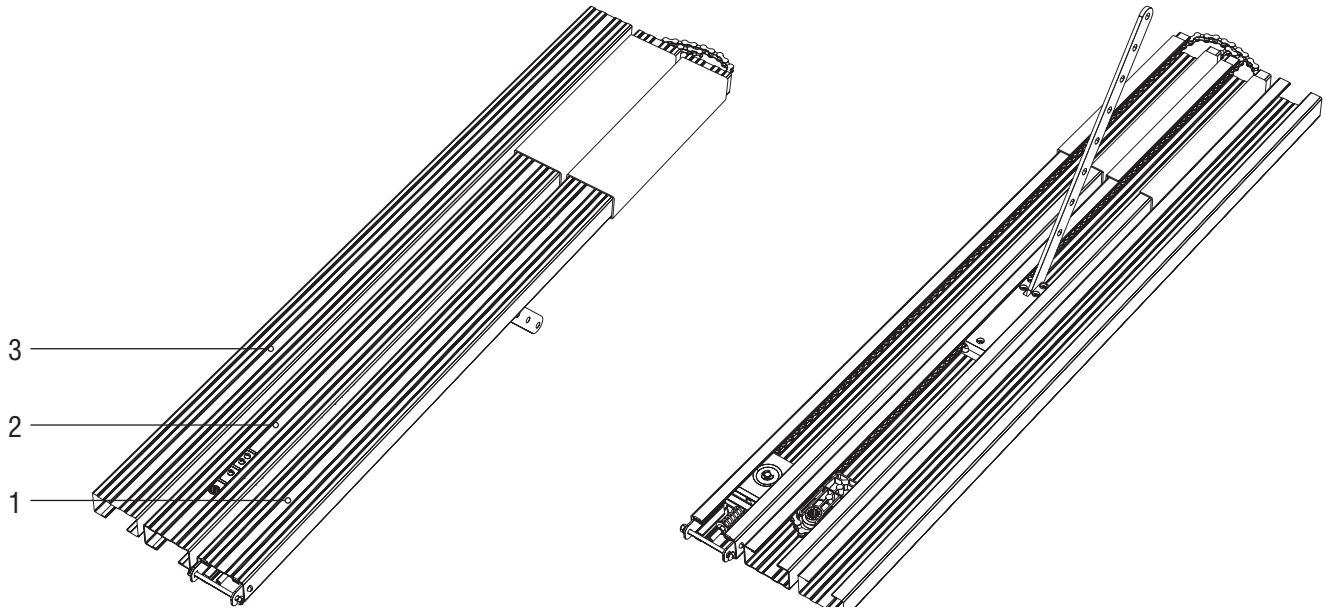


Figure 1

2. Place structure elements 1, 2, 3 along one line as in (fig. 2).

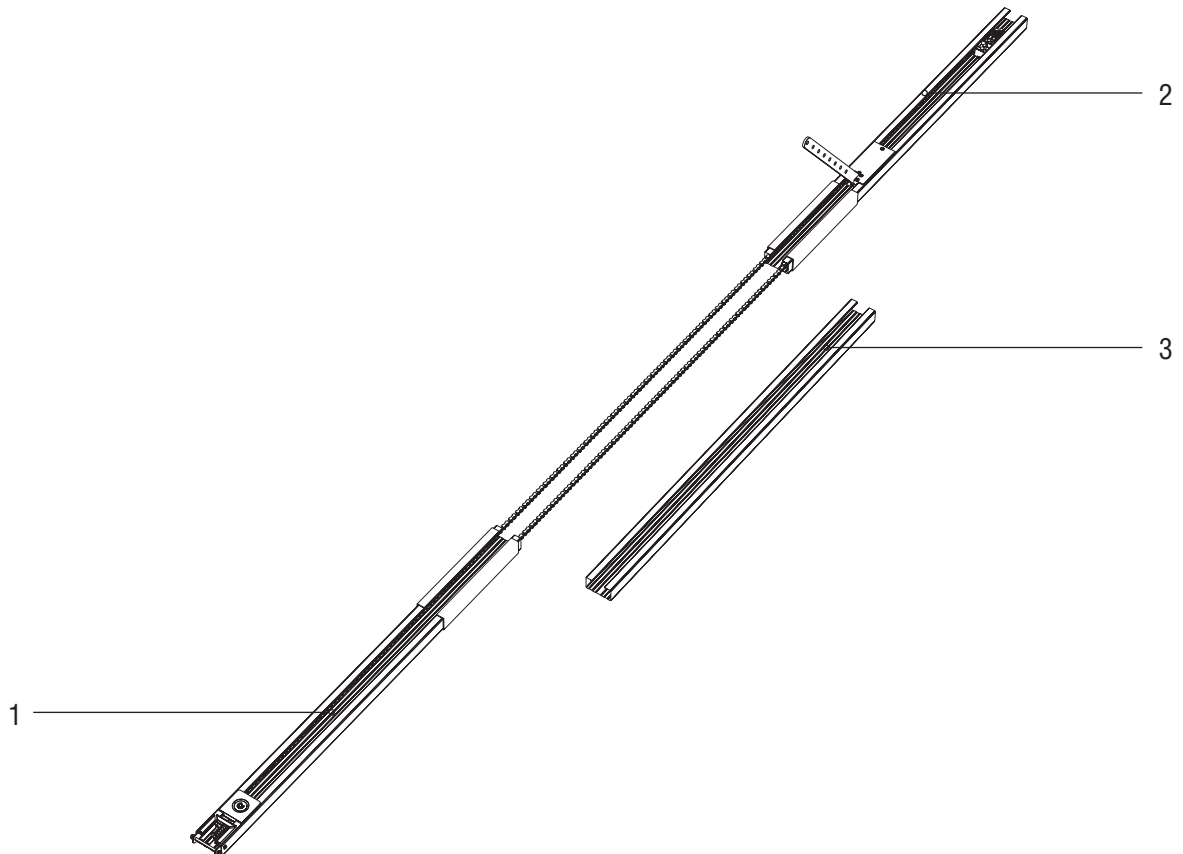


Figure 2

3. Connect three elements 1, 2, 3 using clamps 4, moving them along the guide (fig. 3).

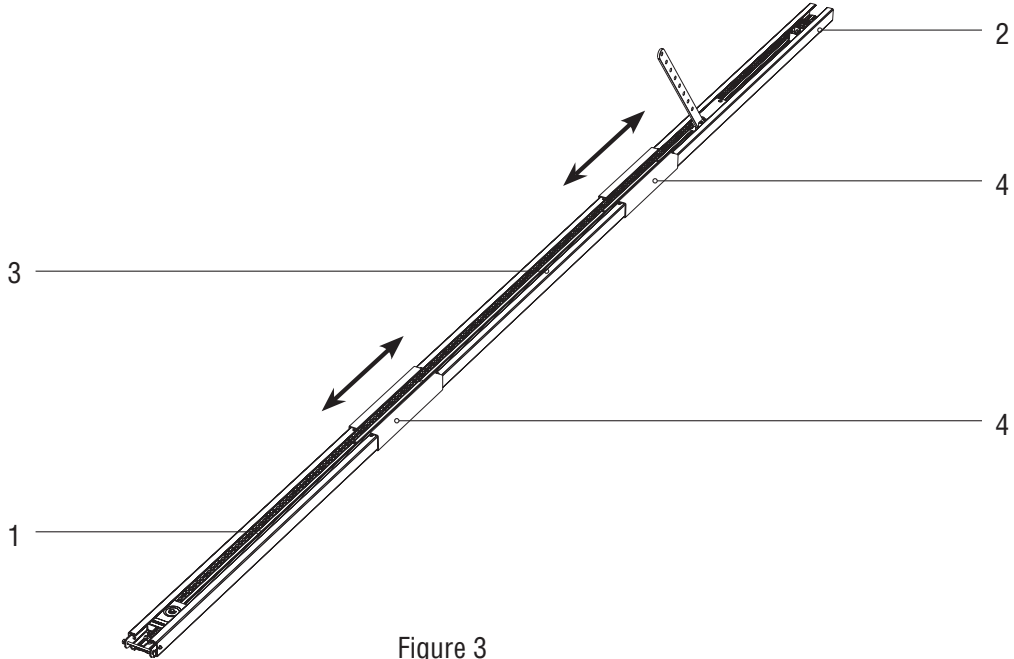


Figure 3

4. Fix clamps 4 by means of a clamp lock 5 (fig. 4).

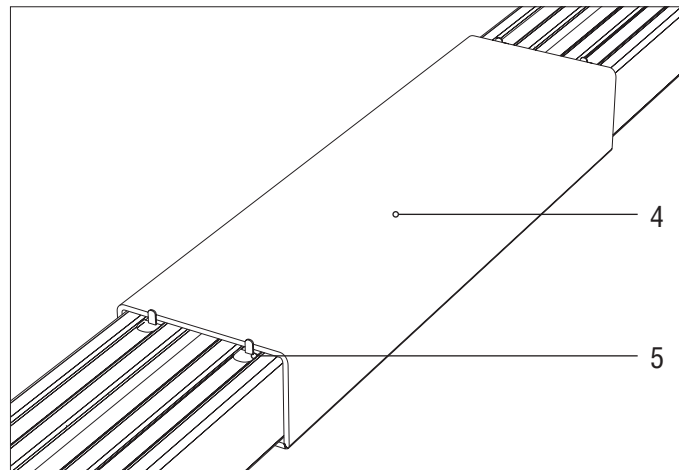


Figure 4

5. Tighten a belt using a belt tensioner 6 (fig. 5) in such a way that the distance between teeth is equal to not less than 0.5cm when the belt is pressed down.



ATTENTION! During start-up and slowdown stages in case of big doors the belt can transiently slack in relation to a tire section. However, this phenomenon does not have any negative consequences in a technical sense, and does not have any adverse effect on operation of the drive and its service life.

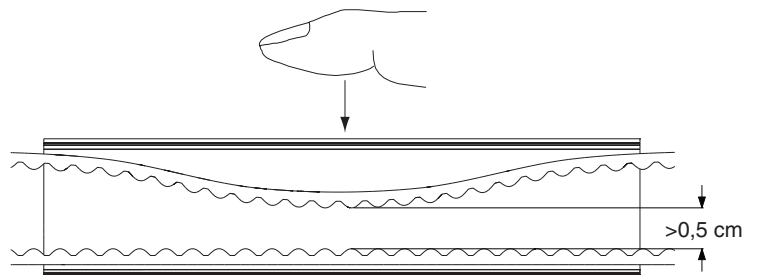
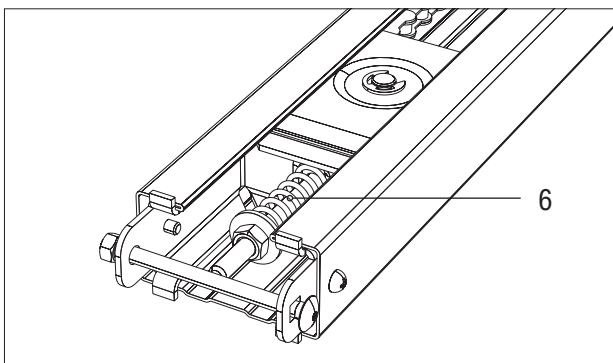


Figure 5

APPENDIX 2

GUIDE CUTTING

1. Unpack a guide and inspect it. Make sure that the guide is not damaged. If you have found any damages, please contact the supplier.
2. Disassemble a chain tensioner mechanism, pos. 1 (fig. 1).

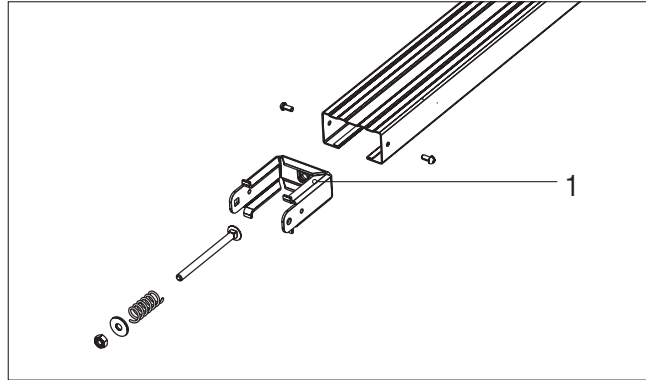


Figure 1

3. Unfasten screws of a sprocket holder, pos. 2 (fig. 2).

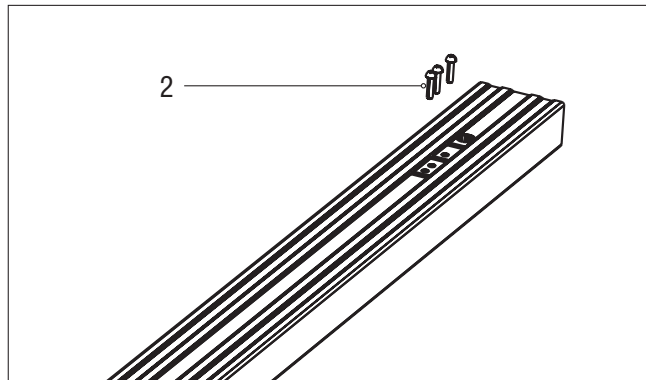


Figure 2

4. Remove a chain with a carriage mechanism, pos. 3 (fig. 3).

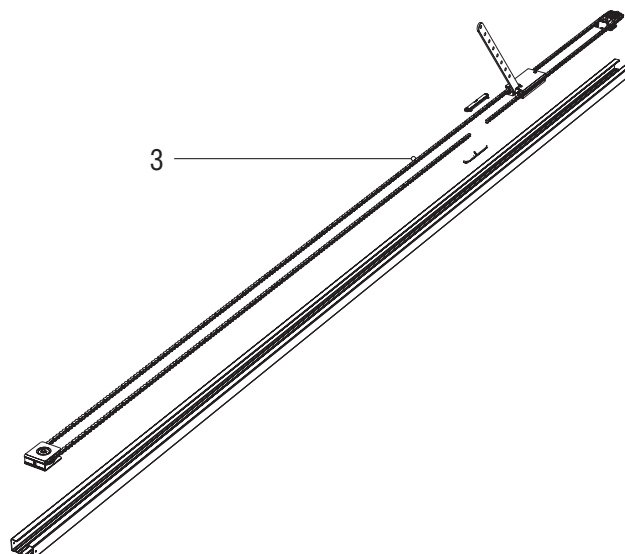


Figure 3

5. Disassemble a support, pos. 4, into two parts (fig. 4).

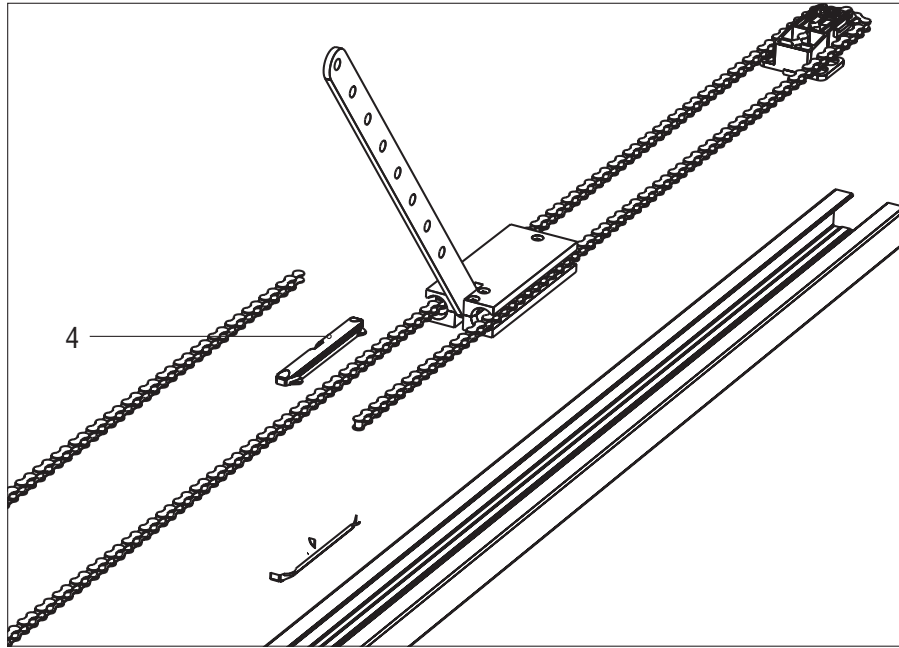


Figure 4

6. Cut the guide and shorten the chain to the required dimensions (fig. 5).

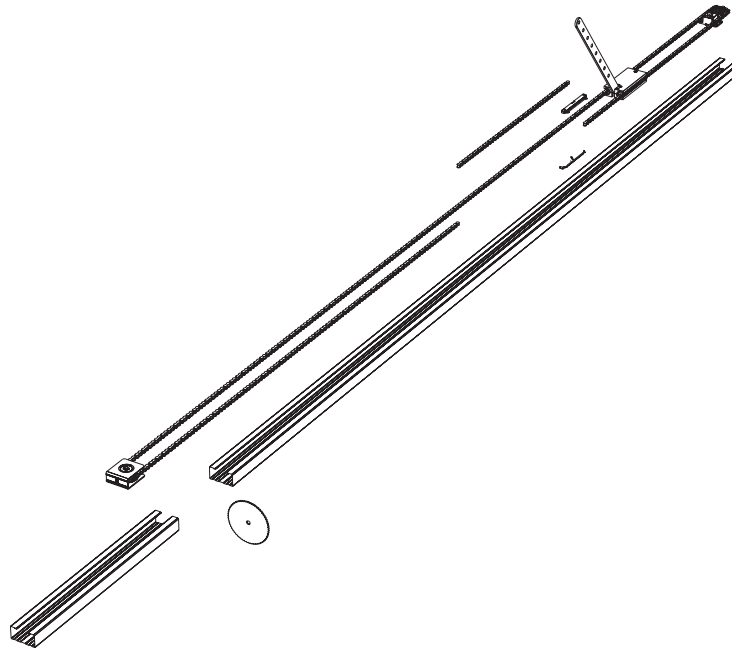


Figure 5

7. After cutting assemble the guide in reverse order.



We very much appreciate that you have chosen the product manufactured by our company and believe that you will be satisfied with its quality.

For information on purchasing, distribution and servicing
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