

# ***DoorHAN®***

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# **OPERATOR**

**SECTIONAL-750/1000/1200/FAST-750**



Installation and Operating Manual

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## 1. GENERAL INFORMATION

The Sectional-750/1000/1200/Fast-750 electromechanical chain operator is designed for automation of residential sectional doors.

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.

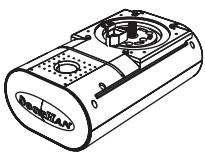



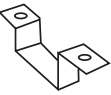
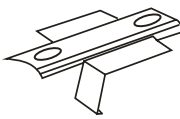
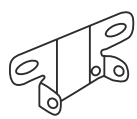
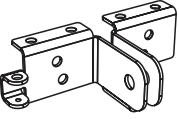
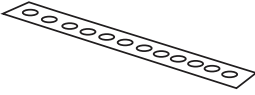


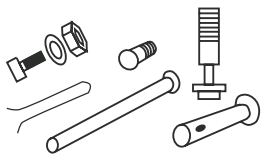
## 1.1. Specifications

Parameters	Sectional-750/FAST-750		Sectional-1000	Sectional-1200
Power voltage	180–240 V			
Current frequency	50 Hz			
Motor voltage	24 V (DC)			
Max. power consumption	150 W	250 W		300 W
Max. force	750 N	1 000 N		1 200 N
Use type	Intermittent operational mode - 5 minutes			
Light lamp	230 V / 25 W max.			
Lamp socket type	E14			
Lamp shutdown time	300 sec.			
Basic carriage rate	0,1/0,18 m/sec	0,1 m/sec		
Door width, max.	5 000 mm			
Door height, max.	Depending on the guide used			
Door area, recommended	<10 m²	<13,5 m²		<16 m²
IP rating (for dry locations)	IP20			
Working temperature range	–20...+55 °C			
Fuse type	Power fuse 1: 2.5a; lamp fuse 2: 2.5a: Sr F2.5a (fast)			
Transmitter frequency/range	433 MHz/up to 50 m (in open field)			
Guide type	Chain/belt	Chain		

## 1.2. Operator package

When you receive your Sectional-750/1000/1200/Fast-750 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.

<b>Electric operator</b> 	<b>Operating manual</b> 	<b>Guide</b> 	<b>Curved arm</b> 	<b>U-shaped bracket</b> 
<b>Guide fastening bracket</b> 	<b>Headroom bracket</b> 	<b>Straight arm fastening bracket</b> 	<b>Mounting bracket to the ceiling</b> 	<b>Slotted bushing</b> 
<b>Remote control</b> 	<b>Fastening set</b> 			

Nº	Name	Quantity	Nº	Name	Quantity
1	Electric operator	1	7	Headroom bracket	1
2	Operating manual	1	8	Straight arm fastening bracket	1
3	Guide	1	9	Mounting bracket to the ceiling	2
4	Curved arm	1	10	Slotted bushing	1
5	U-shaped bracket	3	11	Remote control	1
6	Guide fastening bracket	1	12	Fastening set	1

### 1.3. TRACK

Guide model	Guide length, L	Travel	Opening height
SK-3600 (chain)	3 620	2 800	≤ 2 800
SK-4200 (chain)	4 220	3 400	≤ 3 400
SK-4600 (chain)	4 620	3 800	≤ 3 800
PK-3600 (belt), option	3 620	2 800	≤ 2 800
PK-4600 (belt), option	4 620	3 800	≤ 3 800

## 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-750/1000/1200/Fast-750 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.
- The Installation and configuration of the actuator must only be carried out by qualified specialists.
- After installing the drive, test force according to standards EN 12445 and EN 12453.



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



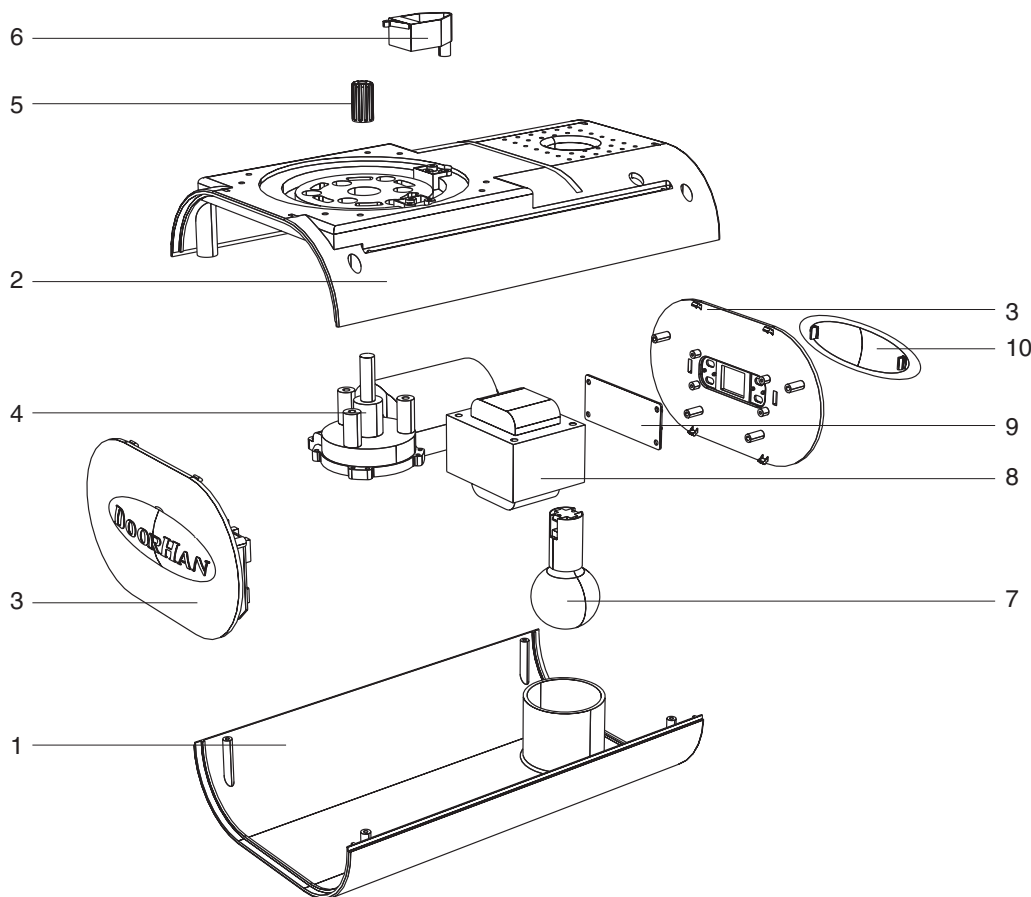
**WARNING! RISK OF INJURY!**

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-750/1000/1200/Fast-750 operator and accessories (if available):**

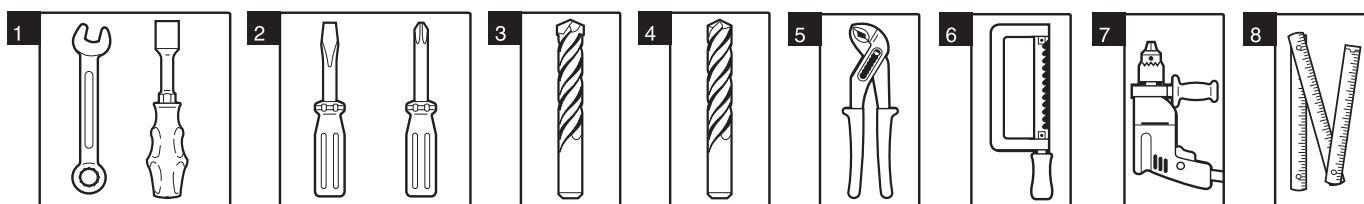
- Cable 2×0.5 mm<sup>2</sup> (photocell transmitter).
- Cable 4×0.5 mm<sup>2</sup> (photocell receiver).
- Cable 3×1.5 mm<sup>2</sup> (power supply).
- The cables should be appropriately insulated.

### 3. OPERATOR UNIT



1. Low housing cover
2. Top housing cover
3. Panel cover
4. Gearmotor
5. Bushing
6. Microswitch
7. Light lamp
8. Transformer
9. Control board
10. Protective cover

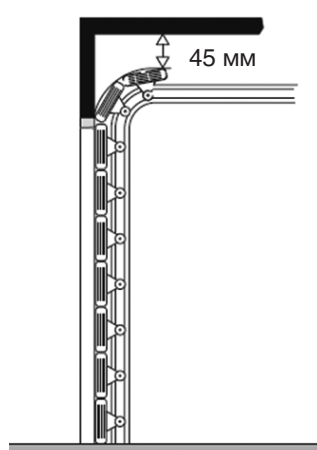
## 4. OPERATOR INSTALLATION



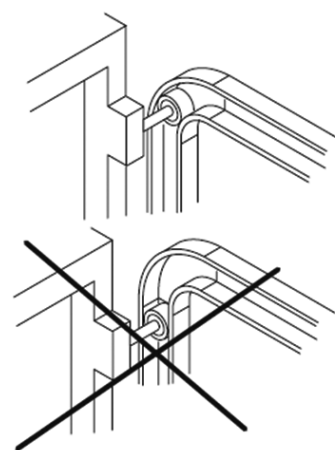
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|--|-------------------------------|--------------------------------|
| 1. Set of spanners                       | 4. Set of drills for concrete | 7. Electric drill              |
| 2. Set of slotted and cross screwdrivers | 5. Pliers                     | 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).



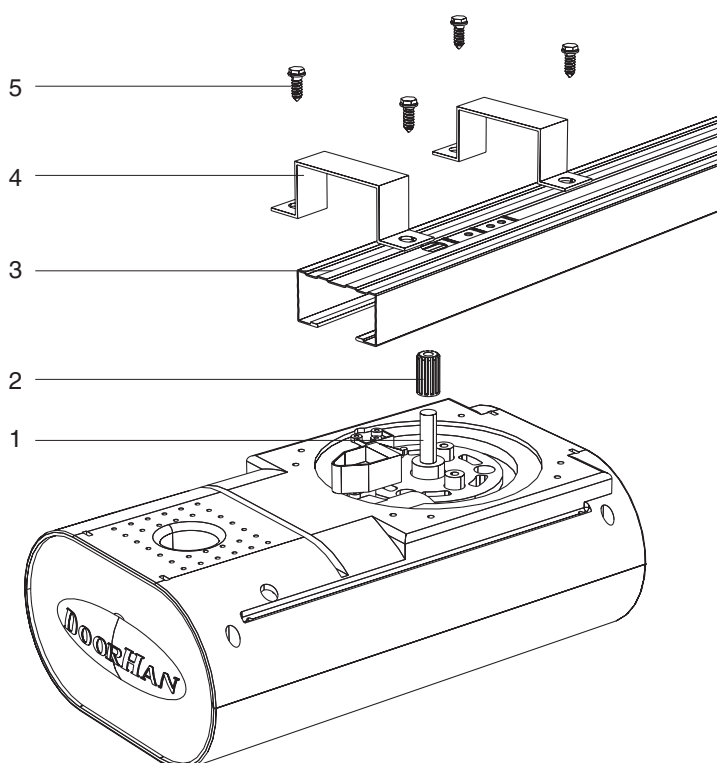
Pic. 1



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).

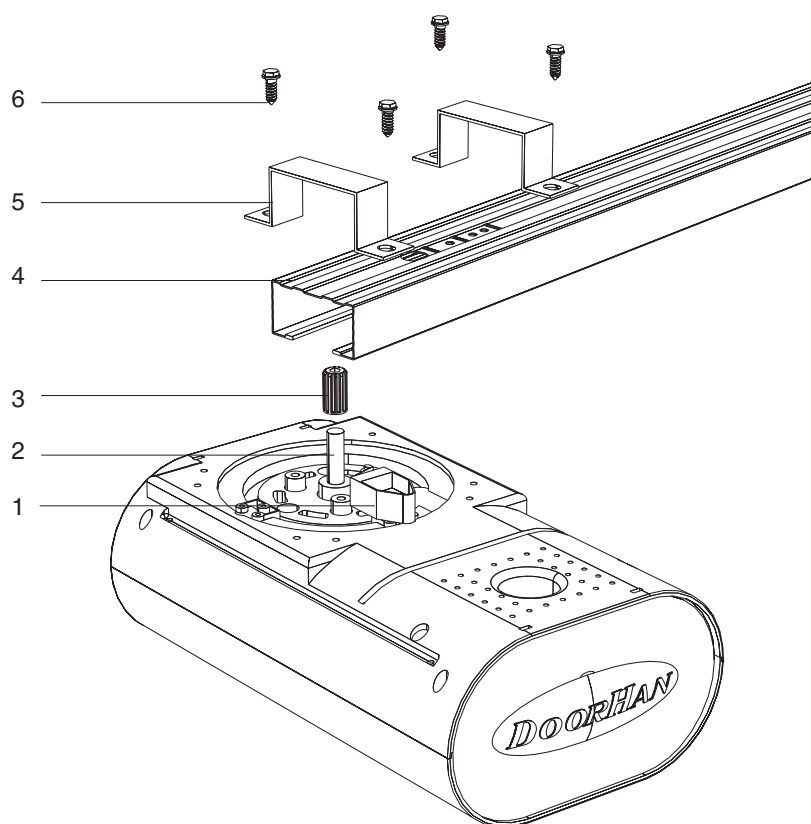


1. Motor shaft
2. Bushing
3. Guide
4. U-bracket
5. Tapping screws

**NON-STANDARD INSTALLATION**

1. When doing a non-standard installation of the operator (at an angle of 90°), the microswitch must be moved to a special place. To do this:
  - a) Disconnect the bottom cover of the housing and disconnect the microswitch contact of the board.
  - b) Disconnect the microswitch of the top housing cover.
  - c) Squeeze in the new microswitch location the plug out of the hole and pull through it the microswitch contact and connect it to the board.
  - d) Secure the microswitch (1) on the top housing cover with the help of self-drilling screws.
  - e) Mount the body of the operator.
2. Install the splined bushing (3) on the motor shaft (2).
3. Insert the motor (2) in the guide hole (4).
4. Secure the motor by means of U-brackets (5) and self-drilling screws (6).

1. Microswitch
2. Motor shaft
3. Splined bushing
4. Guide
5. U-bracket
6. 6 x 15 self-drilling screws



#### 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.
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  $\alpha$  angle is observed.

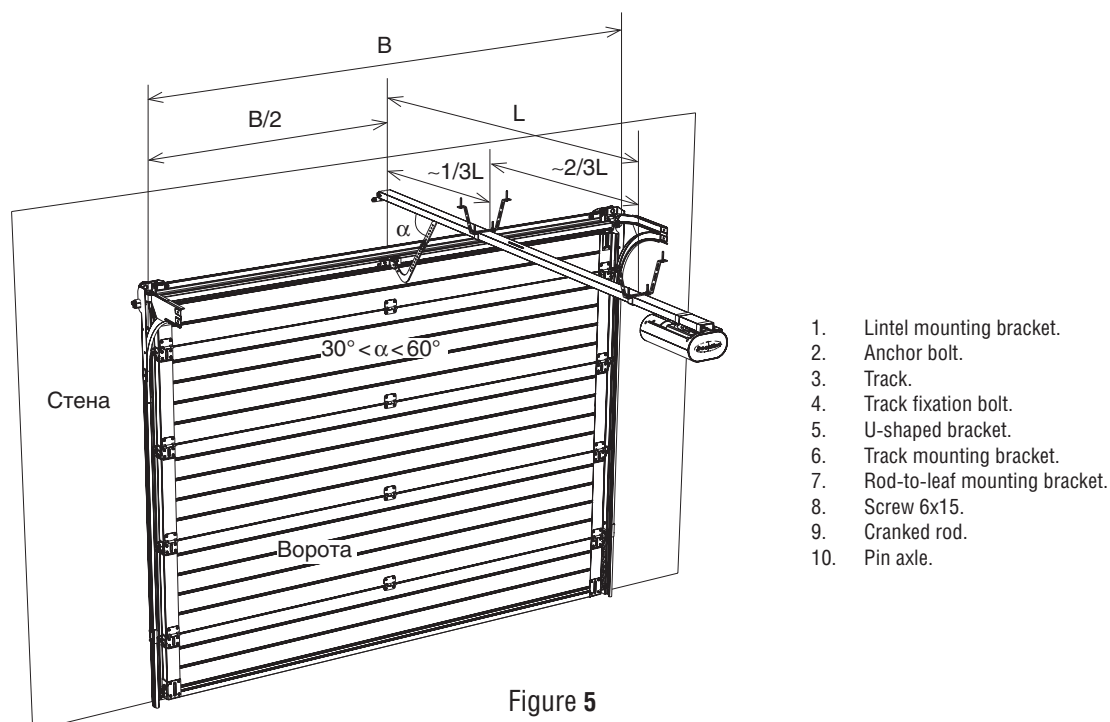
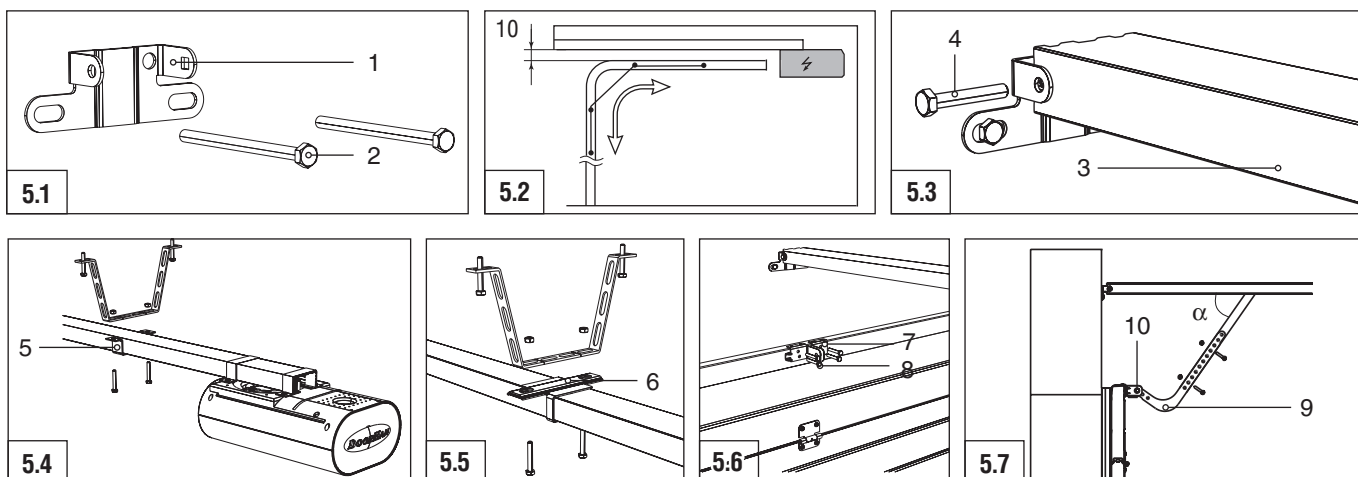


Figure 5





## 5. ELECTRICAL CONNECTIONS

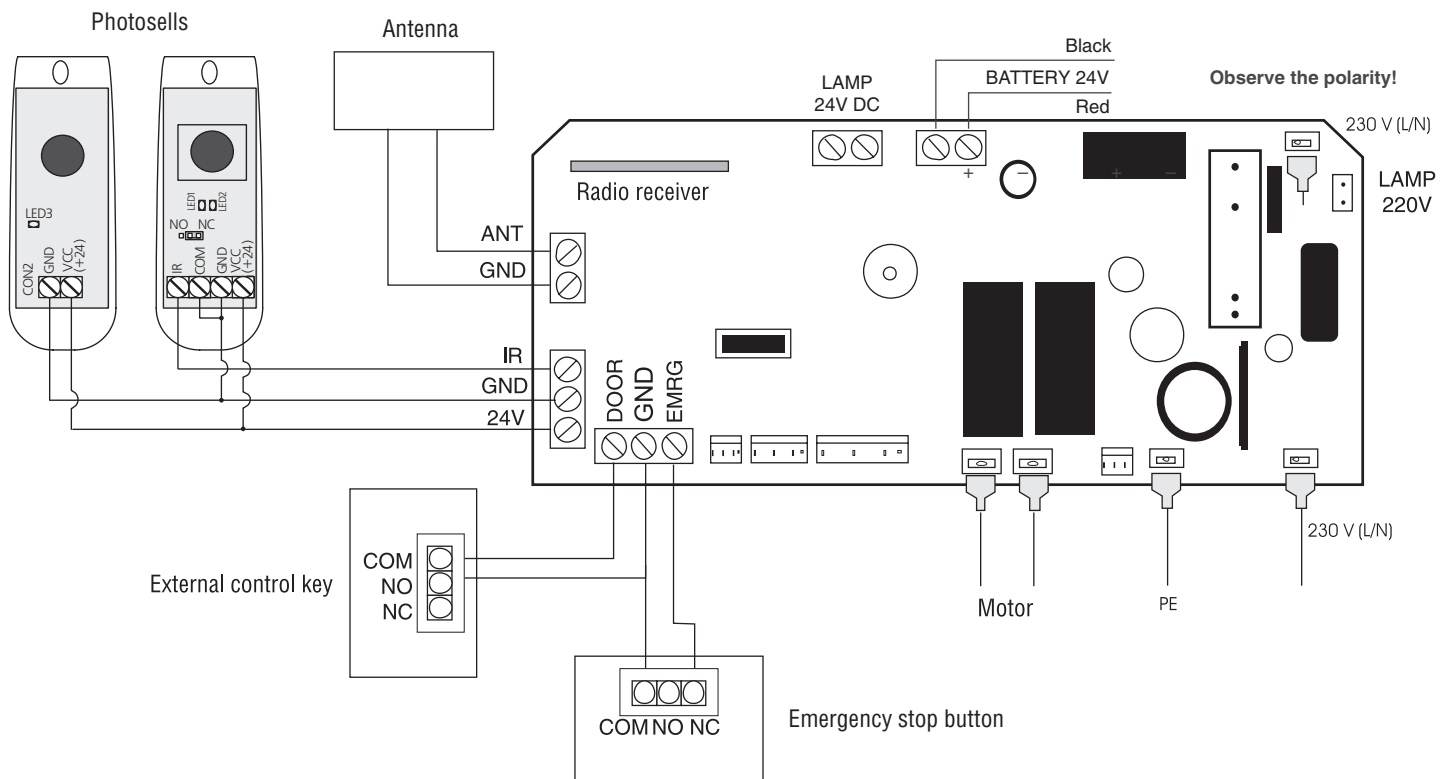
### 5.1. Control block technical specifications

Parameters	Specifications
Power voltage	180–240 V / 50 Hz
Accessories power voltage	24 V DC
Accessories max. current	200 mA
Working temperature range	–20...+55°C
Radio control frequency	433 MHz
Operating logics	Automatic/semiautomatic
Connecting sockets	Open button / safety device
Lamp lighting time	3 min
Fuse type	Fast, fusible, 230 V, 2,5 a, Sr F2,5a

### 5.2. 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.



### 5.3. Photocell installation (option)

#### INSTALLATION

- It is recommended to install photocells at a height of not less than 20 cm and not more than 2 m.
- The photocells must be installed vertically and parallel to each other (see Fig. 6).
- The first to be installed and connected is the receiver, and after that - the transmitter.
- Move the transmitter when installing, till the photocells become parallel to each other. In this case, the receiver turn-off lamp will turn off, then fasten the transmitter.
- The installation is complete.

#### CARE AND MAINTENANCE

- Due to propagation properties of infrared radiation, an incorrect function of the system is possible at a small distance between the transmitter and the receiver. The distance between them should be at least 1 meter. If the receiver sensitivity at a small distance between the transmitter and the receiver is insufficient, remove the lens of the receiver in order to increase its sensitivity.
- Avoid direct sunlight!
- Select the desired mode of the photocells with respect to the control contacts: NO (normally open) or NC (normally closed). If necessary, change the jumper position NO / NC.
- For steady work, the maximum distance between the photocells must not exceed 25 m. In bad weather (fog, rain, etc.) the coverage may be reduced by 30%

#### OPERATIONAL RECOMMENDATIONS

- Keep photocells clean; if necessary, wipe the front of the sensors from dust and dirt.
- At least once a month, check the correct operation of the photocells (in presence of obstacles between the photocells, the gates should be left open during the commands and when closing the gate, they have to go to reverse or stop)!
- Install a jumper on the photodetector for work with the NC (normally closed) contacts.

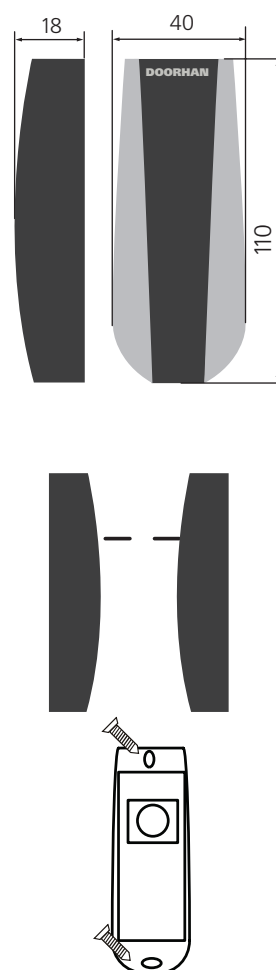


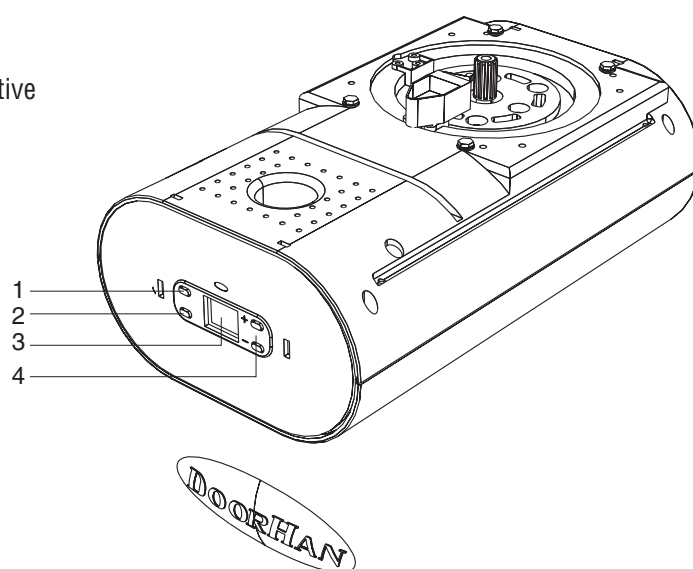
Figure 6

## 6. OPERATOR PROGRAMMING

### 6.1. Operator control keys

To gain access to the panel programming, remove the protective cover with the logo DoorHan.

1. Radio code recording button — «R»
2. Programming button — «P»
3. Display unit
4. Setting buttons — «+», «-»



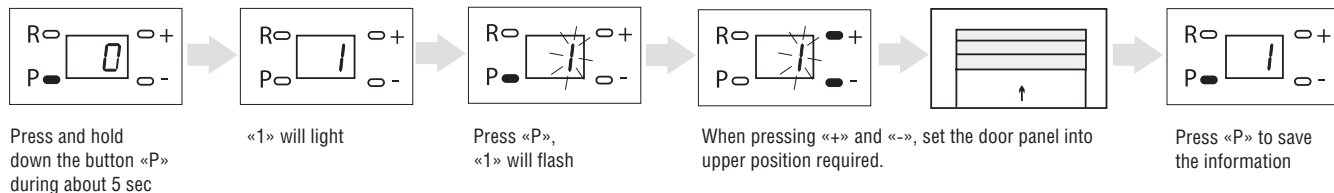
## 6.2. Preparation

Block the carriage.

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

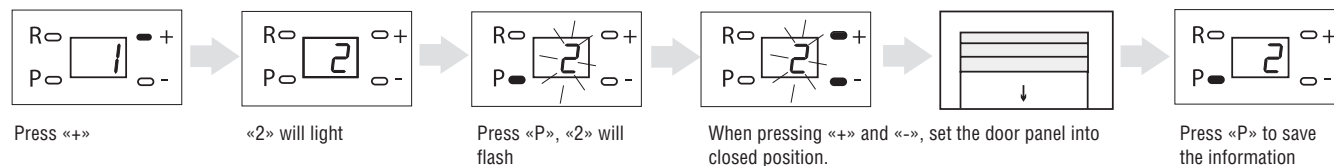
If programming has not been completed, the settings will not be stored. If there is a mistake in one of the settings, you can turn off power and reprogram.

## 6.3. Upper door position



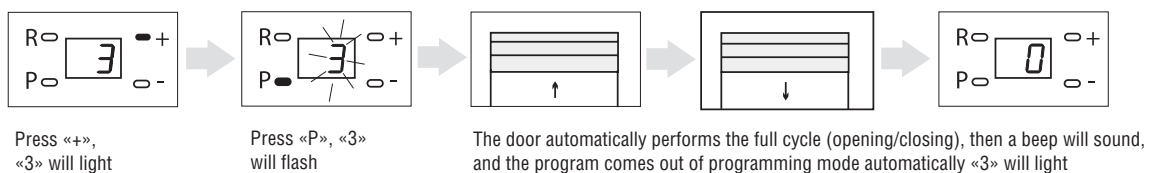
The setting will be stored only when you program the UPPER door position. The upper position shall be programmed before setting the lower door position.

## 6.4. Low door position



The setting will be stored only when you program the LOW door position.

## 6.5. Automatic force setup

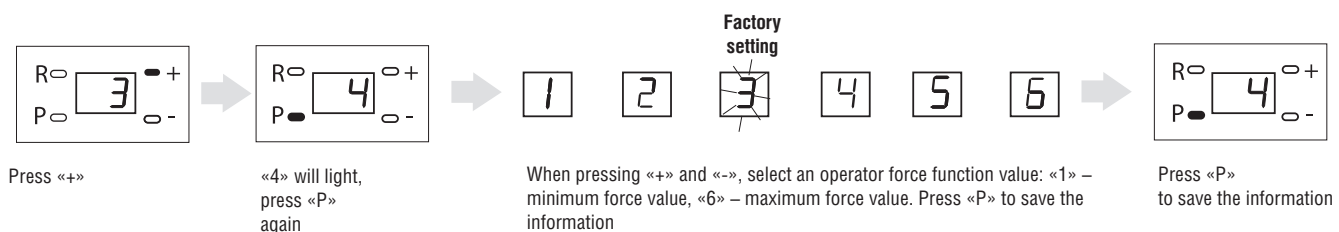


**After finishing the automatic force setup, a beep will sound, and the program comes out of programming mode automatically.**

After performing these setups, the programming can be finished; all other parameters have factory settings.

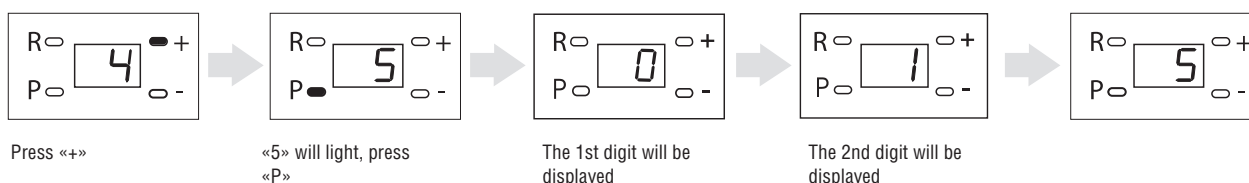
## 6.6. Force limit setup

By default, the operator is set on the 3rd sensitivity stage; usually the customers do not need to change these settings.



**The door function may be disrupted by setting maximum or minimum sensitivity value!**

### 6.7. Absolute cycle counter



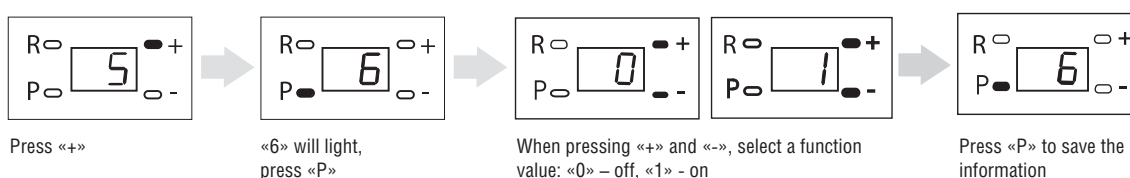
When entering the 5th point of menu, two digits will be displayed sequentially. After having displayed the digits, the program returns to main menu.

The first digit – tens, the second digit – units.

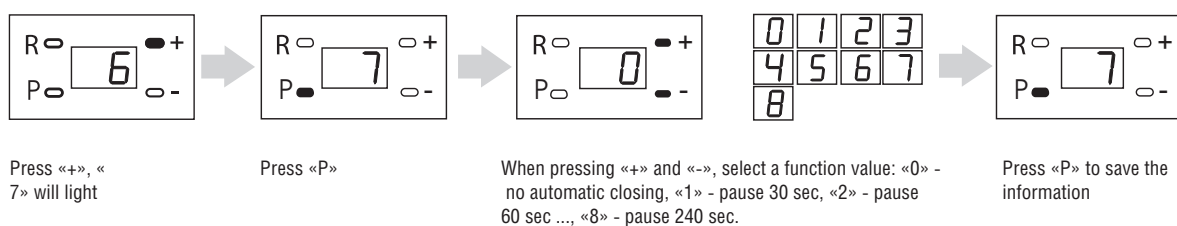
The value received is multiplied by 1000 to receive information on amount of cycles driven by the operator.

### 6.8. Warning alarm setup

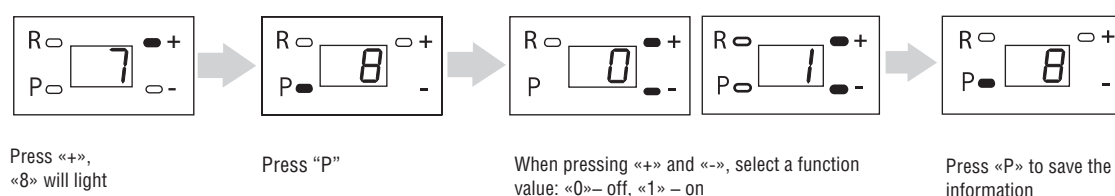
In the case you forgotten to close the door, after 10 minutes a warning alarm will sound. This signal will be turned off automatically after the door will be closed. The factory setting of this function is “0” – the function is off.



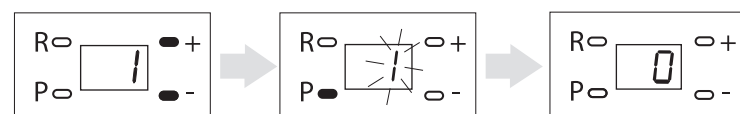
### 6.9. Automatic closing



### 6.10. Maintenance counter after 2000 cycles (factory setting: «0» – the function is off)



### 6.11. Completing the programming

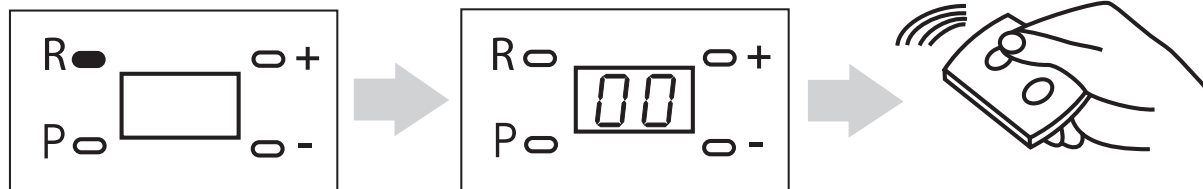


Press «+» or «-», select «1». Press and hold down «P» until «0» appears on the display. The programming is complete.

## 7. REMOTE CONTROL PROGRAMMING

### 7.1. To add a remote control

1. Press and hold the «R», until «00» appears on the display. Release the button.
2. Select on the control panel the button, with the help of which you will control the operator's work, and press it twice.
3. Repeat above operations for other remote controls (maximum quantity — 20 pcs.).
4. All the remote controls will be added sequentially into the control block.
5. When the maximum quantity of remote controls is exceeded; three long beeps will sound.



### 7.2. Remote programming for Doorhan remote controllers

Perform the items 1-4 within 5-second interval:

1. To press and hold the button «2» of the programmed remote control.
2. Without releasing the pressed button «2», to press and hold the button «1» of the remote control.
3. Release the buttons pressed.
4. Press the remote control button already set up.
5. On the new remote control, select a button with the help of which you will control the operator's work, and press it twice. A beep will sound.

#### NOTE

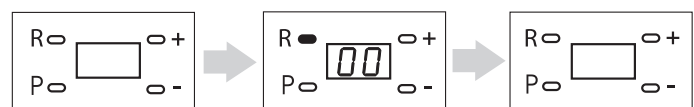
It is possible to add all four control buttons into the operator.

### 7.3. MARKING remote control buttons DOORHAN



### 7.4. To erase a remote control

To delete the remote controls from the receiver memory, press and hold down the button «R» for 10 seconds until the long beep will sound, what means erasing a remote control in the operator.



**WARNING!** If the remote control is lost, it is necessary to erase the radio codes and reprogram the remote controls to avoid unauthorized access.

## 8. MANUAL OPENING

### 8.1. Opening by means of integrated carriage releasing device

#### Manual disengagement of automatic system

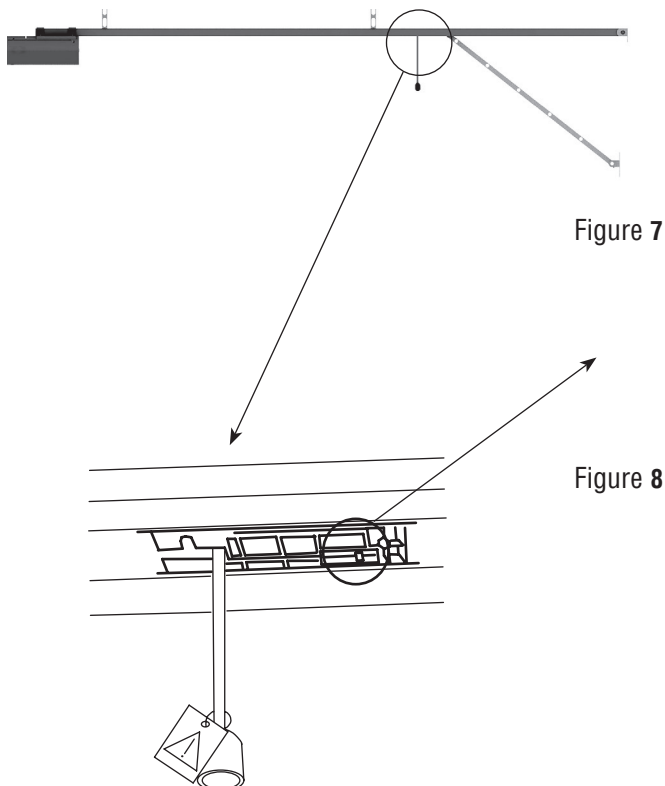
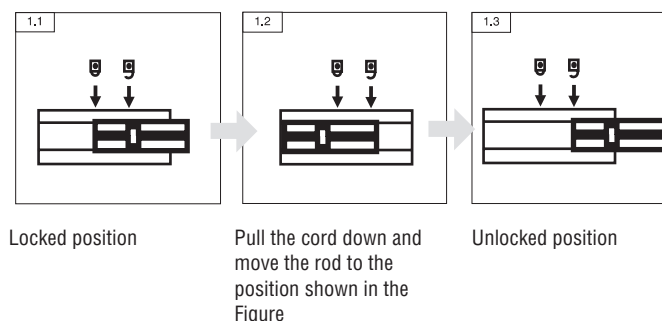


Figure 7

Figure 8

#### Manual door control

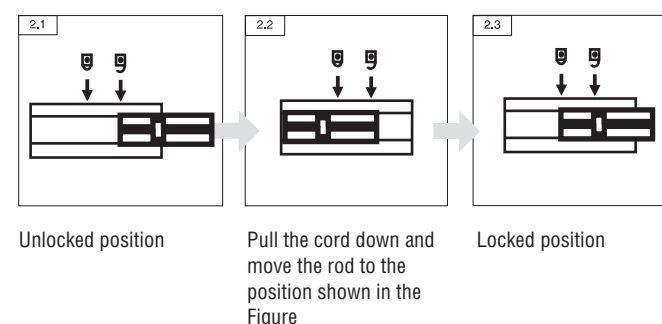


Locked position

Pull the cord down and move the rod to the position shown in the Figure

Unlocked position

#### Automatic door control



Unlocked position

Pull the cord down and move the rod to the position shown in the Figure

Locked position



#### In the event of main power failure

In the event of main power failure, the operator can be switched to manual control. To do this, pull down the releasing device cord. The carriage should withdraw from the engagement, and after that the door can be operated manually (Fig. 7).



#### When main power is restored

When main power is restored, the operator is to be set to automatic control. To do this, move the carriage into the locked position by pulling the releasing device cord to yourself (Fig. 8). After this, trigger a signal from the remote control or control button, wait till the carriage clutch with chain (belt).

### 8.2. Opening with external releasing device (optional)

The external emergency rope releasing device is intended for manual emergency unlocking the door from street side in case of supply voltage shutdown or automatic system failure in order to gain access to the room through the passage, secured by the door (in the absence of a wicket-door or additional entrance to the room).

When installing an external releasing device, use the appropriate instructions. It is recommended to use an external releasing devices LOCK or LOCK N. Do not install the releasing devices of other manufacturers in order to avoid failure of the system!!

## 9. MAINTENANCE

- The Sectional-750/1000/1200/Fast-750 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.

## 10. TROUBLESHOOTING

Trouble	Possible causes	Solution
The operator does not work	1. No power supply 2. The fuse is blown	1. Turn the power on 2. Replace the fuse
The door does not open with the remote control	1. Remote control code is not recorded 2. Remote control battery is low	1. Re-record the remote control 2. Replace the battery supply
Remote control sensing distance too small	Remote control battery is low	Replace the battery supply
The guide chain moves, but the door does not move	The carriage is disengaged and not connected to the chain support	Align the carriage with the support and engage the carriage
Sound alarm is on	1. The door is open 2. Audible warning of used 2000 cycles for maintenance	1. Close the door 2. Turn off the power and turn it on again
The door does not reach the end position or does not work	Error when programming	Perform programming
The door works intermittently, but the indicator lights «H»	Electronics failure due to high humidity	Clean the control board (by technician)
The door suddenly stops, the indicator lights «F»	1. The door met an obstacle, or the mechanics is jammed 2. Power supply is unstable	1. Check the door mechanics, remove the obstacle 2. Check the supply voltage
When the system is working, a creak is audible	Lack of lubrication of the guide chain after prolonged working	Lubricate the chain
The chain generates noises and frictions with the guide	The chain elongated	Lubricate the chain gearwheel and tension the chain

## APPENDIX 1

### 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).

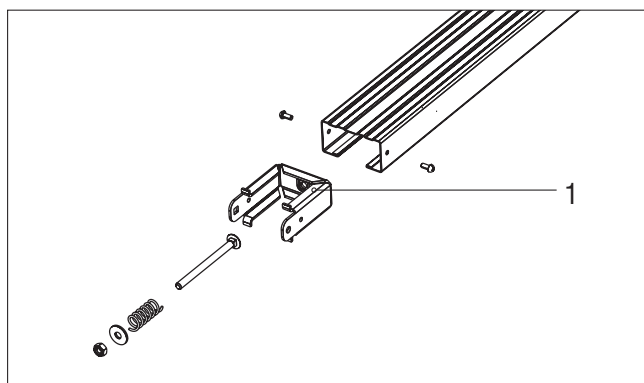


Figure 1

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

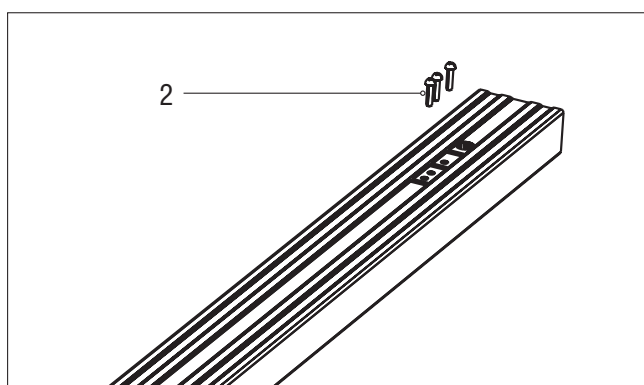


Figure 2

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

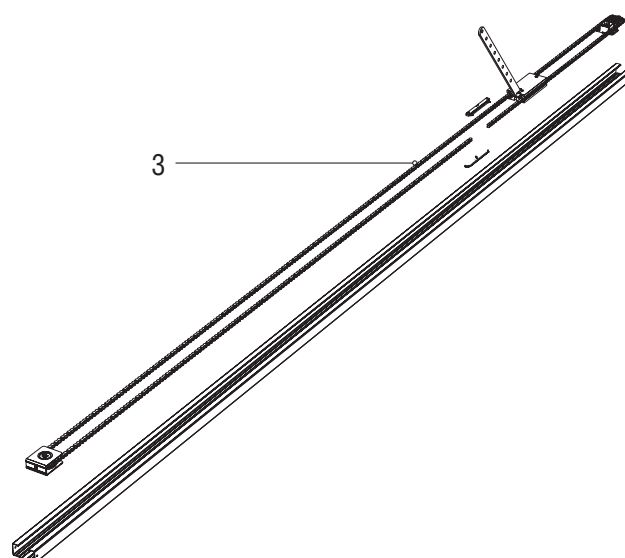


Figure 3



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

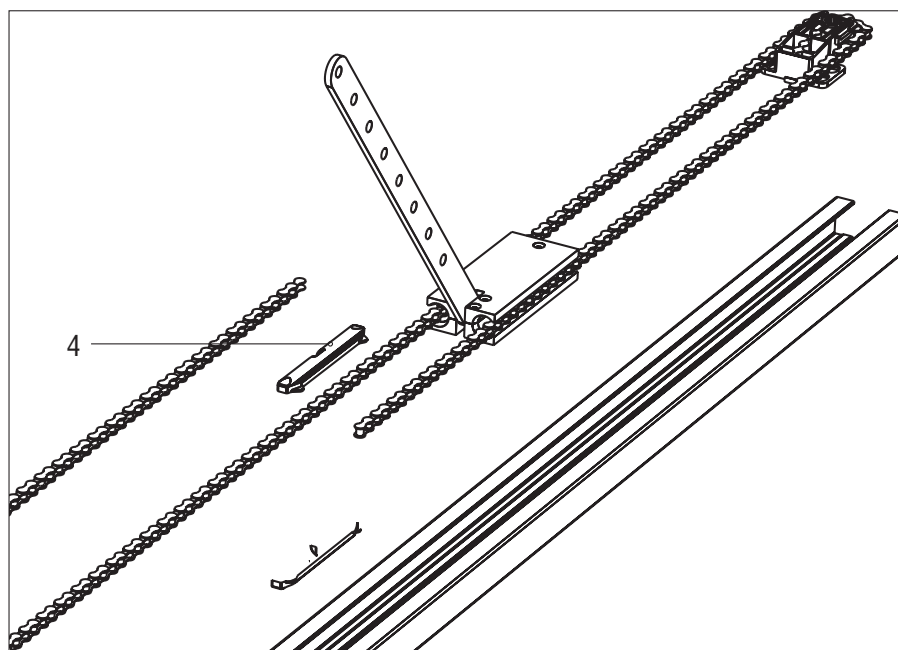


Figure 4

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

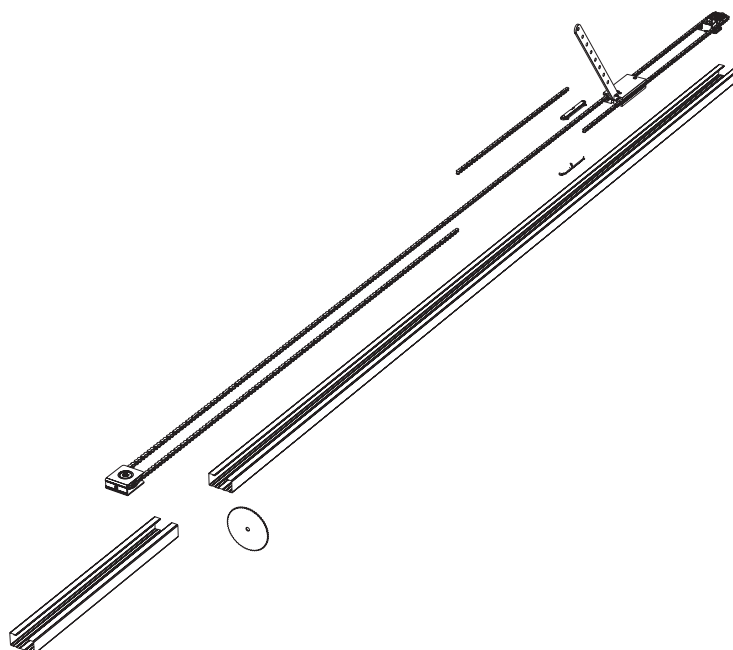


Figure 5

7. After cutting assemble the guide in reverse order.

# ***DOORHAN***<sup>®</sup>

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

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Telephone: +420 474 319 111  
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