DOOR OPERATOR FOR INDUSTRIAL USE
USER'S MANUAL

(KG120S/KG60/KG200S/KG100)

OUTLINE

1. Safety instructions

It is important that you read all the following instruction:

- The door operator should be installed and put into operation by qualified personnel. Otherwise, serious personal injury or property damage may occur.
- The door operator must be grounded.
- Open and close the door manually, make sure the door can be moved smoothly.
- The door must be equipped with balance springs, otherwise the operator will be damaged. Before installation of the door operator, the door should be carefully checked for being kept well balance. The door must be in good working order.
- It is recommended to install limit devices on door tracks to prevent the door from sliding out of the tracks.
- Locate any fixed control: within sight of door but away from all moving parts of the door and at a height of more than 1.4m above the ground to avoid children reaching it. Keep remote controls away from children, to prevent the door operator from being activated involuntarily.
- The operator should be switched off before repairing it or opening its cover.
- The operator may only be repaired with the door closed.
- When opening or closing the door, do not attempt to walk or drive through the door.
- The door should only be operated when it can be observed to avoid accidents.
- Do not pull the hand chain during opening or closing the door.
- Our company reserves the right to change the design and specification without prior notification.

2. General description

KG120S\KG60 door operator is applied widely to storehouse, industrial or commercial buildings. It is featured with compact structure, safe and reliable performance.

3. Technical parameters

Model	KG120S	KG60	KG200S	KG100
Power supply	380V	220V	380V	220V
Capacitor	/	30μF	/	40μF
Output torque	120N·m	60N·m	200N·m	100N·m
Thermal protection temperature	120°C		130°C	
Output shaft aperture	25.4mm			
Motor speed	1400rpm			
Reduction ratio	57:1			
Max. limit switch travel	Output shaft rotates 20 circuits			
Work duty	25%			
Weight	22kg			
Dimension	447mm×290mm×120mm			
Environment temperature	-20ºC~+40ºC			

4. Main structure

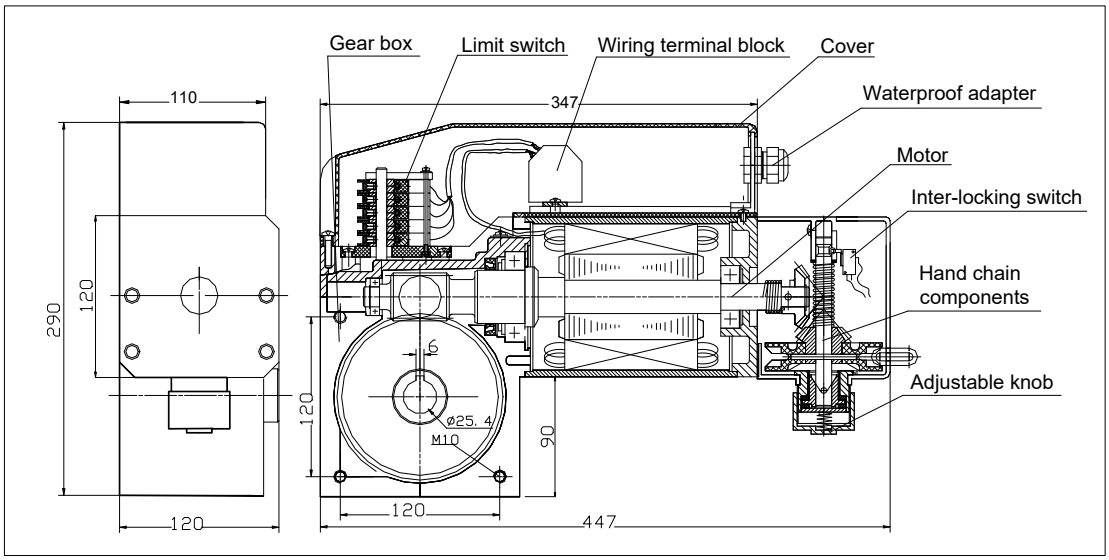

Fig.1

5. Installation

Before installing, make sure the door is in good working order. We advise to install the operator as follow see '**direct installation**' section or '**indirect installation**' section.

Direct installation (standard accessories see page12 packing list)

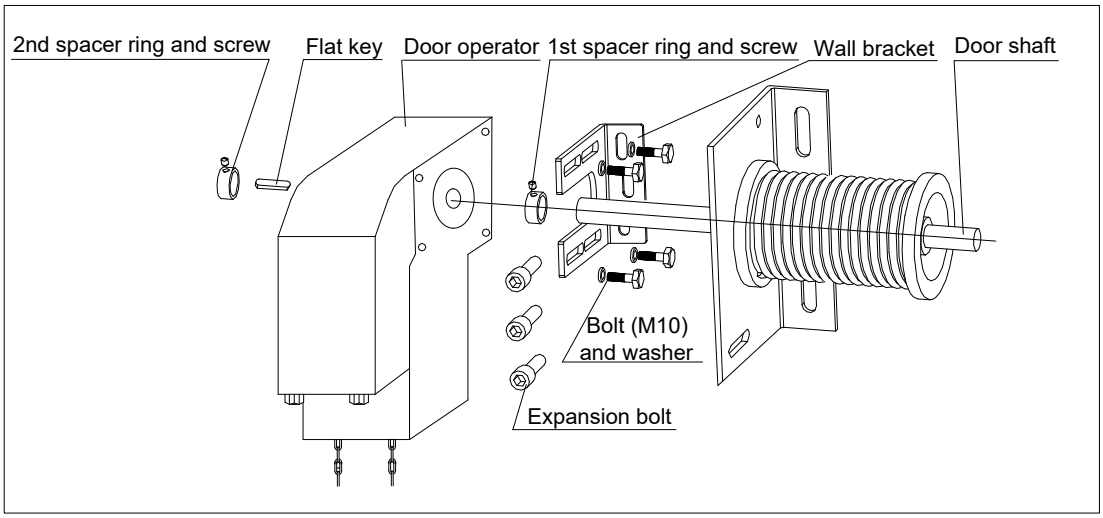

Fig.2

- Screw the wall bracket (L-shaped iron fitting) onto the wall with expansion bolt. You may install the wall bracket to left side or right side of operator.
- Slot the 1st spacer ring onto the door shaft.
- Slot the door operator onto the door shaft (ensure correct position of the key) and screw onto the wall bracket.
- Slot the 2nd spacer ring onto the door shaft and push against the door operator, make sure the chain hangs vertically. Push the 1st spacer ring against the door operator and fix both rings.

Indirect installation (chain drive)

You also can install the door operator as shown in Fig.3. You can purchase these accessories from your dealer.

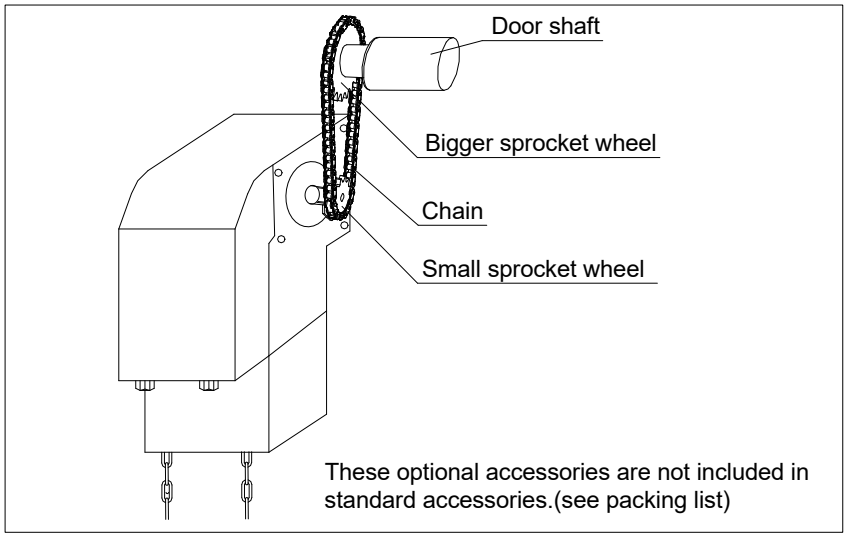

Fig.3

- Install the bigger sprocket wheel onto the door shaft end.
- Fix the bracket on the wall with expansion bolts according to the length of the chain. In order to install the door operator firmly, we advise you to fix two pieces of wall brackets on left and right sides of the operator.
- Attach the door operator on the brackets with bolts (M10) and ensure the hand chain hangs vertically. Thread up the chain by adjusting the position of the operator.

5. Wiring

- Locate control box: within sight of door but away from all moving parts of the door and at a height of more than 1.4m above the ground to avoid children reaching it.
- Connect ground wire from operator to terminal ‘E’ on control board. The operator must be well grounded.
- Wires within the cable shall be protected so that no damage can result from contact with any rough, sharp part. In order to protect electrical elements from water, waterproof adapter must be tightened by turning the plastic nut.
- In an emergency, press the red emergency switch on the control box can cut off the power of control unit immediately. Rotate the switch in arrow direction to make the switch return to its original position and resume normal operation.

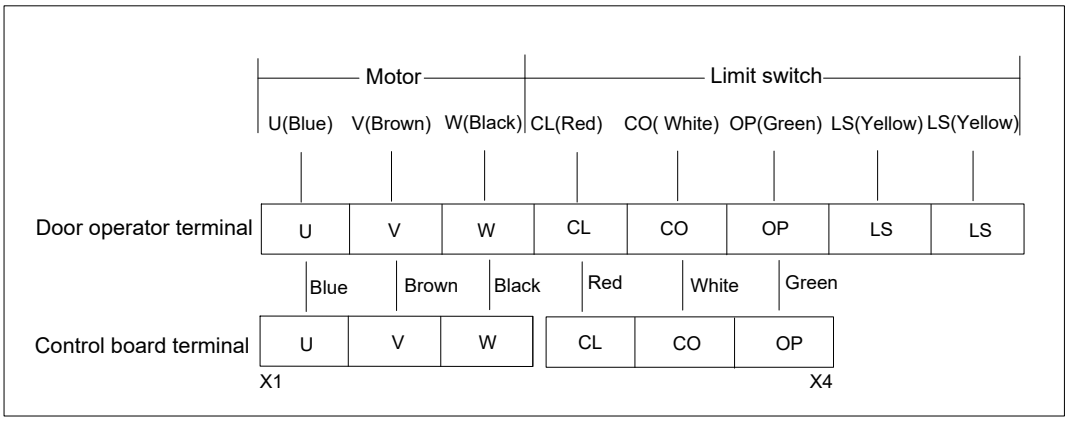

Fig.4

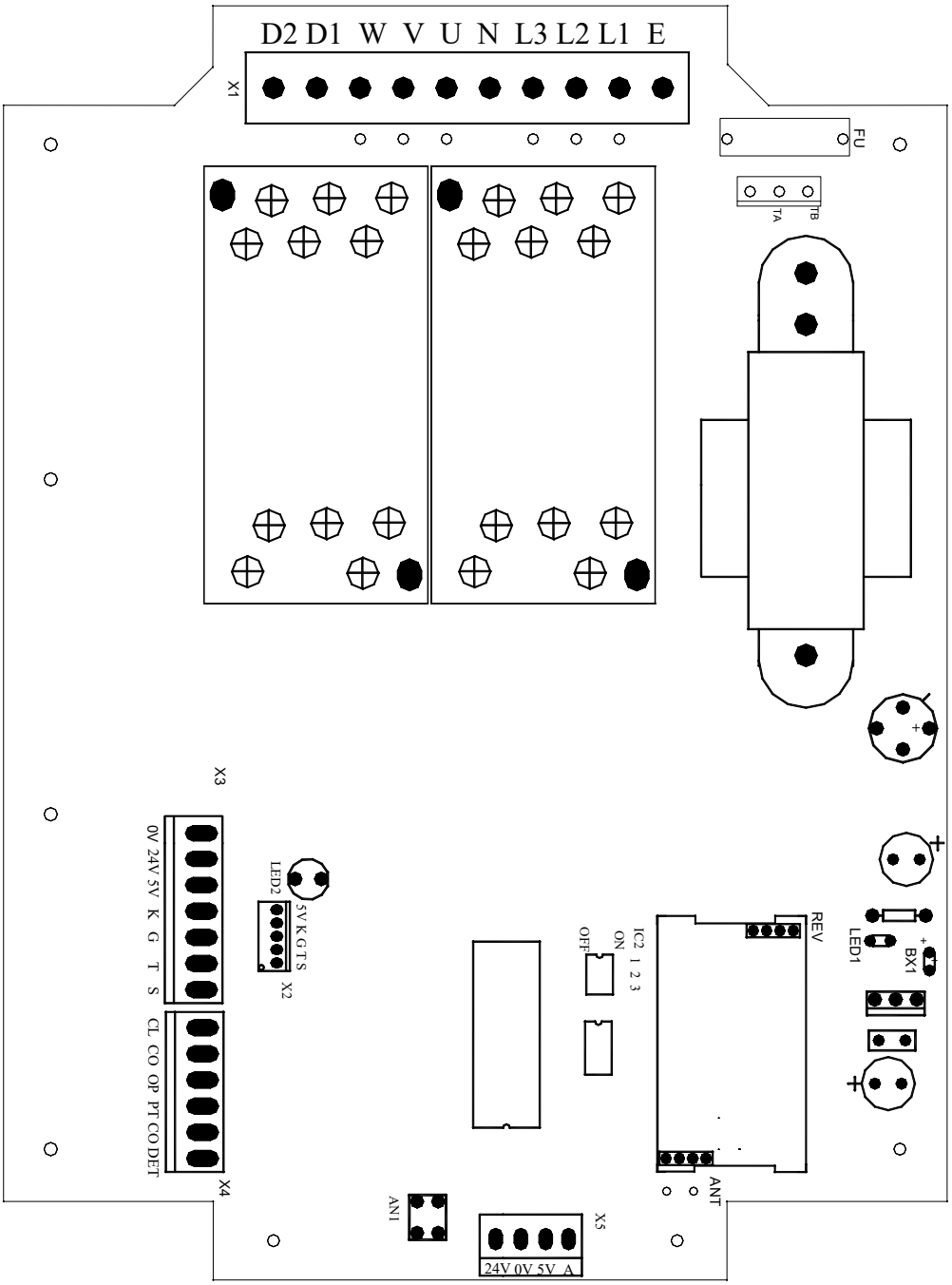

Fig.5 Control board diagram (380V)

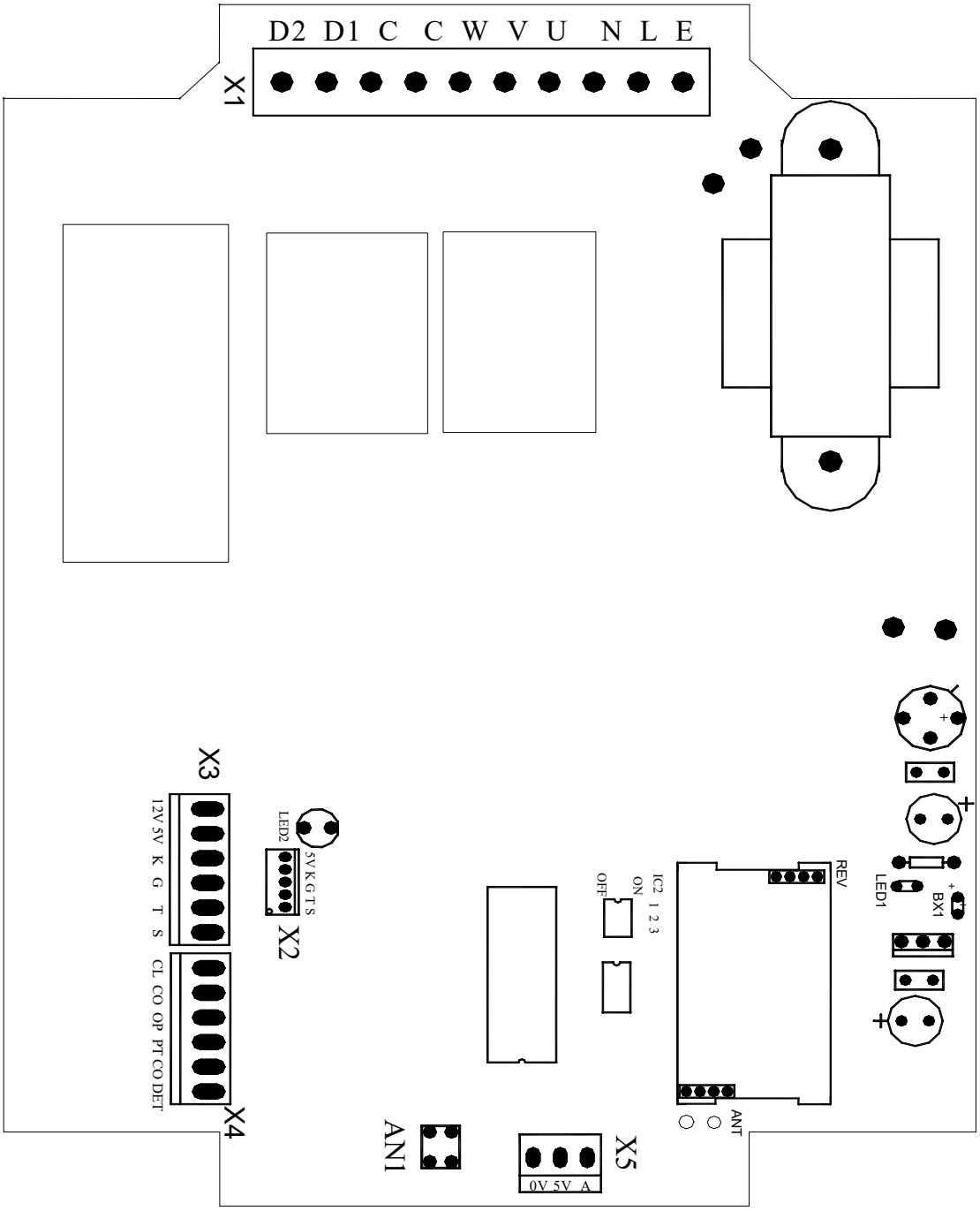

Fig.6 control board diagram (220V)

Before carry out any wiring work, it is essential to disconnect the control unit from the mains supply.

<table>
<tr><th>Type</th><th>Wiring</th></tr>
<tr><td>KG120S
KG200S</td><td>

Connect phase wires (AC380V) to ‘L1’, ‘L2’, ‘L3’. Connect neutral wire to ‘N’, ground wire to ‘E’.
Connect motor wire (blue, brown, black) to ‘U’, ‘V’, ‘W’. If door running direction is wrong, please exchange wires ‘U’ and ‘V’. (See Fig.5 X1 terminal block)
Connect close limit wire of limit switch (red) to ‘CL’, connect common wire (white) to ‘CO’, connect open limit wire (green) to ‘OP’. (See Fig.5 X4 terminal block)
Connect signal wires of photocell (N.O.) to ‘PT’ and ‘CO’ and power wires to ‘24V’ and ‘0V’. Connect signal wires of safety edge switch (N.O.) to ‘PT’ and ‘CO’. (See Fig.5 X3 and X4 terminal blocks)
Connect wicket-door switch (N.C.) wires to ‘DET’ and ‘CO’, if connected, the short bridge must be removed. (See Fig.5 X4 terminal block)
Connect external button switch (N.O.) to ‘K’, ‘G’, ‘T’ and ‘S’. K-open (white), G-close (yellow), T-stop (red), S-common wire (green). (See Fig.5 X3 terminal block)
D1-D2: Alarm lamp (AC220V)
LS-LS (yellow): opened signal output.
Note: turn the power on, if the ‘LED2’ is flashing, disconnect from mains supply, then reverse any two phase wires.
DIP-switch

<table>
<tr><th>Position</th><th>ON</th><th>OFF</th></tr>
<tr><td>1</td><td>Auto-close enable</td><td>Auto-close disable</td></tr>
<tr><td>2</td><td>Infrared photocell N.C.</td><td>Infrared photocell N.O.</td></tr>
<tr><td>3</td><td>Auto-close time delay: 9 seconds
Note: DIP-switch 1 must be set ON.</td><td>Auto-close time delay: 27seconds
Note: DIP-switch 1 must be set ON.</td></tr>
</table>
</td></tr>
<tr><td>KG60
KG100</td><td>

Connect power wires (220V) to ‘L’. Connect neutral wire to ‘N’, connect ground wire to ‘E’.
Connect motor wire (blue, brown, black) to ‘U’, ‘V’, ‘W’. If door running direction is wrong, please exchange wires ‘V’ and ‘W’. (See Fig.6 X1 terminal block)
Connect close limit wire of limit switch (red) to ‘CL’, connect common wire (white) to ‘CO’, connect open limit wire (green) to ‘OP’. (See Fig.6 X4 terminal block)
Connect signal wires of photocell (N.O.) to ‘PT’ and ‘CO’ and power wires to ‘12V’ and ‘S’. (See Fig.6 X3 and X4 terminal blocks)
Connect signal wires of safety edge switch (N.O.) to ‘PT’ and ‘CO’. (See Fig.6 X4 terminal block)
Connect wicket-door switch (N.C.) wires to ‘DET’ and ‘CO’, if connected, the short bridge must be removed. (See Fig.6 X4 terminal block)
Connect external button switch (N.O.) to ‘K’, ‘G’, ‘T’ and ‘S’. K-open (white), G-close (yellow), T-stop (red), S-common wire (green). (See Fig.6 X3 terminal block)
D1-D2: Alarm lamp (AC220V)
LS-LS (yellow): opened signal output
DIP-switch

<table>
<tr><th>Position</th><th>ON</th><th>OFF</th></tr>
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</table>
</td></tr>
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6. Adjustment

Adding extra remote controls (Learn): Press the button 'AN1' on the control board, the 'LED2' will be on and then turn off. Press any remote control button, the 'LED2' will be on and then turn off. Press the same button again, the 'LED2' will flash about 4 seconds at 1/2Hz frequency and then turn off, this indicates the learning process is finished.

Up to 25 remote controls may be used.

To erase all remoter controls: press and hold 'AN1' button on the control board, release the button once 'LED2' turns off automatically. This indicates that all the remote controls have been erased completely.

The remote control works in three-channel mode, (button 1-open, button 2-close, button 3-stop) See Fig.7.

Warning: For safety and security, we recommend that the factory setting be replaced with a personal code.

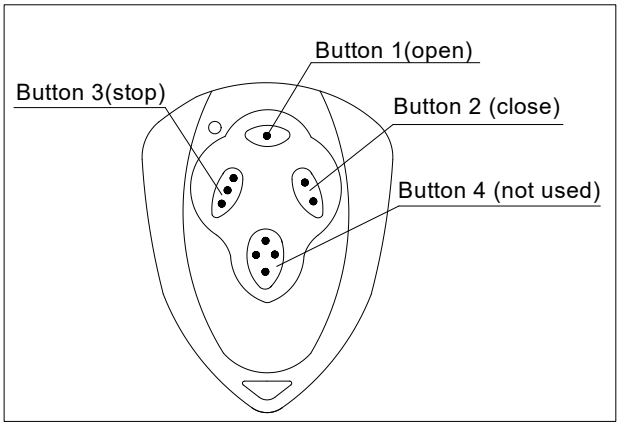

Fig.7

Limit switch

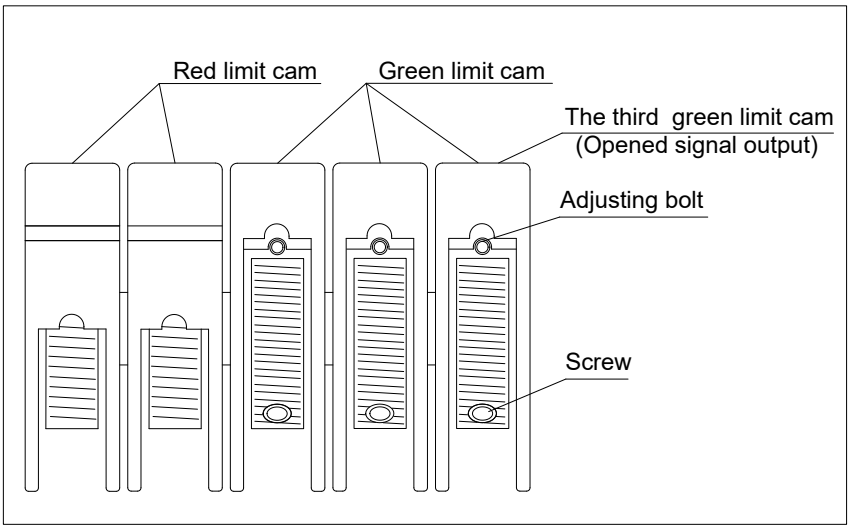

Fig.8

Rough adjusting

- Check that the operator has firmly installed, open the door to desired position and observe the rotating direction of green limit cams during opening. Loose the screws of green limit cams, then turn three cams in the same direction until the limit switches click (the third green limit cam: opened signal output), finally tighten the screws with supplied hexagonal wrench key.
- Close the door to desired position and observe the rotating direction of red limit cams during closing. Loose the screws of red limit cams, then turn two cams in the same direction (i.e. on the opposite direction of the green cam) until the limit switches click, finally tighten the screws with supplied hexagonal wrench key.

Fine adjusting

- After rough adjusting, you can open/close the door and observe whether the door has successfully reached the desired position. If the door does not reach the desired position, fine adjusting could become necessary.
- The adjusting bolts are used for fine adjustment, one turn is about 150mm of door movement.
- The adjusting bolts in the green limit cams to make the door reach the desired open position, clockwise to open less, anticlockwise to open more.
- The adjusting bolts in the red limit cams to make the door reach the desired close position, clockwise to close less, anticlockwise to close more.

Important note

- Please operate the push button on the control box to adjust the limit switch, do not use remote control.
- When the door reaches fully closed or opened position, ensure that the limit switches are active and the indicator light on the control box turns off. If the light does not turn off, please readjust the limit switch.

Hand chain

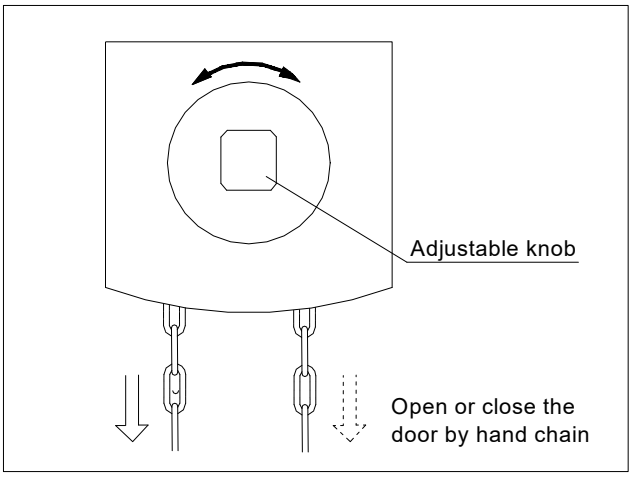

Fig.9

Warning:

- **After using the hand chain for some time, the knob will become very hot. It is recommended to adjust it with a spanner.**
- In case of power failure, you can open or close the door manually by pulling the hand chain. See Fig.9
- Tighten or loose the knob by rotating clockwise or anticlockwise until the hand chain can open or close the door easily. See Fig.9

Note:

- **If the close indicator light on the control box flashes and the operator does not work by operating the control box button, pull one side of hand chain lightly until a reset is carried out see Fig.10 (1), the close indicator light turns off, and now the control box can be used.**
- **Use the hand chain only when the power failure, NOT for normal use. Do not pull the chain during closing or opening the door, otherwise, serious personal injury or property damage may occur.**
- **It is important to ensure that the chain is not fitted twisted. If the chain is twisted, malfunctions may occur when the hand chain is used. It is essential to screw the hand chain firmly in place as shown in Fig.10 (2).**

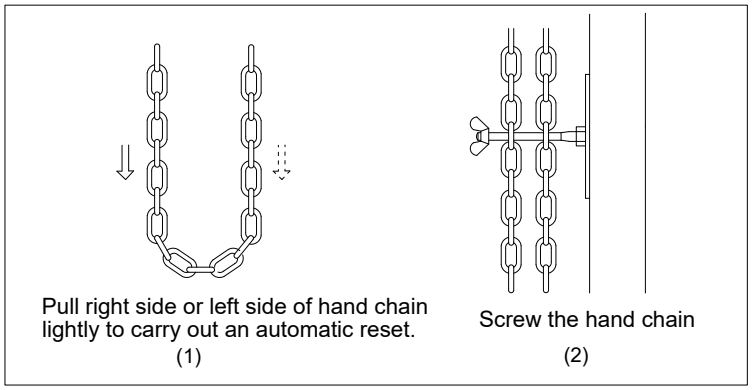

Fig.10

7. Maintenance

Make sure the door is in good working order and that is correctly balanced.
The door operator should be checked and maintained by a qualified technician.
Keep operator clean at all times.

8. Troubleshooting

Error	Cause for error	Remedies
The operator does not work.	(1) Power is OFF. (2) The door is obstructed. (3) The wires become loose. (4)The emergency switch was pressed. (5) The door is too heavy.	(1) Make sure that power is ON. (2) Remove obstructions. (3) Fasten the wires. (4) Rotate the emergency switch to ensure that the button returns to its original position. (5) Replace or readjust the balance springs.
The close indicator light on the control box flashes and the operator does not work by operating the control box button or remote control.	An automatic reset is not carried out.	Pull one side of hand chain to carry out an automatic reset.
The operator stops working suddenly.	Thermal overload protection in motor is active.	Allow the motor to cool down.
The door cannot be opened or closed fully.	Wrong adjusting of limit switch.	Readjust the limit switch.
Remote control does not work.	(1) Battery level may be low. (2) Remote control is not suitable for receiver. Wrong programming of remote control coding.	(1) Replace the battery inside the remote control. (2) Erase remote controls and then re-program the remote control.

9. Packing list

After receiving the product, you should make an unpack-inspection, in which you should check whether the product was damaged. If you have any problem please contact our sales agent. You should find the following items in our standard packing:

No.	Item	Quantity
1	Door operator	1
2	Wall bracket	1
3	Spacer ring and screw	2
4	Flat key	1
5	Bolt (M10X20)	4
6	Washer	4
7	Hexagonal wrench key	1
8	Control box	1
9	Remote control	2
10	Four cores wire	6m
11	Six cores wire	6m
12	User’s manual	1