

# **DOOR OPERATOR FOR INDUSTRIAL USE**

## **USER'S MANUAL**

### **MODEL: KG400S**

#### **WARNING!**

**ONLY QUALIFIED AND EXPERIENCED TECHNICIANS SHOULD ATTEMPT INSTALLATION OR SERVICE TO THIS UNIT, OTHERWISE, SERIOUS PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE MAY OCCUR. PLEASE KEEP THESE INSTRUCTIONS FOR FURTHER REFERENCE.**



**Total Door Automation (Australia) Pty Ltd**

[www.totaldoorautomation.com.au](http://www.totaldoorautomation.com.au)

[sales@totaldoorautomation.com.au](mailto:sales@totaldoorautomation.com.au)

## OUTLINE

|                                      |    |
|--------------------------------------|----|
| 1. Important safety information..... | 3  |
| 2. General description .....         | 3  |
| 3. Technical parameters .....        | 3  |
| 4. Main structure .....              | 4  |
| 5. Installation and operating .....  | 4  |
| 6. Electrical .....                  | 8  |
| 7. Adjustment .....                  | 10 |
| 8. Troubleshooting.....              | 13 |
| 9. Maintenance.....                  | 13 |
| 10. Packing list.....                | 13 |

### 1. Important safety information

Carefully read and follow all safety precaution and warnings before attempting to install and use this operator, incorrect installation can lead to severe injury.

- This operator should be installed by a qualified technician. Do not in any way modify the components of the operator, otherwise, serious personal injury or property damage may occur.
- Before installation, all the locks of the door should be removed or unlocked.
- After installing, open the cover first, remove the screw in the center of exhaust screw cap to prevent the high oil pressure.
- When opening or closing the door, Do not attempt to walk or drive through the door.
- Do not touch the door while it is in operation.
- The operator should be switched off before repairing it or opening its cover.
- The door should only be operated when it can be observed to avoid accidents.
- For your safety, we recommend that the factory setting be replaced with a personal code.
- Keep remote controls or button switch away from children, to prevent the door operator from being activated involuntarily.
- It is recommended to install limit devices on door tracks to prevent the door from sliding out of the tracks.
- KG400S is only designed to work for less than 10 minutes. If it runs continually for an extended period of time, the oil will overflow.
- Check the oil every three months. If the oil is insufficient, please add L-CKE460/P oil.

### 2. General description

KG400S is applied widely to factory, storehouse and hotel etc., and featured with compact structure, powerful starting torque, safe and reliable performance.

Main features:

- Electric and manual operations.
- In the event of power failure, a release chain allows you to operate the door manually.
- KG400S allows lifting a door (without balance springs, roller diameter: 127mm) weight of 600Kg.

### 3. Technical parameters

|                    |                         |
|--------------------|-------------------------|
| Model              | KG400S                  |
| Power supply       | 415V/50HZ               |
| Motor power        | 1500W                   |
| Motor speed        | 1400r/min               |
| Rated current      | 3.2A                    |
| Max. output torque | 500 N • m               |
| Roller rotate      | 13 r/min                |
| Duty cycle         | S <sub>2</sub> : 10 min |
| Reduction ratio    | 100:1                   |
| Weight             | 48 kg                   |

|                                |                      |
|--------------------------------|----------------------|
| Dimension                      | 485 mm×145 mm×325 mm |
| Thermal protection temperature | 120° C               |
| Environment temperature        | -20° C ~+40° C       |

#### 4. Main structure

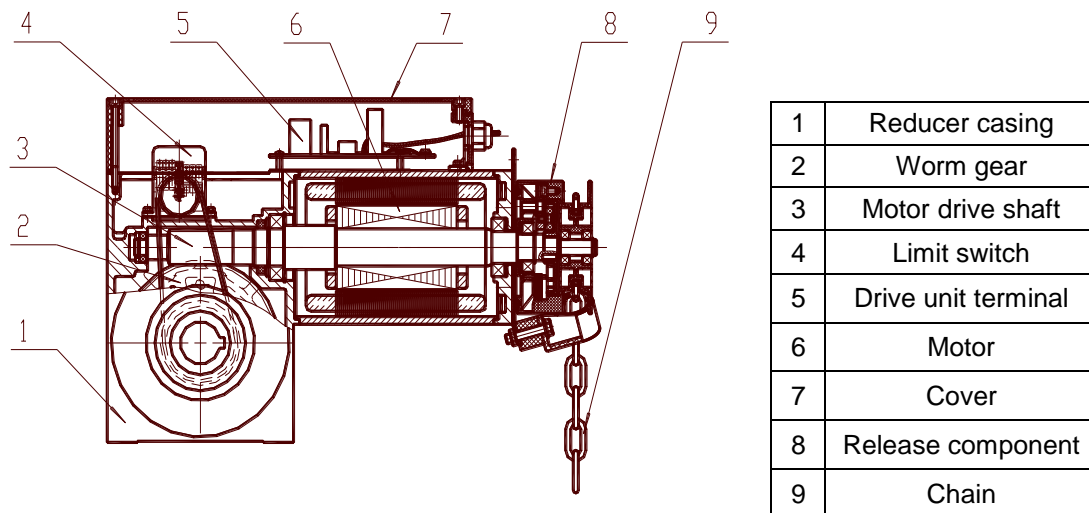


Fig.1

#### 5. Installation and operating

(1) Direct installing (see Fig.2): attach the drive unit onto the roller shaft directly.

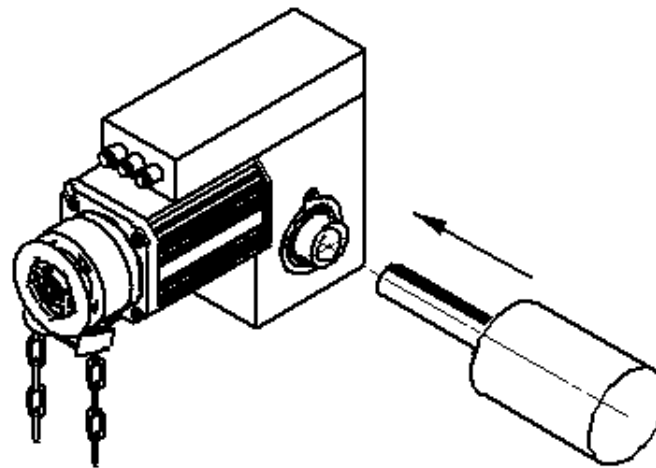


Fig.2

(2) Indirect installing (see Fig.3)

Note: roller, chain, small and bigger chain wheel are not included in the accessories.

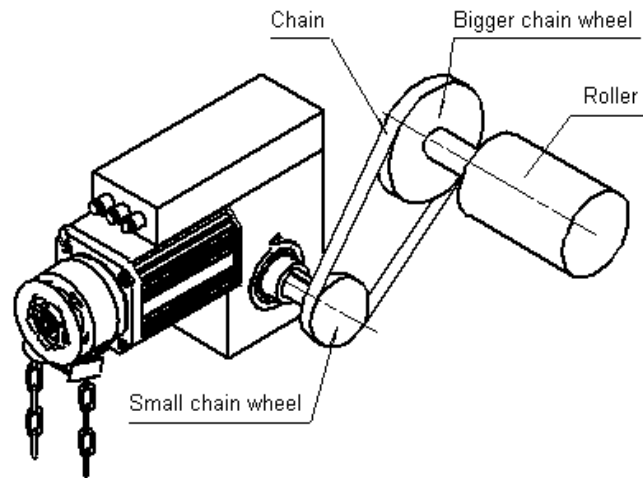


Fig.3

(3) Installation process:

- Before installing, make sure that the size of the door and space available above the door are suitable.
- Fix the support bracket and base plate to the wall as shown in Fig.4.
- According to the door total travel distance, fasten one end of the hoisting strap to the bottom of the door, and wrap another end of the strap around the roller.
- Insert the one end of the roller shaft into the bearing of support bracket, insert another end into the operator as required. ensure the correct position of the key (10×100).

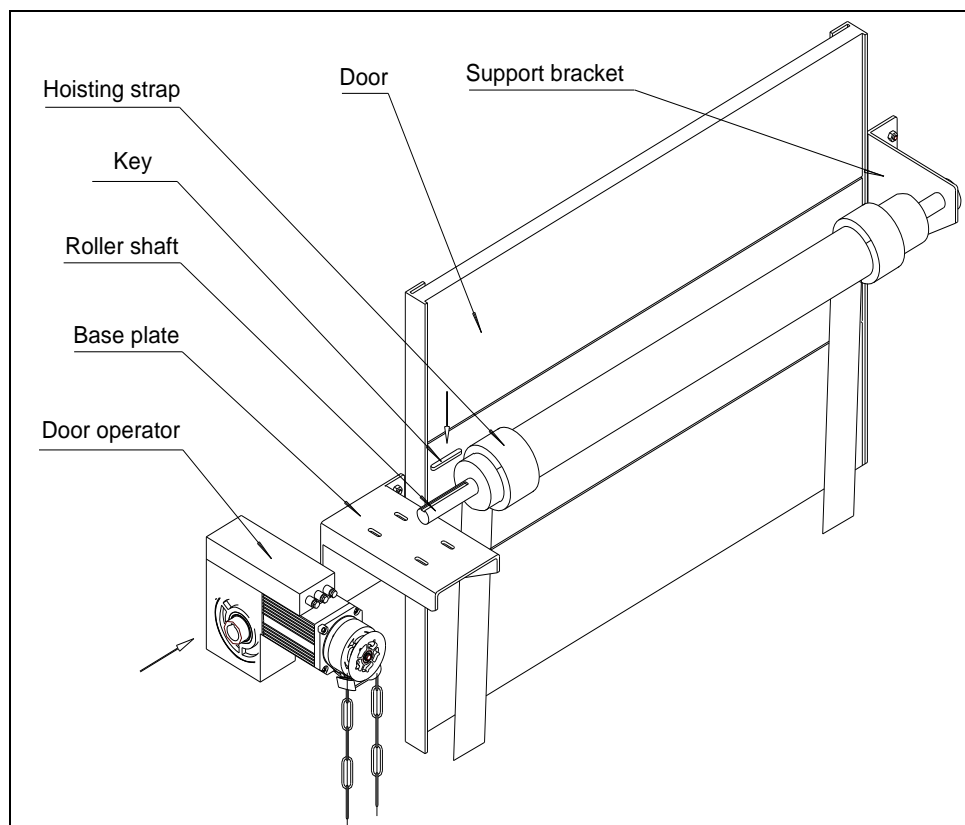


Fig.4

- Place the door operator on the base plate, fix the operator to the plate with four screws (M10×20). See Fig.5.

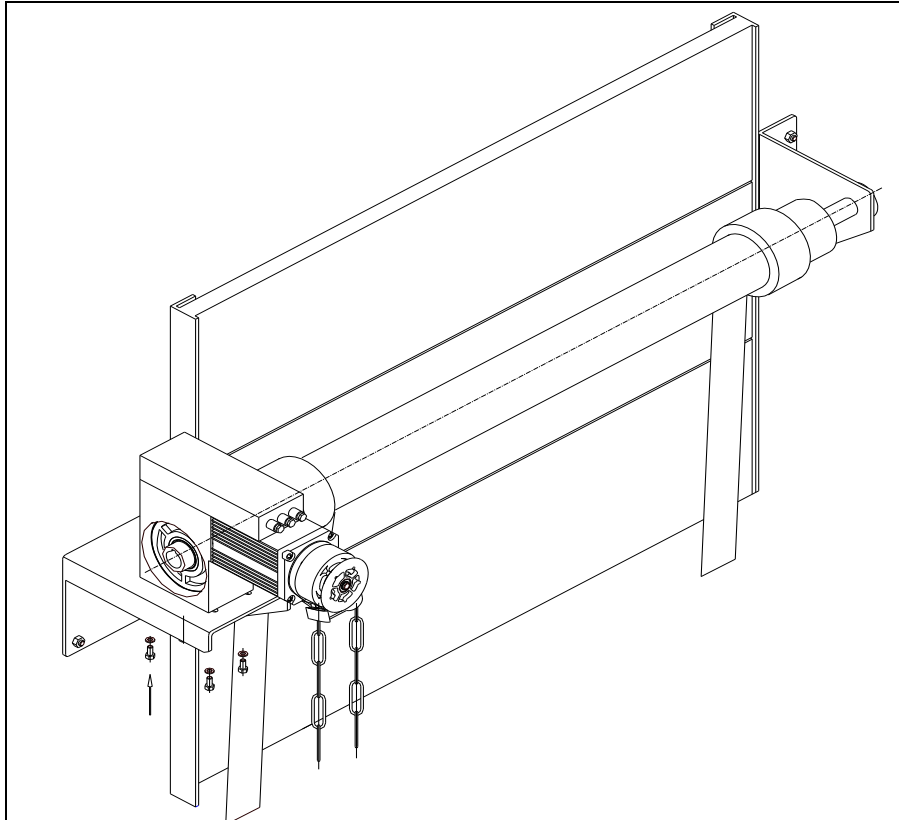


Fig.5

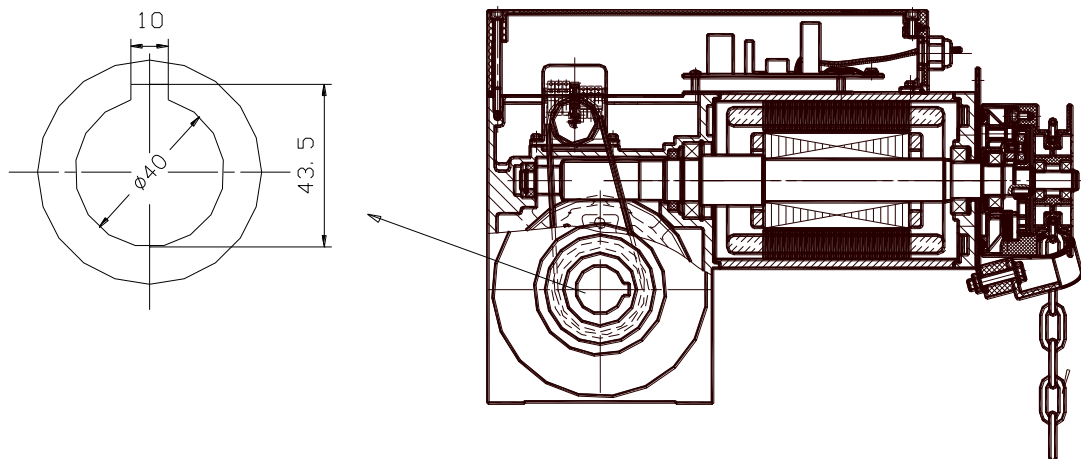


Fig.6

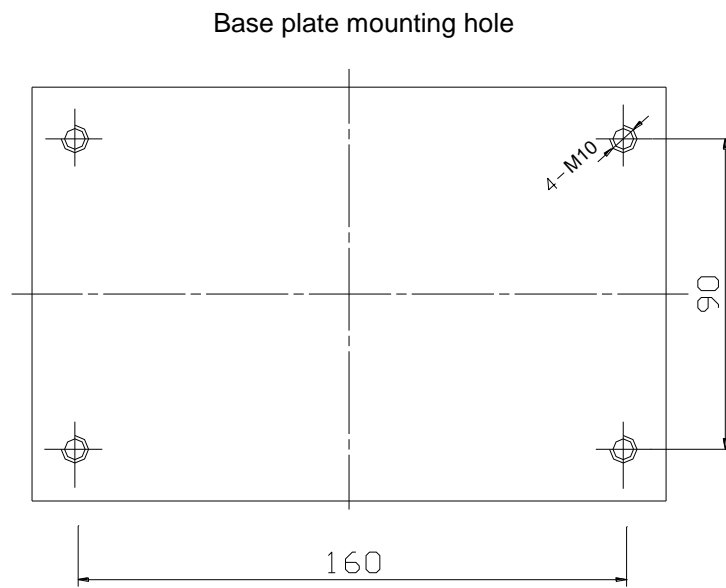


Fig.7

- After installing, Check the door operator and make sure it is installed firmly. See Fig.8.



Fig.8

- KG400S door operator also can be used on large rolling door see Fig.9.

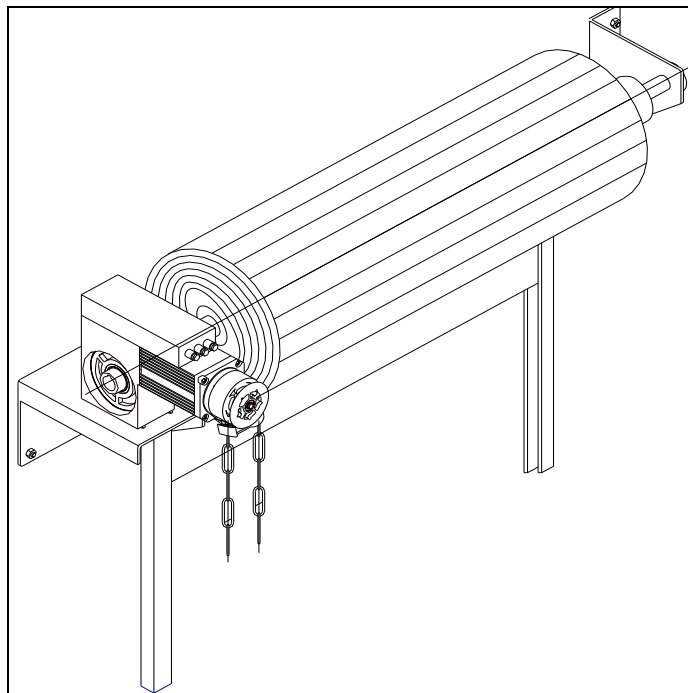


Fig.9

## 6. Electrical

- 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 door operator output wires to control box in the same color. See **wiring chart** and **wiring**.
- 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.

|                        | Motor   |          |          | Limit switch |            |           |   |    |    |
|------------------------|---------|----------|----------|--------------|------------|-----------|---|----|----|
|                        | U(Blue) | V(Brown) | W(Black) | CL(Yellow)   | CO( Green) | OP(White) | NC  | CO | NO |
|                        |         |          |          |              |            |           |   |    |    |
|                        |         |          |          |              |            |           |   |    |    |
| Door operator terminal | U       | V        | W        | CL           | CO         | OP        | NC  | CO | NO |
|                        | Blue    | Brown    | Black    | Red          | White      | Green     |   |    |    |
| Control board terminal | U       | V        | W        | CL           | CO         | OP        | Opened or closed fully position output signal |    |    |
|                        |         |          |          |              |            |           |   |    |    |

Wiring chart



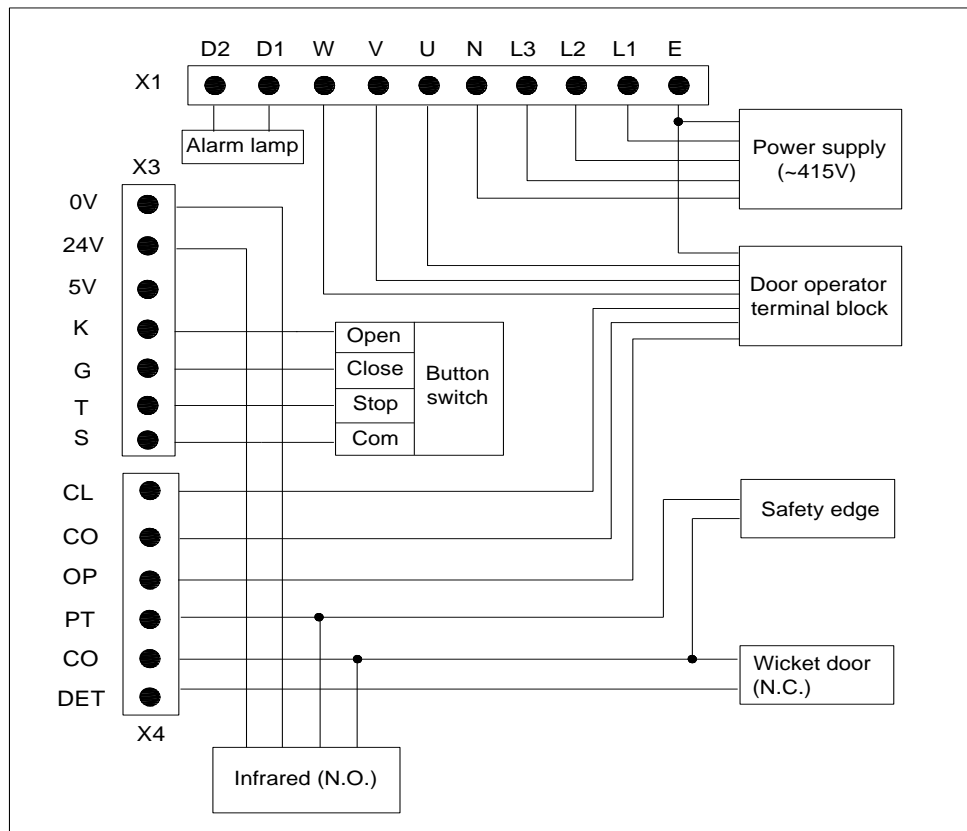


## 7. Adjustment

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

### Wiring

- Connect phase wires (415V) to 'L1', 'L2', 'L3'. Connect neutral wire to 'N', connect ground wire to 'E'. See terminal X1  
Note: turn the power on, if the 'LED2' is flashing, disconnect from mains supply, then reverse any two phase wires.
- Connect motor wire (blue, brown, black) to 'U', 'V', 'W', ground wire to 'E'. If door running direction is wrong, please exchange wires 'U' and 'V'. See terminal X1
- D1, D2: alarm lamp(AC240V). See terminal X1
- Connect close limit wire (red) to 'CL', connect common wire (white) to 'CO', connect open limit wire (green) to 'OP'. See terminal X4
- Connect signal wires of photocell (N.O.) to 'PT' and 'CO', power wires to '24V' and '0V'. See terminal X3 and X4
- Connect safety edge switch wires to 'PT' and 'CO'. See terminal X4
- Connect wicket door (N.C.) wires to 'DET' and 'CO', if connected, the short bridge must be removed. See terminal X4
- 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 terminal X3



## Limit switch

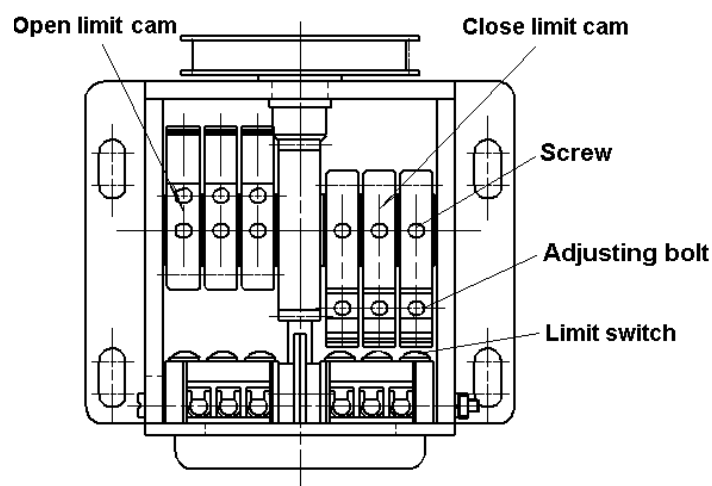


Fig.11 limit switch

### Rough adjusting (Setting of the close limit)

- Check that the operator has firmly installed, close the door to fully closed position and observe the rotating direction of close limit cams during closing. Loose the screws of close limit cams, then turn the cams in the same direction until the limit switches click, finally tighten the screws.
- If the gap between the door and its bottom position is larger than 20mm, repeat this step until the door is less than 20mm from the closed position.

### Fine adjusting (Setting of the close limit)

- The adjusting bolts are used for fine adjustment.
- After rough adjustment, you can close the door and observe whether the door has successfully reached the closed position. If need, fine adjust the adjusting bolts in the close limit cams carefully to make the door reach the closed position, anticlockwise to close more, clockwise to close less.

### Rough adjusting (Setting of the open limit)

- Open the door to arrive at its opened position, observe the rotating direction of open limit cams during opening. Loose the screws of open limit cams, then turn three cams in the same direction (i.e. on the opposite direction of the close cam) until the limit switches click, finally tighten the screws.

### Fine adjusting (Setting of the open limit)

- After rough adjustment, you can open the door and observe whether the door has successfully reached the opened position. If the door does not reach the fully opened position (less than 20mm), fine adjust the adjusting bolts in the open limit cams to make the door reach the opened position, anticlockwise to open more, clockwise to open less.
- If the distance between the door and its top position exceeds 20mm, then the open limit cam (rough adjustment) should be re-adjusted.

### DIP-switch

| Position | ON   | OFF   |
|----------|--|---|
| 1        | Auto-close enable  | Auto-close disable  |
| 2        | Inching close (auto-close disable)                                     | Continuous close  |
| 3        | Auto-close time delay: 7 seconds<br>Note: DIP-switch 1 must be set ON. | Auto-close time delay: 20 seconds<br>Note: DIP-switch 1 must be set ON. |

### Hand chain

- You can open or close the door manually by operating the hand chain, disconnects the door operator from the electricity supply. This time, the close indicator light on the control box will flash, and after actuation of the hand chain, the operator may not work when you press the button, please pull the hand chain see Fig.12 (1), a reset is carried out and the operator is switched on electrically. The close indicator light turns off.
- 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.12 (2).
- Pull the chain only when the power failure. Please do not pull the chain during closing or opening the door, otherwise, serious personal injury or property damage may occur.

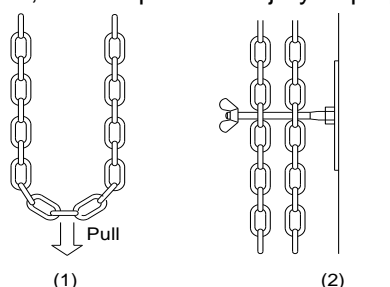


Fig.12

### Important note:

- Please use the control box button to adjust the limit switch, do not use remote control.
- When the door reaches fully closed or opened position, please 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 re-adjust the limit switch.

### Remote control

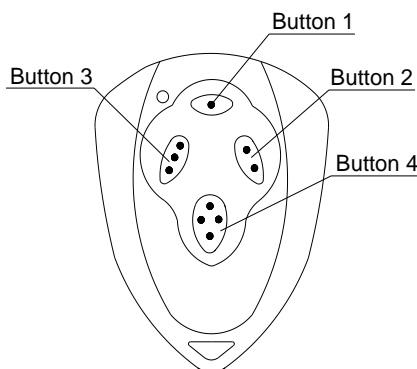


Fig.13

- **Adding extra remote controls (Learn):** Press the button 'AN1' on the control board, the 'LED1' will be on and then turn off. Press any remote control button, the 'LED1' will be on and then turn off. Press the same remote control button again, the 'LED1' 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 'LED1' turns off automatically. This indicates that all the remote controls have been erased completely.

- The remote control came with your operator depends on your order. Additional remote controls can be purchased through your dealer. If you have any problem, please contact the dealer.
- The remote control works in three-channel mode (1-open, 2-close, 3-stop, 4-not used) See Fig.13.
- **Warning: For safety and security, we recommend that the factory setting be replaced with a personal code.**

## 8. Troubleshooting

| Symptoms                                   | Possible cause  | Remedy   |
|--|---|--|
| The operator will not work.                | (1) Power is OFF.<br>(2) The door is obstructed.<br>(3)The emergency switch is depressed.                     | (1) Make sure that power is ON.<br>(2) Remove obstructions.<br>(3)Rotate the switch in arrow direction to make the switch return to its original position. |
| The operator stops suddenly.               | The motor becomes too hot to make the thermal protector available.  | After cooling, the motor can be used.  |
| The door cannot be opened or closed fully. | Wrong adjustment.   | Re-adjust the limit switch.  |
| Remote control does not work.              | (1) The indicator light of remote control does not light.<br>(2) Remote control is not suitable for receiver. | (1) Battery level may be low, please replace the battery inside the remote control.<br>(2) Erase remote controls and then re-program the remote control.   |
| The oil is overflowing.                    | The operator is runs continually for an extended period of time, high temperature and high oil pressure.      | After cooling, add oil.  |

## 9. 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.
- Our company reserves the right to change the design and specification without prior notification.

## 10. Packing list

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

| No. | Item                      | Quantity |
|-----|---------------------------|----------|
| 1   | Door operator             | 1        |
| 2   | Remote control (optional) | 2        |
| 3   | Control box               | 1        |
| 4   | Key 10×100                | 1        |
| 5   | Screw M10×20              | 4        |
| 6   | User's manual             | 1        |

