

# **DOOR OPERATOR FOR INDUSTRIAL USE**

## **USER'S MANUAL**

### **MODEL: KG500S**

#### **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.**



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## 1. Safety instructions



It is important that you read all the following instruction:

- Read carefully this manual.
- The door operator should be installed and put into operation by qualified personnel. Otherwise, serious personal injury or property damage may occur.
- Before installing, make sure that the door is in good mechanical condition, the door must be well balanced. Check that the door operates smoothly and easily.
- It is necessary to install the mechanical stops on guides, in order to avoid the exit of the door from the guides.
- 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 or button switch 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.
- 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 red knob and hand chain during opening or closing the door.

Failure to comply with the instructions above may result in personal injury or property damage. Our company does not accept responsibility for damage or injury resulting from installing this operator.

## 2. General description

KG500S door operator is applied widely to industrial or commercial buildings.

### Main function

- Three buttons (open, close, stop) on the control unit control the door separately. The control system is fitted with wiring terminals for photocell, safety edge etc..
- Remote control: hopping code technology prevents thieves from guessing your remote code. Up to 25 remote controls may be used.
- Emergency stop: In an emergency, press the emergency button can cut off the power of control unit immediately.
- Electromagnet braking system makes the motor stop fast and accurately.
- In the event of power failure, a release hand chain allows you to operate the door manually.
- It has double limit switches to ensure the operator safety and reliability.

### 3. Main technical parameters

Model	KG500S
Power supply	415V /50Hz
Motor rotation speed	720 rpm
Motor power	1800W
Output torque	600 N • m
Output shaft aperture	40 mm
Keyway width	12mm
Output rotation speed	12rpm
Max. limit rotation	18 cycles
Environment temperature	-20° C ~+45° C
Continuous working time	10 min
Dimensions	665 x 375 x210 mm
Weight	35 Kg
Thermal protection	120° C

### 4. Tools required

- Spanners
- Slotted and cross screwdrivers
- Electric drill
- Pliers
- Hacksaw
- Tape measure

Use a helper if possible to assist with the installation.

### 5. Main structure

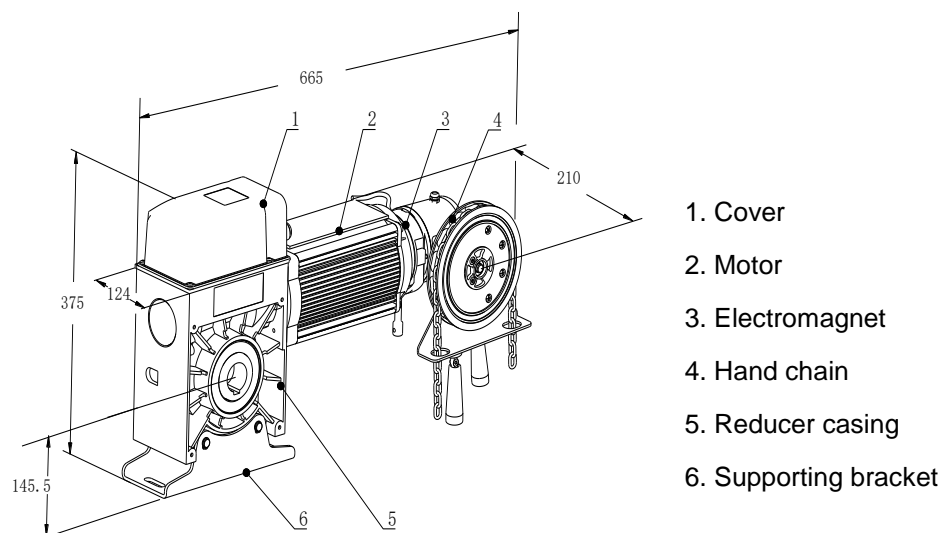


Fig.1

## 6. Installation

Before installing, make sure the door is in good working condition. We advise to install the operator as described below see '**on-shaft mounting**' section.

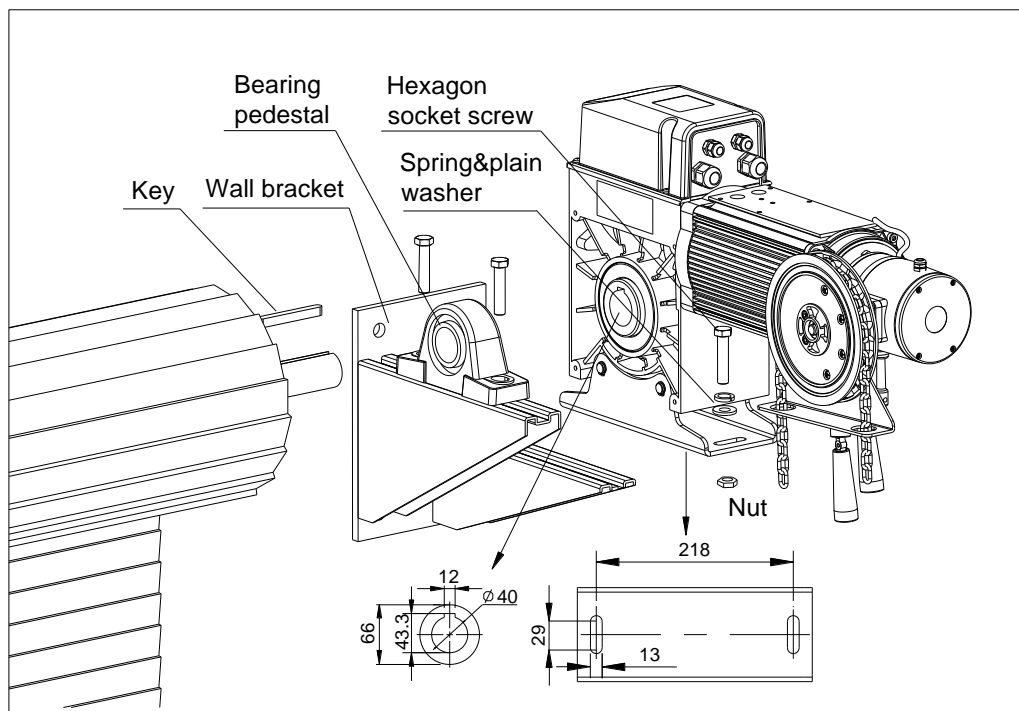


Fig.2

After installing the door. Slot the door operator onto the door shaft (ensure correct position of the key 12X8X100) and screw onto the wall bracket with hexagon socket screws M12x25, spring washers, plain washers and nuts.



### **Information:**

Standard accessories see page 13 packing list.

The optional accessories are not included in the standard package, they can be purchased separately.

## 7. Manual operation

### **Manual operation**

The operator is equipped with a manual chain, which is used for emergency lifting/lowering of the door in case of power cut.

Pull down the red knob, the door can be moved manually.

Pull down the green knob, the door can be moved with the operator.

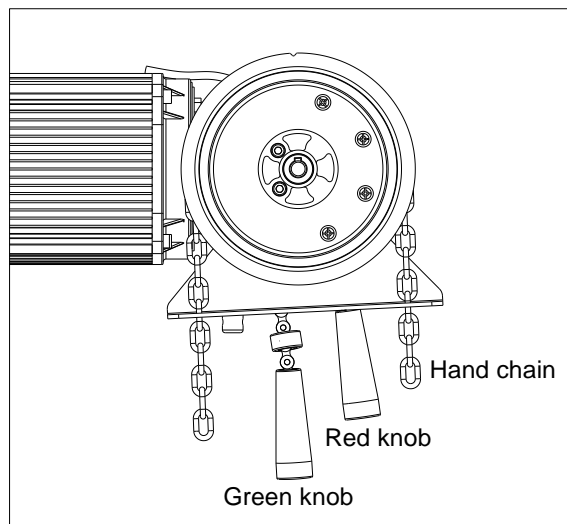


Fig.3 Operation with release knob



**Information:**

If the close indicator light on the control unit flashes, this means the operator works in manual operation, pull down the green knob till the light turns off, now the door operator works in electrical operation.



**Warning:**

- Use the chain only in emergency.
- Do not pull the chain too hard, otherwise the chain components will be damaged.
- It is forbidden to pull down the red knob, when the electric operator runs, that can cause damage of the motor.
- Intensive and continuous use of the manual chain reducer is forbidden, it may be used only in emergency.
- 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 recommended to fix the lower part of the chain as shown in Fig.4, to avoid hindrance to people and equipment move.

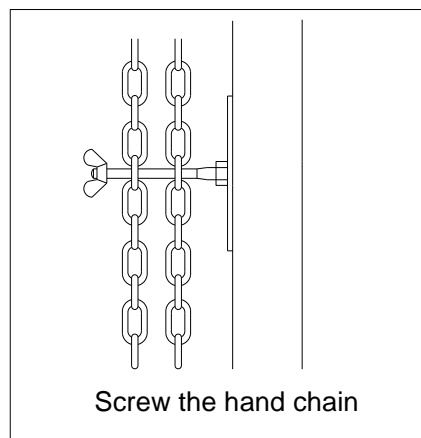


Fig.4

## 8. Wiring



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

- Locate control unit: 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.
- Feed the cables through the screw fitting into the operator, connect all the cables required.
- Connect the cables to control unit in the same color. See **wiring chart**
- 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 screw fitting must be tightened by turning the plastic nut.
- In an emergency, press the red emergency switch on the control unit can cut off the power of control unit immediately. Rotate the switch in arrow direction to make the switch return to its original position.

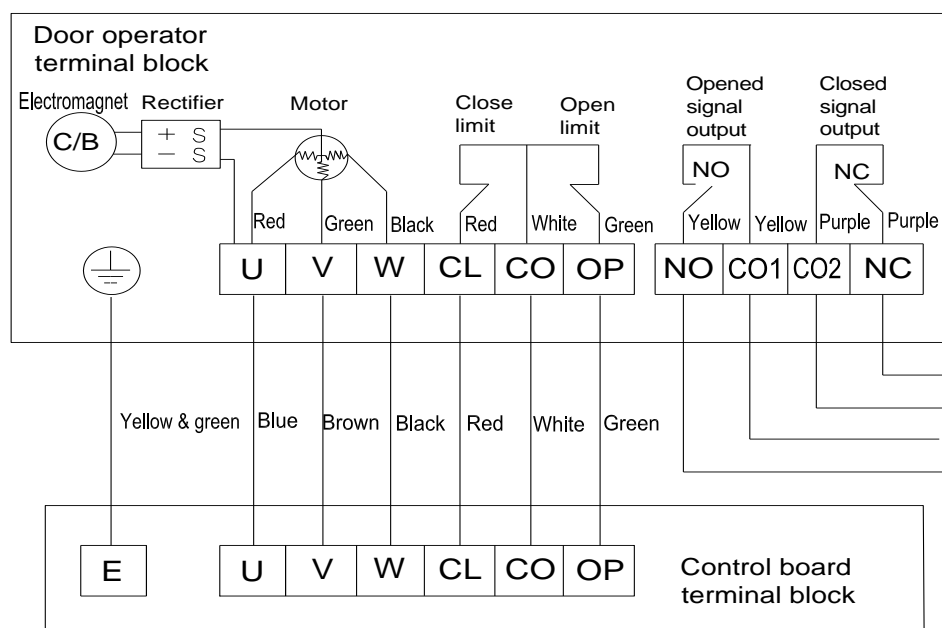


Fig.5 Wiring chart

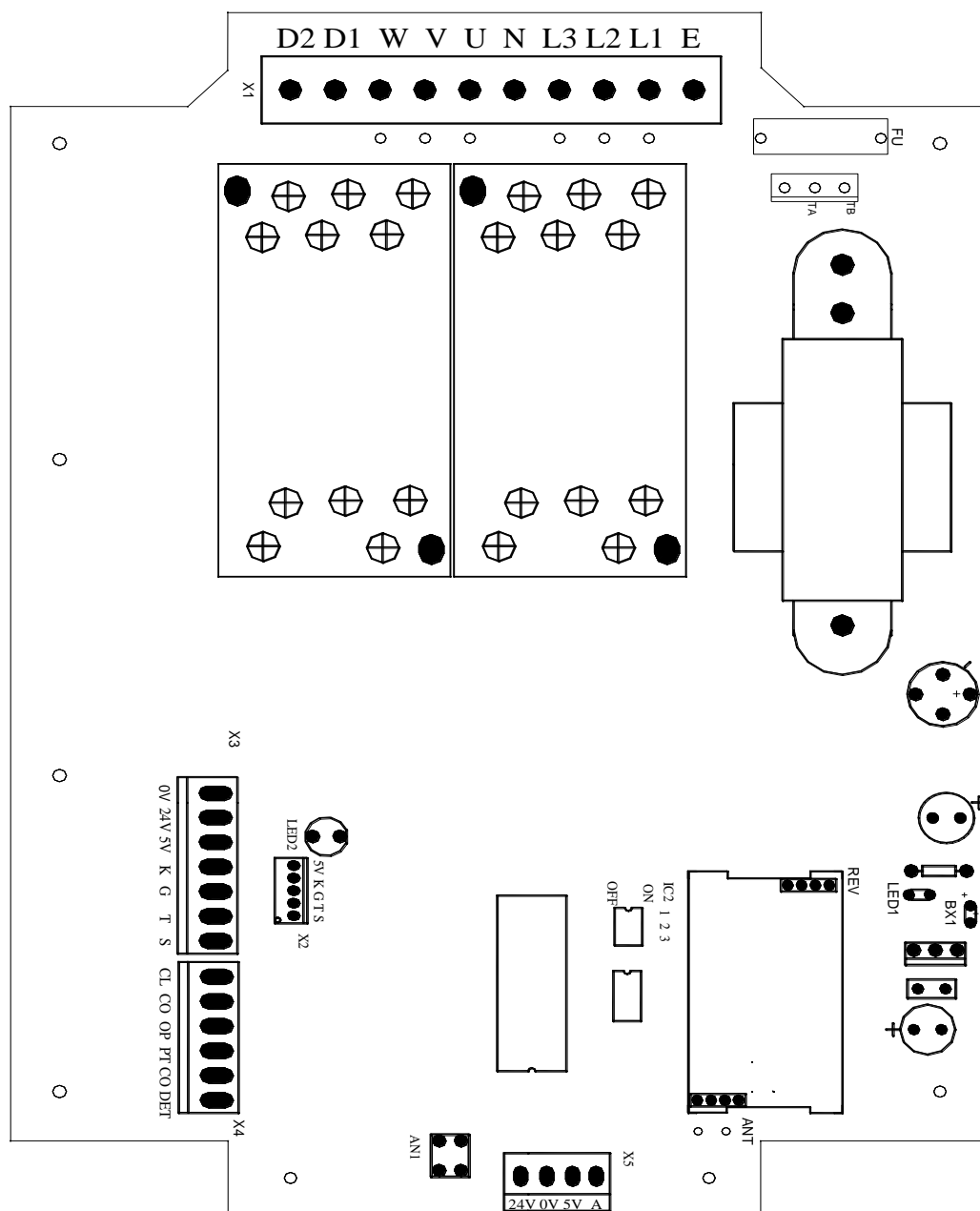


Fig.6 Three-phase control board diagram

**Control board see Fig.6**

- 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

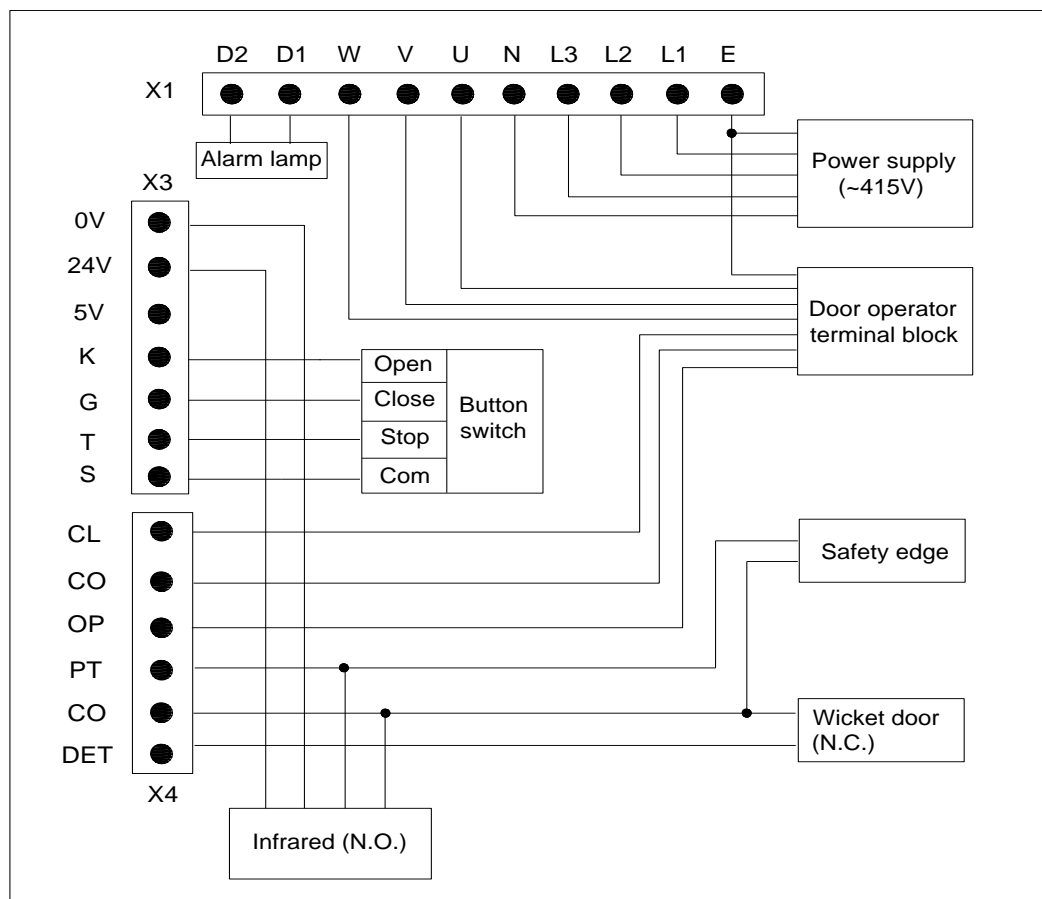


Fig.7

## 9. Adjustment and programming

### 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 Note: DIP-switch 1 must be set ON.	Auto-close time delay: 20 seconds Note: DIP-switch 1 must be set ON.

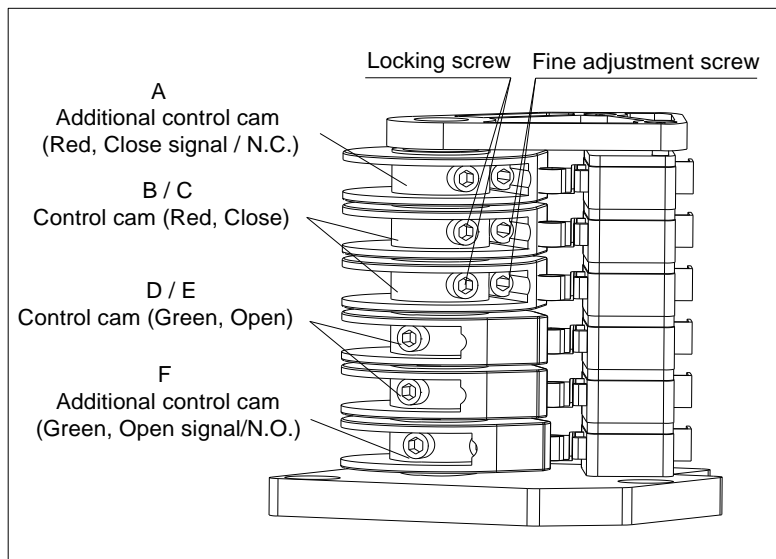
**Limit switch**

Fig.8

**Information:**

Each control cam has a locking screw and a fine adjustment screw. The locking screw is used to lock the corresponding control cam in the desired position. Fine adjustment can be made with the fine adjustment screw.

Additional limit cam (A) - CLOSE signal output, yellow wire.

Additional limit cam (F) - OPEN signal output, purple wire.

**Set the CLOSED end position****Rough adjusting**

- Make sure that the operator is fixed rigidly.
- Drive the door to the CLOSED end position, observe the rotating direction of red control cams (B/C) during closing.
- Loose the locking screws of red cams.
- Turn the cams in the same direction until the limit switches click.
- Finally tighten the locking screws.
- Repeat this step until the door is less than 20mm from the closed position.

**Fine adjusting**

- After rough adjustment, you can close the door and observe whether the door has successfully reached the closed position.
- If the door does not reach the fully closed position (less than 20mm), adjust the fine adjustment screws in the red control cams carefully to make the door reach the closed position, anticlockwise to close more, clockwise to close less.

**Set the OPEN end position****Rough adjusting**

- Drive the door to the OPEN end position, observe the rotating direction of the two green control cam (D/E) during opening.
- Loose the locking screws.
- Turn them in the same direction (i.e. on the opposite direction of the red cam) until the limit switches click.
- Finally tighten the locking screws.

#### Fine adjusting

- If the door does not reach the fully open position (less than 20mm), adjust the fine adjustment screws in the two green control cams, anticlockwise to open more, clockwise to open less.



#### **Information:**

When the door reaches fully closed or open position, make sure that the limit switches are active and the indicator on the control unit shall dim out. If the indicator does not dim out, repeat adjustment.



**Warning:** Please use the control unit to adjust the end positions, DO NOT use remote control.

#### **Adding / erase remote controls**

- **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.9.

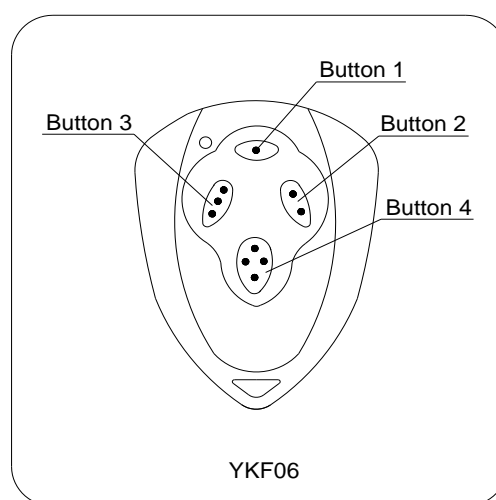


Fig.9



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

## 10. Maintenance

- Make sure the door is in good working order and that is correctly balanced.
- Have qualified technicians to service this operator.
- Keep operator clean at all times.
- Our company reserves the right to change the design and specification without prior notification.

## 11. Troubleshooting

Error	Cause for error	Remedies
Open only or close only.	Limit switch wire. The door out of balance. Infrared photocell.	Check the limit switch wiring are made correctly. Check the balance spring of the door. Check the limit switch N.O. or N.C., adjust the photocell by DIP-switch 2.
The CLOSE indicator light on the control box flashes. Motor does not work.	The common wire (white) is disconnected from the limit switch.	The operator works in manual operation, pull the red knob to make the operator works in electrical operation. Check the wiring.
Press OPEN or CLOSE button, the motor does not work.	The wiring of Limit switch is wrong. The open & close limit switches are pressed by limit cams in the same time.	Check the wiring. Check the limit cam.
The open or close position moves.	The locking screw looses. The balance of the door	Readjust the limit switch, tighten the screw. Adjust the balance spring.
Motor stop suddenly.	The temperature of motor is too high.	Allow the motor to cool down.
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.

## 12. 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	Remark
1	Door operator	1	
2	Supporting bracket	1	
3	Key 12X100	1	
4	Nut M12	2	
5	Hexagon socket screw (M12×25)	2	
6	Plain washer	2	
7	Spring washer	2	
8	Hexagonal wrench key (for limit switch only)	1	
9	Control box	1	
10	Cable (6m)	2	
11	User's manual	1	
12	Remote control	2	Optional
13	Drive shaft (for mounting door)	1	
14	Supporting shaft (for mounting door)	1	
15	Supporting plate (for mounting door)	4	
16	Bearing pedestal F90508	2	