

SERVO MOTOR INDUSTRIAL AND COMMERCIAL ROLLER DOOR OPERATOR

KG100SF

Installation and Users Manual

WARNING

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



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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.
- 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 necessary to install the mechanical stops on guides, in order to avoid the exit of the door from the guides.
- The operator motor may only be disengaged with the door closed. This must be carried out by specialist personnel for maintenance purpose only.
- 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 hand chain during opening or closing the door electrically.
- Permanently fix the safety labels against equipment in a prominent place or near any fixed controls.
- Our company reserves the right to change the design and specification without prior notification.

2. Main Features

- Brushless motor, high efficiency, more powerful, runs smoothly.
- Soft start and soft stop.
- High-precision encoder, easy to set.
- LED display.
- Adjustable running speed and auto-close time.
- Over-load protection.
- Chain box can be rotated 360° .

3. Operator Dimensions

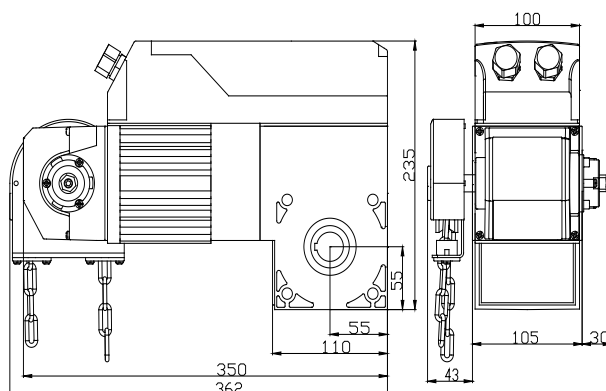


Fig.1

4. Technical Parameters

Model	KG100SF
Power supply	AC240V, 50Hz
Max. output torque	100N.m
Output shaft rotation speed	18rpm
Motor power	800W
Door area	$\leq 40\text{m}^2$
Output shaft aperture	25.4 mm
Max. limit switch travel	Output shaft rotates 20 circuits
Environment temperature	-20° C ~+50° C
Work duty	S2-120mins,S3-50%

5. Tools Required

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

Use a helper if possible to assist with the installation.

6. Installation

Before installing, make sure the door is in good working condition and torsion springs balance its leaf. We advise to install the operator as described below see '**on-shaft mounting**' section or '**mounting via chain drive**' section.

On-shaft mounting

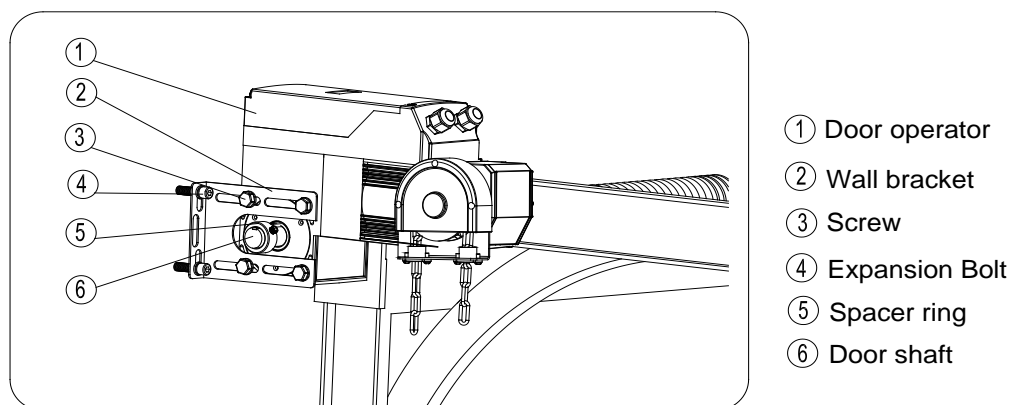


Fig.2

Mounting via chain drive

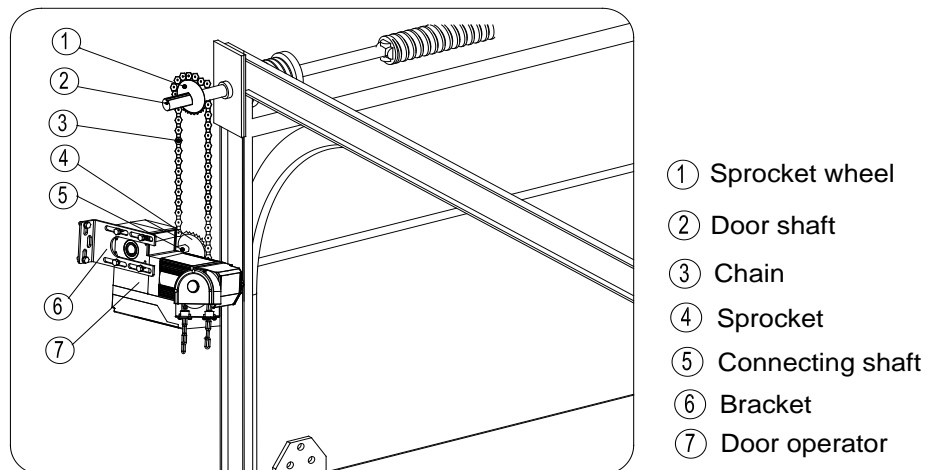


Fig.3

Door adjustment

Adjust the torsion spring of the door before installing the door opener. manually open and close the door smoothly .

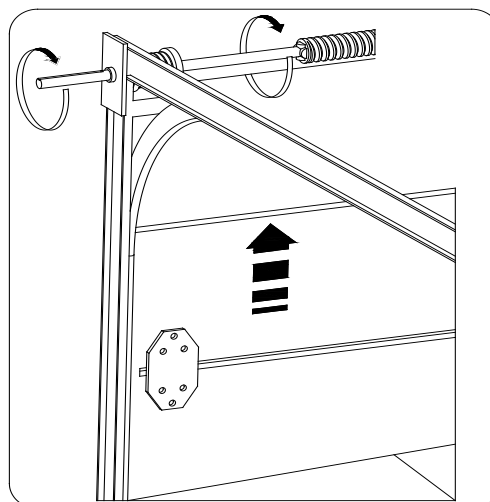


Fig.4

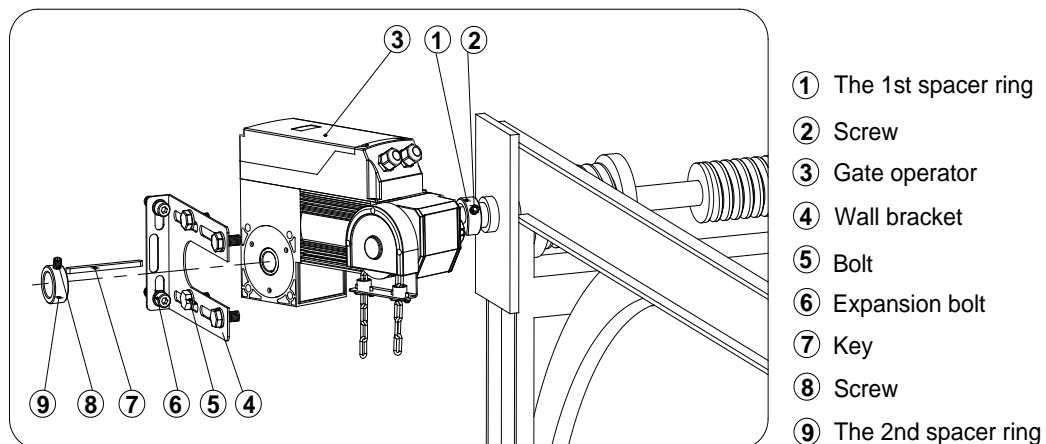


Fig.5

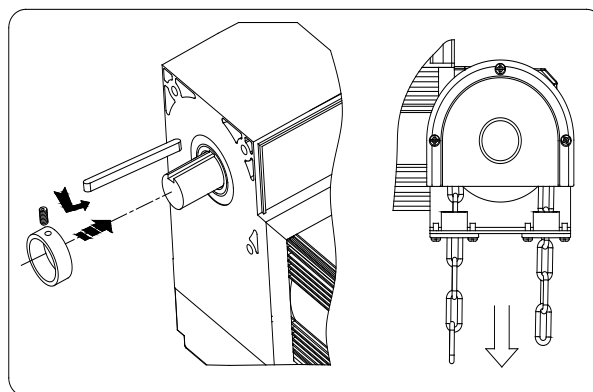


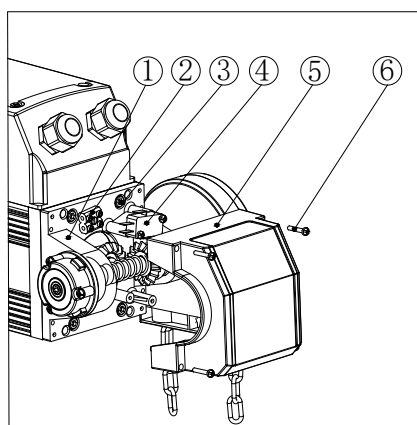
Fig.6

On-shaft mounting

- Slot the door operator onto the door shaft, check the mounting position of the wall bracket, Mark the line on the wall using a pencil.
- Remove the door operator.
- Fix the expansion bolt anchor on the wall.
- Slot the 1st spacer ring ① onto the door shaft, tighten the screw ②.
- Slot the door operator back onto the door shaft (ensure correct position of the key⑦) and screw the wall bracket (L-shaped iron fitting)④ on the operator ③ with four bolts M10×20 ⑤ and plain washers.
- Mount the wall bracket ④ onto the wall using expansion bolt ⑥. The wall bracket can be placed from the left or from the right of the operator.
- Slot the 2nd spacer ring ⑨ onto the door shaft and push it close to the door operator. Push the 1st spacer ring close to the operator and fix both rings with two screws M8×15.

The chain box is normally delivered in right side (see Fig.8A), if you need to change it from right side to left side (see Fig.8B) proceed as follows:

- Loose the four screws⑥, remove the plastic cover⑤.
- loose the hexagon socket screws③.
- Pull out wire from the terminal block②.
- Turn the base 180° ①.
- Connect the limit switch and terminal block to the other side.
- Reconnect the wire.



- ① Base
- ② Terminal block
- ③ Hexagon socket screw
- ④ Limit switch
- ⑤ Plastic cover
- ⑥ Screw

Fig.7

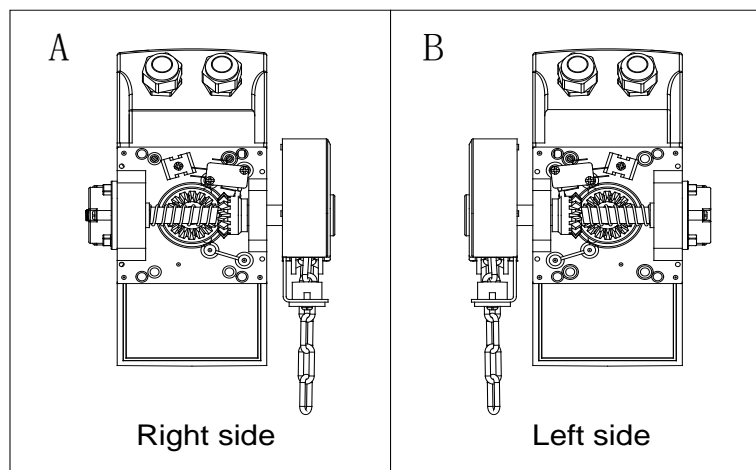


Fig.8



Information:

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

Before installing, make sure that the space available above the door are suitable, it is recommended that you should better install the operator as shown in fig.9 (I).

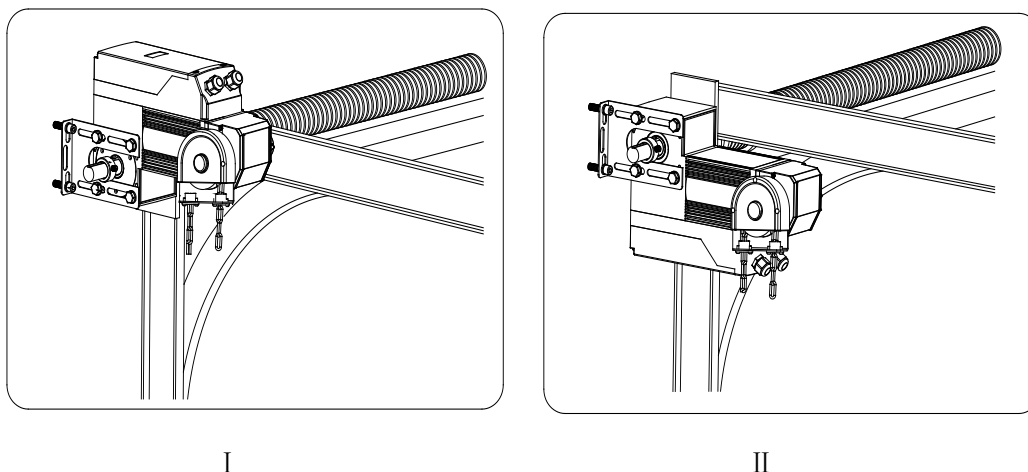


Fig.9

7. Manual Operation and Release Function

Manual operation

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

Operation with hand chain

In case of power failure, move the door in the OPEN or CLOSE direction by pulling on the hand chain.

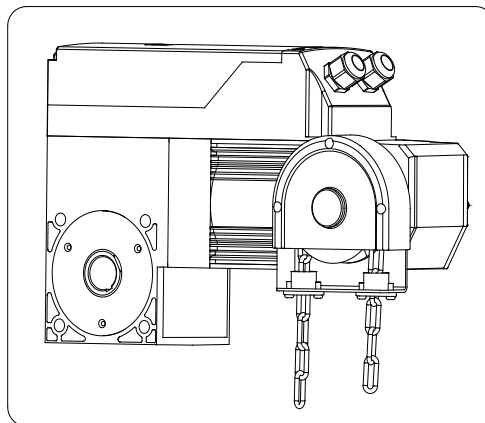


Fig.10 Operation with hand chain

The gate fails to move if pull the release chain, rotate the bolt clockwise by hex wrench see Fig.11.

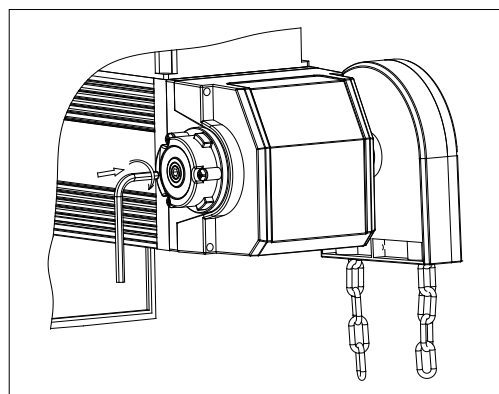


Fig.11



Information:

If the operator does not work electrically and "Err01" indicates on the LED, pull one side of hand chain lightly until a reset is carried out see Fig.12 (1), the 'Err01' disappear, now the electronic control unit can be used.



Warning:

- Intensive and continuous use of the hand chain is forbidden, it may be used only in emergency.
- Do not pull the chain too hard, otherwise the chain components will be damaged.
- 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.12 (2), to avoid hindrance to people and equipment move.

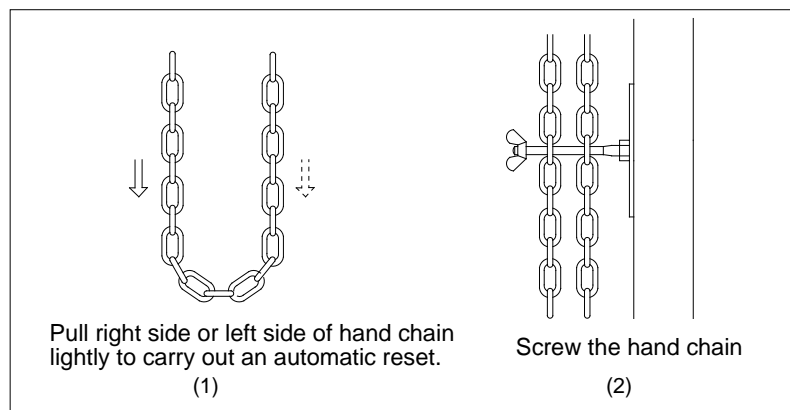


Fig.12

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.
- 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.
- Connect the cable from the motor to control box, tighten the aviation plug.

Control box

- Three buttons (OPEN, CLOSE, STOP) on the control box.
- 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.

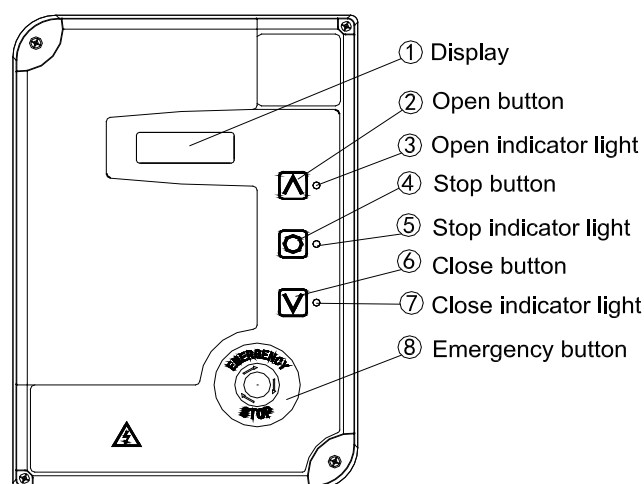


Fig.13

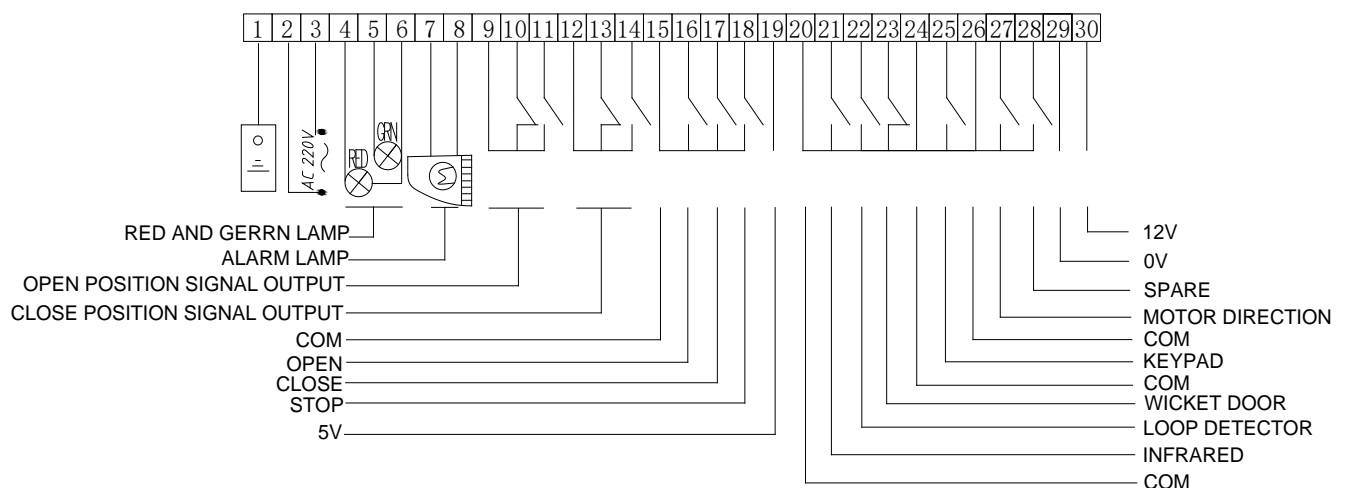
Terminal block

Fig.14

- **Power:** 1-Ground, 2-Power, 3-Neutral
- Connect **red light** (AC240V) to 4 and 6, the light will turn on if the closed position is reached.
- Connect **green light** (AC240V) to 5 and 6, the light will turn on if the opened position is reached.
- Connect **alarm lamp** (AC240V) to 7 and 8, the lamp turns on if the gate runs, and turns off if the gate stops.
- **Opened position signal output**, 9 & 11 N.O. passive signal, 9 & 10 N.C. passive signal.
- **Closed position signal output**, 12 & 14 N.O. passive signal, 12 & 13 N.C. passive signal.
- **External button switch (three-button)**, 15-com, 16-open, 17-close, 18-stop, 19-power 5V.
- Connect **Infrared photocell** (N.O.) to 20 and 21, if infrared beam is interrupted during closing, the door will reverse and go open immediately.
- Connect **loop detector** (N.O.) to 20 and 22, if loop detector detects vehicles, the door will open immediately and stop at opened position, after vehicles move out of the loop, the door closes automatically.
- Connect **wicket door** to 23 and 24, the door cannot move if wicket door is opened, the LED indicates 'Err02'.
- Connect **Keypad (single-button)** to 24 and 25, the door will open-stop-close-stop cycle.
- If you want to reverse the **motor direction**, short 26 and 27.
- **12V Power output:** 29 and 30, the output power less than 2W.

Limit switch

Verify open direction: push the open and close button on the control box to check the motor direction, if the gate does not move in the desired direction, then you will need to reverse the motor operating direction, you can do this by short 26 and 27.

9. Settings and Programming

Open limit setting

- Press and hold '**STOP**' and '**OPEN**' button on the control box for more than 6 seconds.
- Release the buttons until 'L0001' is displayed on the LED.
- Press OPEN button to set open position, OPEN and CLOSE button can be used to adjust the door position.
- Press 'STOP' button to confirm open position.

Close limit setting

- After setting open limit switch position, 'L0002' will be displayed on the LED.
- Press CLOSE button to set close position, OPEN and CLOSE button can be used to adjust the door position.
- Press 'STOP' button to confirm close position.
- And then 'L0003' will be displayed, this means the open and close positions have been set correctly. If 'Err03' indicates on the display, please reset the opened & closed end positions, repeat the steps above.

P1. Close Speed (300-500), (Default: 500)

- Press and hold '**STOP**' button about 5 seconds
'P1' will be displayed on the LED
- Press 'OPEN' to increase or 'CLOSE' button to decrease the close speed
- Press 'STOP' to confirm the setting and exit.

P2: Open Speed (300-500), Default: 500

- After completion of setting P1.
'P2' will be displayed on the LED.
- Press 'OPEN' to increase or 'CLOSE' button to decrease the open speed
- Press 'STOP' to confirm the setting and exit.

P3: Auto Close Time (10-90sec), Default: 0 (Inactive.)

- After completion of setting P2.
'P3' will be displayed on the LED.
- Press 'OPEN' to increase or 'CLOSE' button to decrease auto close time.
- Press 'STOP' to confirm the setting and exit.

P4: Closing Soft Stop Width (5-10), Default: 8

- After completion of setting P3.
'P4' will be displayed on the LED.
- Press 'OPEN' to increase or 'CLOSE' button to decrease soft stop width.
- Press 'STOP' to confirm the setting and exit.

P5: Door Operation ('0'- Inching Down / '1' - Latching Down), Default: '0'- Inching Down

- After completion of setting P4.
'P5' will be displayed on the LED.
- Press 'OPEN' or 'CLOSE' button to choose from '0' -Inching Down mode or '1' – Latching Down Mode.
- Press 'STOP' to confirm the setting and exit.

Inching Down Mode

- Open the Door: Single press and release of 'OPEN' button.
- Close the Door: Hold 'CLOSE' button and release the button when it reaches to desired position or the door will stop at the closed limit.

Latching Down Mode

- Open the Door: Single press and release of 'OPEN' button.
- Close the Door: Single press and release of 'CLOSE' button.

NOTE: Latching down mode is only possible in conjunction with an Entrapment Protection Device such as an infrared photocell or a safety edge. Failure to do so may result in damage to property or injury or death to person.

***The door Must Only be set to LATCHING DOWN if there is a suitable Entrapment Protection Device installed. Failure to do so can lead to serious injury or death.**

Error Messages

- **Err01:** an automatic reset is not carried out.
- **Err02:** the wicket door is open.
- **Err03:** Failure to set opened or closed end position.



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

10. Adding / Erase Remote Controls

- **Adding extra remote controls (Learn):** Press 'LEARN BUTTON' on the right side of white box about 1 second, the 'LED' will be on, press any remote control button, the 'LED' will flash 3 times and then turns off. this indicates the learning process is finished.
Up to 30 remote controls may be used.
- **To erase all remoter controls:** press and hold 'LEARN BUTTON' till 'LED' turns ON and turns OFF automatically. This indicates that all the remote controls have been erased completely.
- The remote control works in three-channel mode, (1-open, 2-close, 3-stop, 4-not used)
See Fig.15.

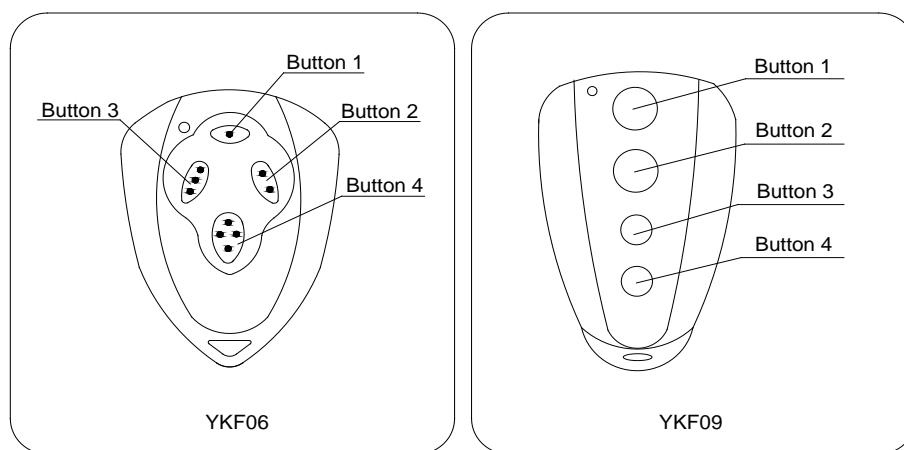


Fig.15



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

9. 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.

10. Troubleshooting

Error	Cause for error	Remedies
Err01	An automatic reset is not carried out.	Pull the hand chain see Fig.12-1 to carry out an automatic reset. (See Hand chain section)
Err02	Wicked door is opened. Check the wire between 23 and 24	Close the wicket door. Connect the wire between 23 and 24
Err03	Failure to set encoder	Reset the opened and closed position.
The door cannot stop in desired position.	Check the balance spring of door.	Readjust the balance spring, then reset opened and closed end position.
The door cannot be opened or closed.	Check the safety edge or infrared.	Replace the safety edge or infrared photocell.
Remote control does not work.	Battery level may be low.	1. Replace the battery inside the remote control. 2. Erase remote controls and then re-program the remote control.

11. 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	2
4	Screw (M8X15)	2
5	Key(6X5X70)	1
6	Bolt (M10×20)	4
7	Plain washer 10	4
8	Cable (4 cores, 6m)	1
9	Cable (9 cores, 6m)	1
10	Chain holder	1
11	Control box	1
12	Remote controller	2
13	Waterproof adapter	2
14	User's manual	1