

# **DKC400W(U)Y-1 SLIDING GATE OPERATOR (100)**

## **USER'S MANUAL**

### **(SPRING LIMIT SWITCH)**

**ZHEJIANG XIANFENG MACHINERY CO., LTD.**



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## **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.

- The gate operator should be installed by a qualified technician; otherwise, serious personal injury or property damage may occur.
- The auto-reverse function must be checked during installation to ensure that the gate can auto-reverse in the event of obstruction.
- This auto-reverse function should be regularly inspected and adjusted, if necessary.
- When opening or closing the gate, do not attempt to walk or drive through the gate.
- Children should not be allowed to play near or operate automatic gates.
- The automatic gate operator must be grounded.
- Install the gate operator on the inside of the property, DO NOT install it on the outside of the property where the public has access to it.
- Be careful when in close proximity to moving parts where hands or fingers could be pinched.
- Do not allow control devices to be placed so that a person can access them by reaching through the gate.
- In the event of power failure, an emergency release key allows you to operate the gate manually.
- The operator should be switched off before repairing it or opening its cover.
- Please erase and reprogram the code after installing the operator.

## **2. Main features**

- The device is used to drive sliding gate.
- For your safety, the DKC400W(U)Y-1 will stop and reverse if it encounters an obstruction on closing and stop when it encounters an obstruction on opening.
- Keypad / single button interface.
- Infrared terminal (N.C) is supplied to use.
- Supports up to 100 remote controls.
- User programmable and user erasable remote codes.
- Hopping code technology prevents your remote code being accessible to others.
- Auto-close feature is available for this operator.
- Pedestrian mode.
- Manual key release design for emergency purposes.

### 3. Main technical parameters

Type	DKC400WY-1	DKC400WUY-1
Power supply	220V, 50Hz	110V, 60Hz
Motor speed	42rpm	47rpm
Rated output power of motor	150W	
Remote control operating distance	30m Frequency: 433.92MHz	
Remote control mode	Single button	
Output shaft height	58.5mm	
Max. gate weight	500Kg	
Output torque	14N · m	
Limit switch	Spring limit switch	
Noise	≤56dB	
Duty cycle	S2, 20 minutes	
Environmental temperature	-20°C~+50°C	

### 4. Installation

The DKC400W(U)Y-1 rack-driven gate operator operates by forcing a drive rack past a drive gear. The entire configuration is shown in Fig.1. The gate operator must be installed on the inside of the gate.

#### Gate preparation

Be sure the gate is properly installed and slides smoothly before installing the DKC400W(U)Y-1 sliding gate operator. The gate must be plumb, level, and move freely.

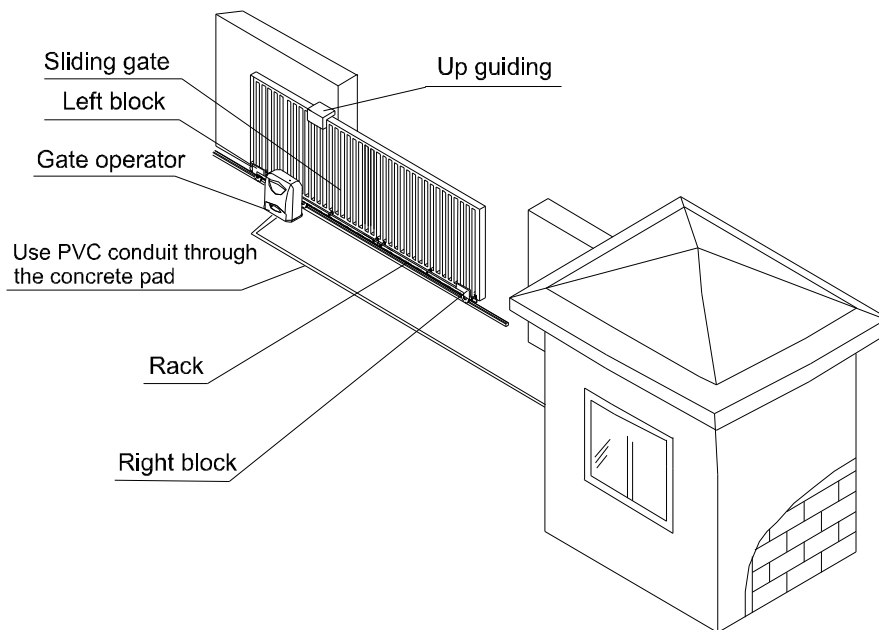


Fig.1

### Conduit

In order to protect the wires, use PVC conduit for power wires, conduit must be set into the concrete when it is poured. Wires within the conduit shall be located or protected so that no damage can result from contact with any rough or sharp part.

### Concrete pad

The base unit of the gate operator requires a concrete pad in order to maintain proper stability. The concrete pad should be approximately 260mm x 200mm x 200mm deep in order to provide for adequate operation.

### Anchors

You can use the anchors and anchor bolts that are provided with the operator. These anchors must be set into the concrete when it is poured or you can use wedge anchors to fasten the operator. See Fig.2

### Operator

In locations where ground freeze is possible, mount the gate operator as shown in Fig.2 installation 1 or installation 2. Check the operator and make sure it is lined up with the gate.

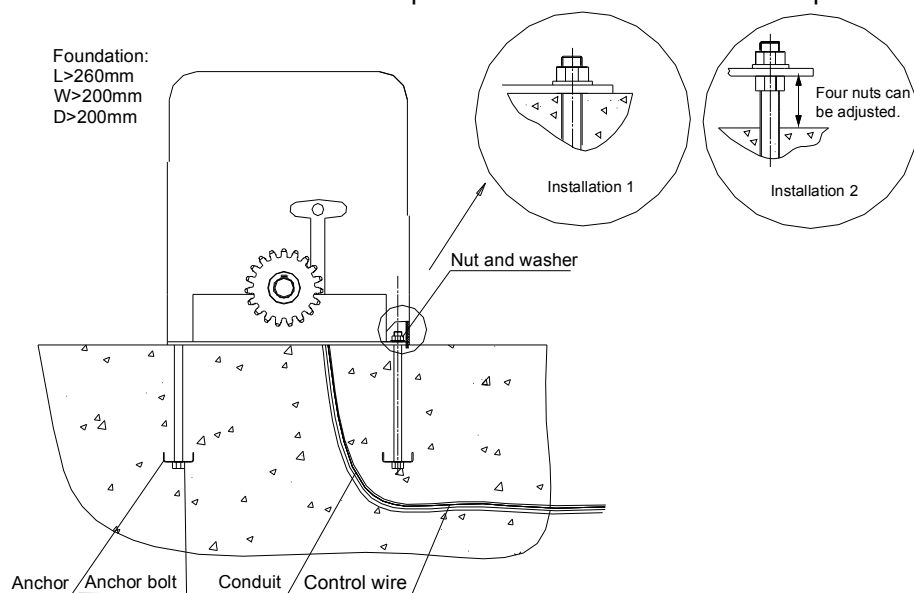


Fig.2

### Install the rack (see Fig.3)

- Fix the three nuts (in the same package with rack) on the rack element.
- Lay the first piece of rack on the gear and weld the first nut on the gate.
- Move the gate manually, checking if the rack is resting on the gear, and weld the second and third nut.
- Bring another rack element near to the previous one. Move the gate manually and weld the three nuts as the first rack, thus proceeding until the gate is fully covered.
- When the rack has been installed, to ensure it meshes correctly with the gear.
- The space between rack and gear is about 0.5mm.
- If the gear cannot mesh the rack, we advise you to install the operator as shown in Fig.2 installation 2 (Four nuts can be adjusted, thus the operator height can be adjusted).

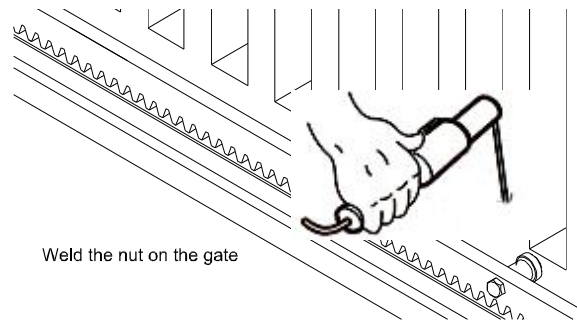


Fig.3

Spring limit switch

- To ensure safety, it is recommended to install limit switches at both ends of the gate to prevent the gate from sliding out of the rails. The rails must be installed horizontally.
- Install the plastic block as shown in Fig.4 and Fig.5. The spring limit switch and blocks are used to control the position of the gate.
- Release the gear clutch with the key and push the sliding gate manually to pre-determine the position, fix the block to the rack and then tighten the gear clutch with the key. Moving the gate electrically, adjust the block to the proper position until the position of the opening and closing meet the requirement.

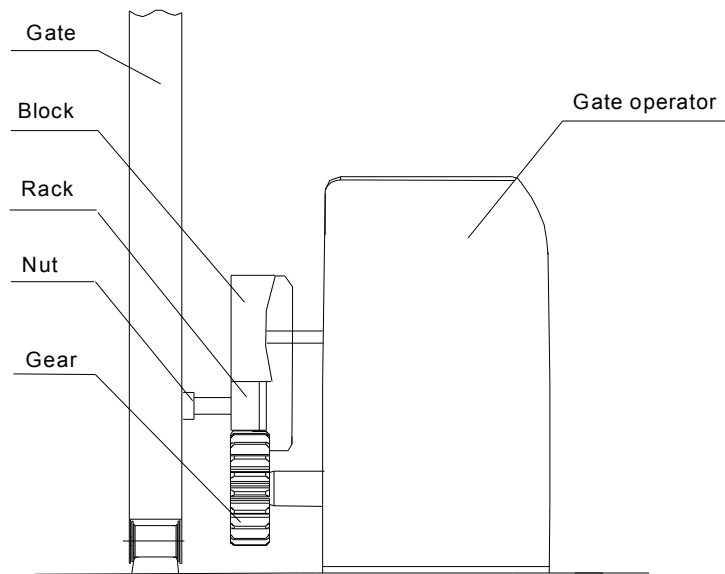


Fig.4

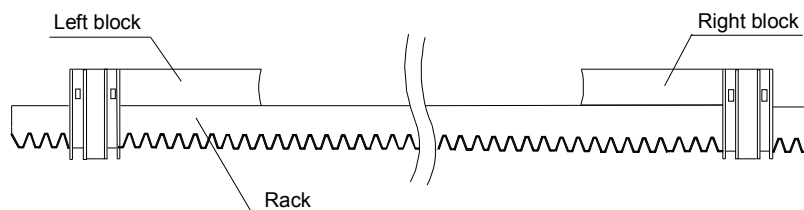


Fig.5

Manual operation

In case of power failure use manual release key to open or close gate manually, use the release key as follow:

- Fit the supplied key in the lock.
- Turn the key and pull the release lever 90° to release the clutch. (Note: Do not exceed 90°, be careful not to use too much force, otherwise the release lever will be damaged.)
- Open and close the gate manually.

Note: If the gate bumps the mounting post and cannot be electric opened, move the gate a few inches by hand, thus you can release the gate with the key, open and close the gate manually.

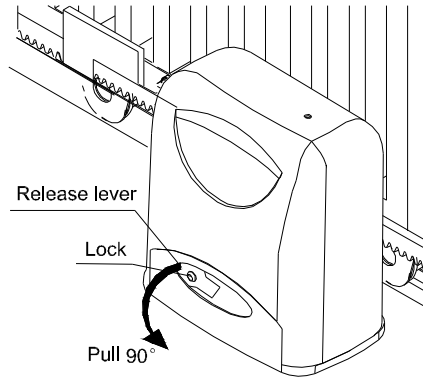


Fig.6

### 5. Connecting

Make sure that the power is OFF before making any electrical connections.

Remove the cover, perform the wiring (See Fig.7 and wiring notes for control board) and replace the cover again.

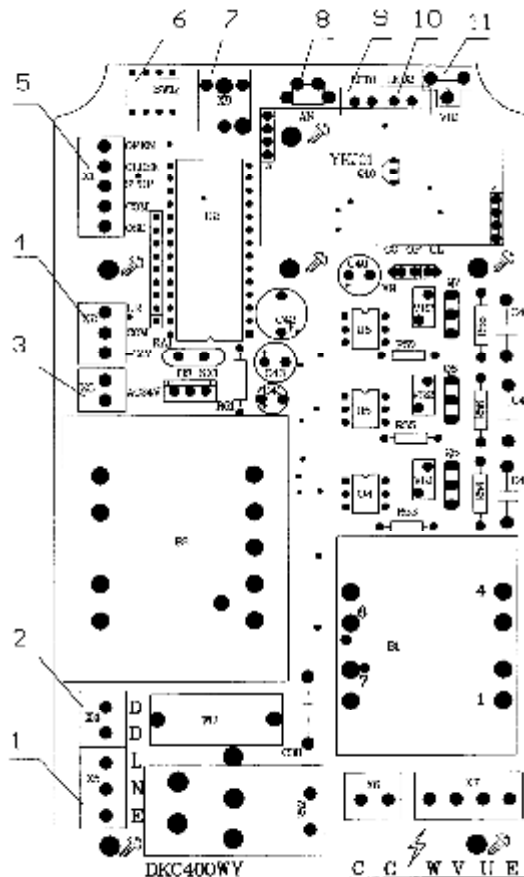
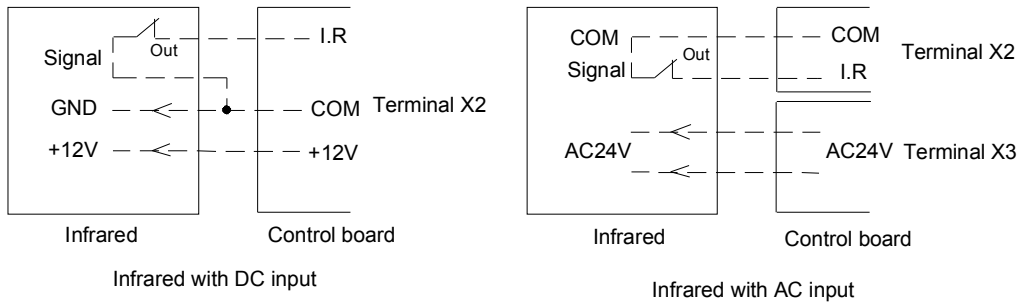


Fig.7 Control board

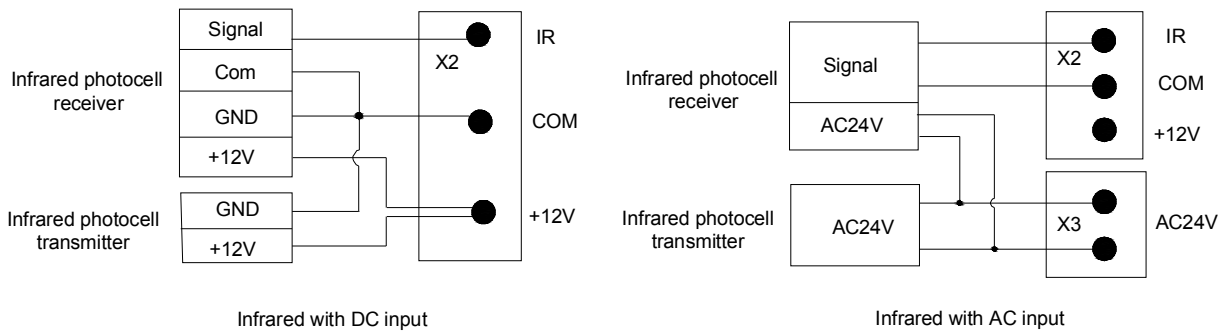
**Wiring notes of control board**

1. Power Input: E (Earth), L (Live), N (Neutral), DKC400WY-1: AC220V, DKC400WUY-1: AC110V
2. Alarm Lamp: connect alarm lamp wire to 'D' and 'D'.  
DKC400WY-1: AC220V, DKC400WUY-1: AC110V
3. Output power supply: AC24V
4. Output power supply: +12V (DC +12V), COM (COM), I.R. (Infrared N.C)

If the infrared beam is interrupted during closing, the gate will reverse and open immediately.  
The product is not factory equipped with an infrared device.



**Schematic diagram**

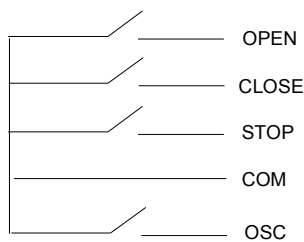


**Wiring diagram**

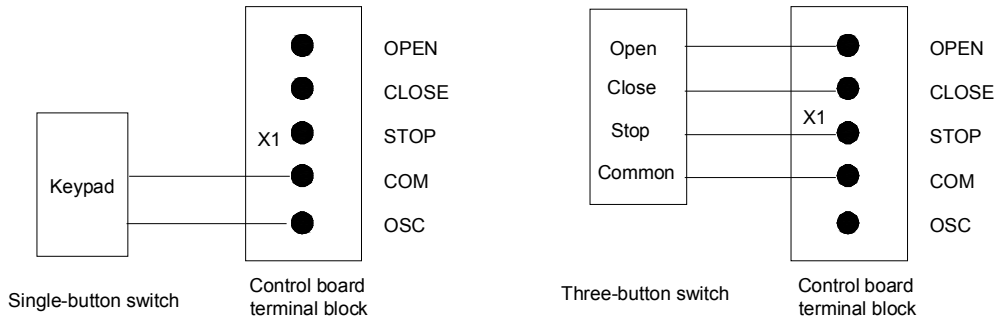
5. Three-button switch / single-button switch (keypad): The DKC400W(U)Y-1 is equipped with interfaces for three-button switch and single-button switch (keypad).

To install the keypad attach one lead of your keypad to 'OSC' of terminal X1 and the other to the 'COM'. The keypad will function in single channel mode.

For three-button switch installation, use the terminals for multi-channel mode. Connect open wire of external button switch to 'OPEN' of terminal X1, connect close wire of switch to 'CLOSE', connect stop wire of switch to 'STOP', connect common wire of switch to 'COM'.



**Schematic diagram**  
(Normally open contact)

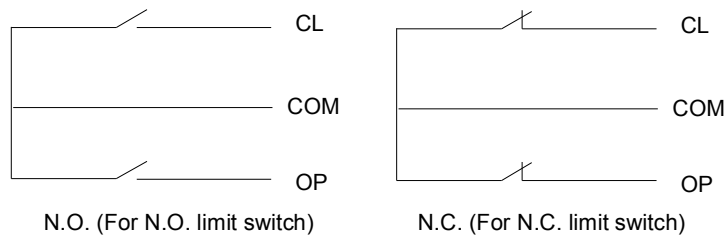


Wiring diagram

- 6. DIP-switch
- 7. Antenna: ANT
- 8. Learn button: AN
- 9. Power Indicator light LED1
- 10. Status Indicator light LED2
- 11. Force Adjustor (VR1): Clockwise +, Counterclockwise –

**Limit switch, capacitor and motor have been connected before delivery.**

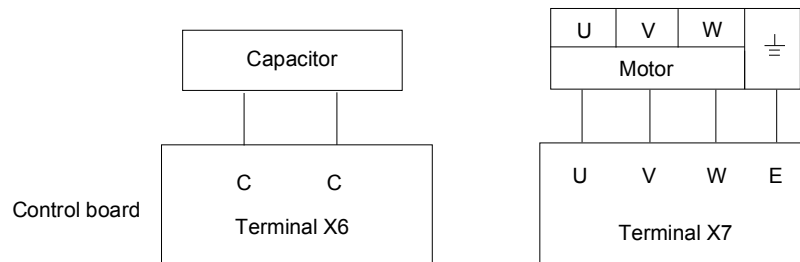
Limit switch (Terminal X9): CL (Close limit), CO (Com), OP (Open limit)



Limit switch mode is adjustable by DIP-switch. (See table 1)

Schematic diagram

Motor and capacitor (Terminal X7, X6): U (com), V (Positive direction), W (Opposite direction), E (grounding), C (capacitor)



Wiring diagram

Power Transformer: DKC400WY-1: 220V/12Vx2, DKC400WUY-1: 110V/12Vx2

Sampling Transformer: 110V/8.8V 4W

## 6. Tuning and operation

### Remote control

- The remote control works in a single channel mode. It has four buttons. See Fig.8 Remote control. The function of button 1, button 2, and button 3 are the same. With each press of the remote control button which has been programmed, the gate will close, stop, open or stop cycle. Button 4 is available for pedestrian mode. Note: if you canceled the pedestrian mode, the function of button 4 is same as the other three buttons.
- You can program/learn button 1, button 2, button 3 individually. You also can program/learn two buttons or three buttons together, but you need repeat the program/learn process if you want to use more than one button.

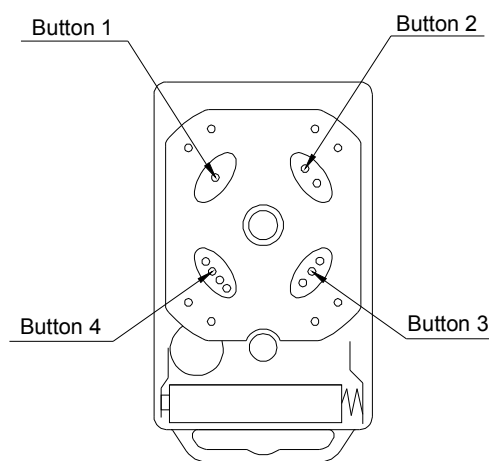


Fig.8 Remote control

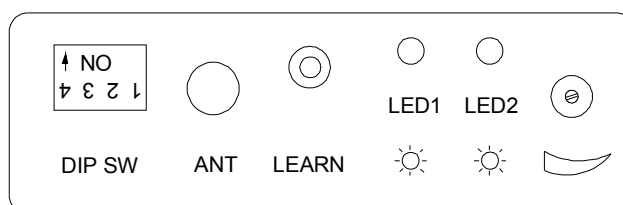


Fig.9

- **Adding extra remote controls (Learn):** Remove the cover, press the 'LEARN' button (Fig.9), then the red 'LED2' (Fig.9) will be on and turn off, then press the remote control button which you want to use, the 'LED2' will turn on about 2 seconds and then turn off again. The learning process is finished.  
Up to 100 remote controls may be used.
- **Erase remote controls:** To erase all existing remote controls, press and hold 'LEARN' button, the red 'LED2' turns on, release the button once the 'LED2' turns off. This indicates that all the remote controls have been erased completely.
- **Note:** Press the 'OPEN' button of external button switch or remote control button which has been learned, the gate will open, the motor rotates clockwise, the output voltage between 'D' and 'D' is AC220V/110V, the voltage between 'U' and 'V' is AC220V/110V. Press 'STOP' button or the same remote control button, the gate stops running. Press 'CLOSE' button or the same remote control button again, the gate will close, the motor rotates anticlockwise,

the output voltage between 'D' and 'D' is AC220V/110V, the voltage between 'U' and 'W' is AC220V/110V. Press the 'STOP' button or the same remote control button, the gate stops running.

- Verify open direction: If the gate does not move in the desired direction, then you will need to reverse the motor operating direction, open the black plastic cover, you can do this by exchanging wires 'V' and 'W', 'OP' and 'CL'.

Table 1 DIP-switch (DIP SW)

(See Fig.9)

Position	DIP-switch	Function
1	ON	Limit switch mode is NC.
	OFF	Limit switch mode is NO.
2	ON	Auto-close function and auto-close function of pedestrian mode are available.
	OFF	Both Auto-close function and auto-close function of pedestrian mode are shut off.
3	ON	Programming / In this position the control board is in programming condition, NOT USE condition.
	OFF	Normal / In this position the control board can be normally used.
4	Disable	

- Set auto-close function (This feature can be selected to make the gate stay open for some seconds before it automatically closes. The auto-close time can be adjusted to between 0 and 44 seconds.): Turn on the second and the third DIP-switch (See Fig.9) to ON position. Press the remote control button (button 1, button 2 or button 3) that has been programmed to open the gate (see **Verify open direction** section). Stop the gate at any position by pressing the same button, wait a few seconds according to your requirements (the range is 1~44 sec.), this period of time is regarded as 'auto-close time'. Close the gate by pressing the same button. Press the button again to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the **auto-close function** has been set.
- Cancel auto-close function: Turn on the second and the third DIP-switch (see Fig.9) to ON position. Press the remote control button (button 1, button 2 or button 3) that has been programmed to open the gate (see **Verify open direction** section). Stop the gate at any position by pressing the same button, wait until the gate close automatically (45 sec.). Press the same button to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the auto-close function has been canceled.
- Pedestrian mode: Pedestrian mode can be used to open gate about 0.3~1.5 meters for people pass through.

\* Set width of pedestrian mode: Turn on the second and the third DIP-switch (See Fig.9) to ON position. Press button 4 to open the gate (see **Verify open direction** section), Wait

until the gate travels the distance according to your requirements (the distance range is 0.3m~1.5m or wait for 3~10 sec.), it is regarded as 'the width of pedestrian mode'. Then press the same button/button 4 to stop the gate, wait for some seconds (1~ 44 sec.). Close the gate by pressing the same button/button 4. Press the same button again to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the **width of pedestrian mode** has been set.

If you open the gate with button 4, the gate will stop at the expected position that you have set.

\* Set auto-close function of pedestrian mode: Turn on the second and the third DIP-switch (See Fig.9) to ON position. Press button 4 to open the gate (see **Verify open direction** section), wait some seconds (3~10 sec.). Then press the same button/button 4 to stop the gate, wait some seconds according to your requirements (1~44 sec.), this period of time is regarded as 'auto-close time of pedestrian mode'. Close the gate by pressing the same button/button 4. Press the same button again to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the **auto-close function of pedestrian mode** has been set.

Note: the new width of pedestrian mode has been re-programmed in the device and replaced the original width you have set in **Set width of pedestrian mode** section.

If you open the gate with button 4, the gate will stop at the new expected position that you have set, after some seconds as what you have set, the gate will close automatically.

- Cancel width / auto-close function of pedestrian mode

\* Cancel both width and auto-close function of pedestrian mode: Turn on the second and the third DIP-switch (See Fig.9) to ON position. Press button 4 to open the gate (see **Verify open direction** section). Wait for more than 15 sec.. Then press the same button/button 4 to stop the gate. Wait until the gate close automatically (45 sec.). Press the same button to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the width and auto-close function of pedestrian mode have been canceled.

\* Cancel width of pedestrian mode, keep auto-close function of pedestrian mode: Turn on the second and the third DIP-switch (See Fig.9) to ON position. Press button 4 to open the gate (see **Verify open direction** section). Wait for more than 15 sec.. Then press the same button/button 4 to stop the gate. Wait some seconds according to your requirements (1~44 sec.). Then press the same button/button 4 to close the gate, press the same button again to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the width of pedestrian mode has been canceled, the auto-close function of pedestrian mode has been reserved.

Note: the new auto-close time of pedestrian mode has been re-programmed in the device

and replaced the original auto-close time of pedestrian mode that you have been set in **Set auto-close function of pedestrian mode** section.

\* Keep width of pedestrian mode, cancel auto-close function of pedestrian mode: Turn on the second and the third DIP-switch (See Fig.9) to ON position. Press button 4 to open the gate (see **Verify open direction** section). Wait some seconds (3~10 sec.), then press the same button/button 4 to stop the gate. Wait until the gate close automatically (45 sec.). Press the same button again to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the width of pedestrian mode has been reserved, the auto-close function of pedestrian mode has been canceled.

Note: the new width of pedestrian mode has been re-programmed in the device and replaced the original width.

If you open the gate with button 4, the gate will stop at the expected position that you have set, but the gate will not close automatically.

- Turn on the second DIP-switch to OFF position (Factory preset: OFF position), both auto close function and auto-close function of pedestrian mode were shut off.

**Note:**

- (1) **You must follow the operating instruction as above, any wrong operation is not allowed during setting. If your device responds to your requested function correctly, you have set the function successfully, otherwise repeat the above setup instruction until your device responds to your expected function.**
  - (2) **If the gate can not be moved, please check whether the gate is obstructed or gate is too weight.**
- Adjustment of the auto-reverse function: rotate the 'Force Adj. 'VR1' knob (Fig.9) with a screwdriver, the resistance may be increased or decreased by rotating clockwise or counterclockwise. Note: if the gate fails to reverse in the event of obstruction, then the opening force or closing force should be checked for conformity with requirements and adjusted accordingly. The gate will reverse if obstructed when closing, and will stop if jammed when opening.
  - If the auto-reverse direction is wrong, please open the black plastic cover, exchange two wires 'V' and 'W'. Exchange wires 'OP' and 'CL' if the limit direction is wrong.

**Activities Covered in this section**

- **Remote control:** With each press of the button, the gate will close, stop, open or stop cycle. **(Single-button mode)**
- **Three-button mode external button switch (not supply):** press 'OPEN' button, the gate opens. Press 'STOP' button, the gate stops. Press 'CLOSE' button, the gate closes.
- **Single-button mode external button switch / keypad (not supply):** With each press of the button, the gate will close, stop, open or stop cycle.
- **Auto-reverse function:** After adjusting the opening force and closing force, the gate will reverse and go open if obstructed when closing, and will stop if jammed when opening.

- **Auto-close function:** This feature can be selected to make the gate stay open for some seconds before it automatically closes. The auto-close time can be adjusted to between 0 and 44 seconds.
- **Pedestrian mode:** This feature can be used to open gate about 0.3~1.5 meters for people pass through.
- **Safe guard (Infrared photocell):** If infrared beam is interrupted during closing, the gate will reverse and go open immediately. This feature will not function if the gate is in fully opened and closed positions or during opening.
- **Open priority:** The gate will return to open if press 'OPEN' button of external button switch during closing.
- **Limit switch:** The switch is used to accurately stop the gate in the opened and closed positions.

If the gate stops at opened position when the limit switch is reached, the gate will not move if you press 'OPEN' button.

If the gate stops at closed position when the limit switch is reached, the gate will not move if you press 'CLOSE' button.

- The device is installed with a thermal protector, the thermal protector will switch off the motor automatically in case of the temperature is higher than 120°C and switch on the motor automatically when the temperature is lower than 85°C±5 °C.

## 7. Maintenance

- We recommend you put some grease in the keyhole to avoid rusting, also regularly grease the wheels and axles if the gate was jammed or cannot be moved smoothly.
- The operator must be well grounded.
- Keep operator clean at all times.
- Please power off before removing the cover.

**8. 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	Gate operator	1	
2	Key	2	Release the clutch
3	Securing plate	2	In order to locate the operator firmly, you can assemble two plates on both sides of the operator, then tighten with nuts.
4	Anchor	4	See Fig.2
5	Anchor bolt assembly	4	See Fig.2
6	Square spacer	12	If necessary, assemble the spacer between the rack and nut to synchronise the teeth of the two rack elements and keep racks in a straight line.
7	Right block	1	See Fig.5
8	Left block	1	See Fig.5
9	Transmitter	2	See Fig.8
10	User 's manual	1	

In the same bag.

## 9. Troubleshooting

Trouble	Possible causes	Solutions
Motor only runs in one direction.	The wire connector becomes loose.	Check wire connector make sure it is plugged in terminal block X7.
	The limit switch wire connector becomes loose.	Check limit switch wire connector make sure it is plugged in terminal block X9. Check the limit switch mode.
	The electric component on the control board such as Q5, Q6 or Q7 may be damaged.	Replace the electric component Q5, Q6 or Q7 (BTA16/600) or replace the board.
By pressing button 1(button 2 or button 3) which has been programmed to open the gate, press the same button again to stop the gate in required position, but the gate will auto-close immediately.	The auto-close time is too short.	Reset the auto-close time. See <b>Set auto-close function</b> section.
When you use button 4 of remote control to open the gate, gate travels too short.	The width of pedestrian mode is too narrow.	Reset the width of pedestrian mode. See <b>Set width of pedestrian mode</b> section.
When you use button 4 of remote control to open the gate, but the gate will auto-close immediately.	The auto-close time of pedestrian mode is too short.	Reset the auto-close time of pedestrian. See <b>Set auto-close function of pedestrian mode</b> section.
The gate will not open or close.	The limit switch wire connector becomes loose.	Check the limit switch mode (see table 1 DIP-switch).
	Connecting wires or terminal blocks are too loose.	Check the connecting wires and terminal blocks.
	The electric component on the control board such as Q5, Q6 or Q7 may be damaged.	Replace the electric component Q5, Q6 or Q7 (BTA16/600) or replace the board.
Remote control does not work	The indicator light of remote control does not light.	Check the batteries on your remote control.
	Remote control is not suitable for receiver.	After making sure the codes are correct, erase remote controls and then re-program the codes in the device. See <b>Adding extra remote controls (learning)</b> section.
	Broken receive board	Replace receive board.
When you open the gate by using button 1(button 2 or button 3) which has been programmed, gate will stop in mid-travel or reverse before reaching the fully limit position.	The Force Adj. (VR1) is adjusted too small.	Check the Force Adj. (VR1). Adjust VR1 to increase force.
	Gate is obstructed.	Remove the obstruction.
The remote control operating distance is too short.	Signals are shielded by the gate.	Link a new antenna (1~1.2m BVR 0.75mm <sup>2</sup> ) to the old antenna. Then fix the antenna on the wall vertically, make sure the total height from the top of antenna to the ground is approx. 1.5m.
Opening or closing force decreases.	Low voltage or capacitor is broken.	Check power supply or replace capacitor.