Sliding Gate Operator

User's Manual

Model:DKC400(U) & DKC400(U)Y

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.

CONTENT

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

2. Main Technical Parameters

Tab.1

Model	DKC400	DKC400U	DKC400Y	DKC400UY
Power supply	AC 220V, 50Hz	AC110V, 60Hz	AC 220V, 50Hz	AC110V, 60Hz
Motor speed	1400 r/min	1680 r/min	1400 r/min	1680 r/min
Gate moving speed	14m/min (24 teeth) 11m/min (19 teeth)	17 m/min (24 teeth) 13m/min (19 teeth)	14m/min (24 teeth) 11m/min (19 teeth)	17 m/min (24 teeth) 13m/min (19 teeth)
Control unit	Control box (optional)		All-in-one gate operator, control board included	
Output torque	14N • m			
Working time	90 sec.			
Limit switch	Magnetic limit switch / spring limit switch (According to your order)			
Remote control operating range	30m			
Frequency	433.92 MHz			
Remote control mode	Single-button			
Auto-close time	0-44 sec.			
Noise	≤60 dB			
Ambient temperature	-10°C~+50°C			

3. Main Features

- The device is used to drive sliding gate.
- For your safety, the gate operator will stop and reverse if it was obstructed on closing and stop when it was obstructed on opening.
- User programmable and user erasable remote codes.
- Infrared terminal (N.C) is supplied to use.
- Auto-close feature is available for this operator.
- Pedestrian mode.
- Manual key release design for emergency purposes.

4. Working Principle and Main Structure

DKC400(U)Y all-in-one multifunctional sliding gate operator integrated the electric control board into the operator, it is composed of a single-phase motor, worm and worm gear, the main shaft of the motor rotates the worm with the clutch engaged, the worm rotates the worm gear and output gear, which pushes the rack attached to the sliding gate, thus moving the gate.

Control board not included in DKC400(U) main unit, it can be fitted with the XF24W(AC220V) or XF24U(AC110V) control box according to your needs. The control box can be purchased through your dealer.

5. Installation and Adjustment

The DKC400(U) & DKC400(U)Y rack-driven gate operator operates by forcing a drive rack past a drive gear. The entire configuration is shown in Fig.1 - Fig.4. 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 sliding gate operator. The gate must be plumb, level, and move freely.

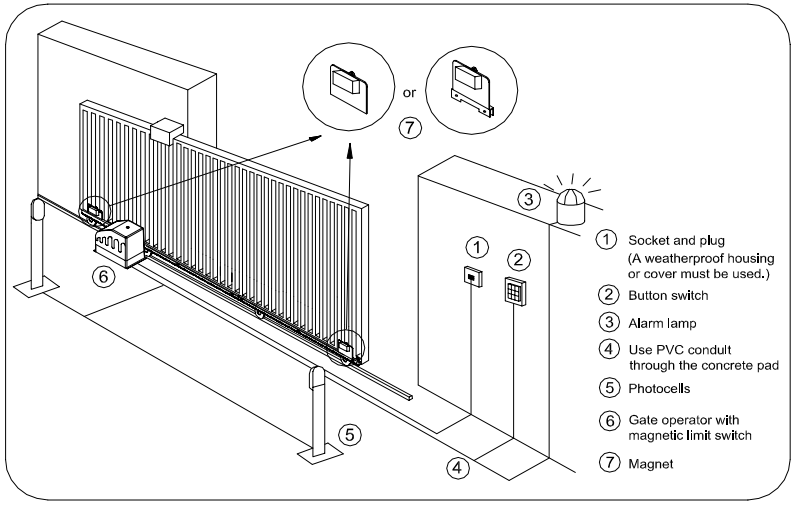


Fig.1 DKC400(U)Y Gate operator with magnetic limit switch

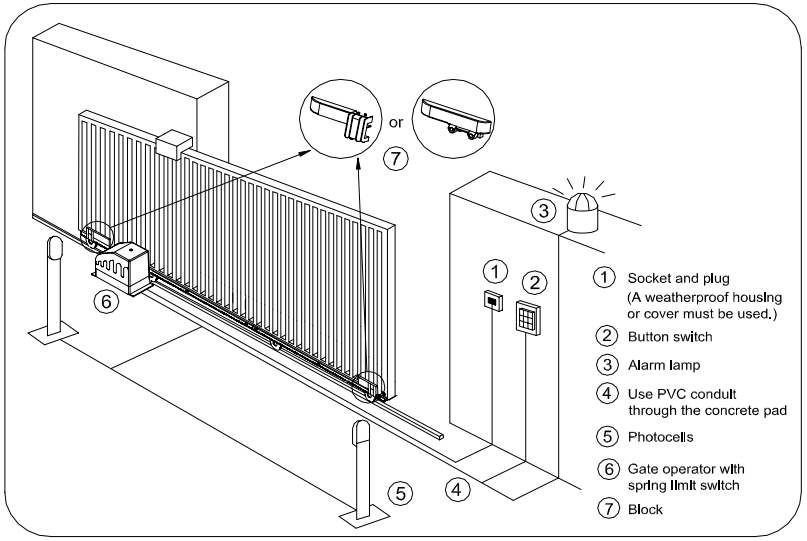


Fig.2 DKC400(U)Y Gate operator with spring limit switch

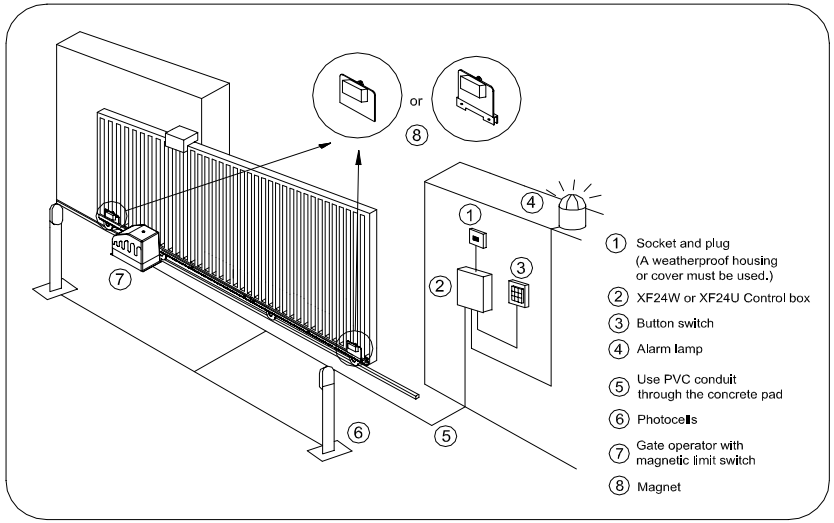


Fig.3 DKC400(U) Gate operator with magnetic limit switch

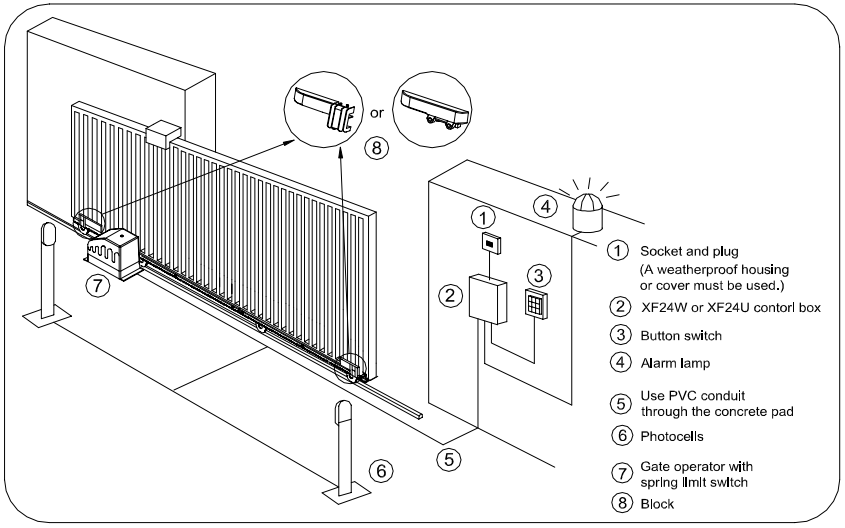


Fig.4 DKC400(U) Gate operator with spring limit switch

Conduit

In order to protect the wires, use PVC conduit for 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 300mm x 200mm x 200mm deep in order to provide for adequate operation. The pad should be 70mm above finish grade. Be sure to locate the pad so that it will not interfere with the gate.

Anchors

You can use the anchors, bolts, washers and nuts that are provided with the operator see Fig.5 and Fig.6. These anchors must be set into the concrete when it is poured, or you can use wedge expansion bolts.

Operator base

Mount the gate operator base to the concrete pad see Fig.5.Verify that the operator is leveled properly.

Operator

Mount the gate operator to the base using nuts and washers.

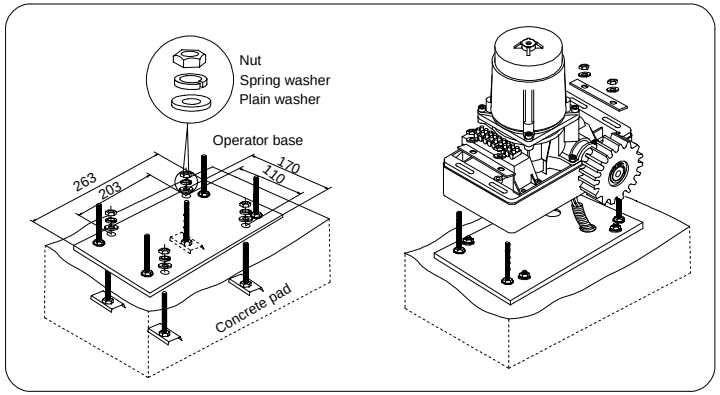


Fig.5

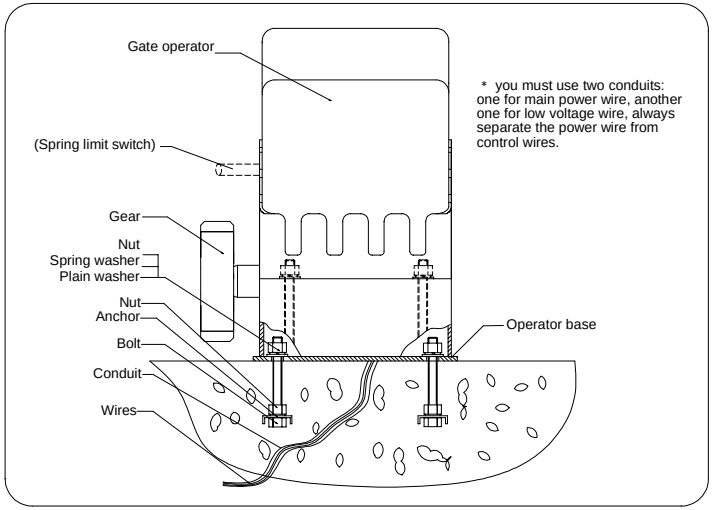


Fig.6

Installing the rack (see Fig.7)

Weld the steel rack

- Manually move the gate to its closing position.
- Place the three threaded pawls (in the same package with rack) on the rack element.
- Lay the first piece of rack on the gear and weld the first threaded pawl on the gate.
- Move the gate manually, checking if the rack is resting on the gear, and weld the second and third pawls.

- The space between rack and gear is about 1mm.
- Bring another rack element near to the previous one. Move the gate manually and weld the three pawls 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.
- If necessary, assemble the spacer between the rack and pawl to synchronise the teeth of the two rack elements and keep racks in a straight line. See Fig.7

Screw the nylon rack

- Manually move the gate to its closing position.
- Lay the first piece of rack on the gear and mark the drilling point on the gate, drill a hole and screw the bolt.
- Move the gate manually, checking if the rack is resting on the gear, and repeat the above operations.
- Bring another rack element near to the previous one. Move the gate manually and carry out the securing operations, thus proceeding until the gate is fully covered.

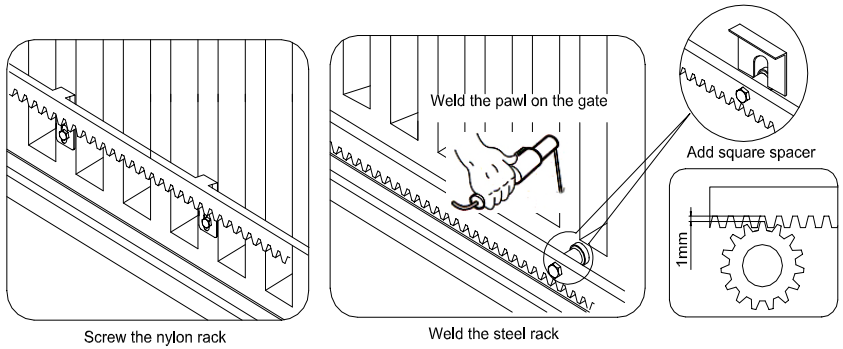


Fig.7

Magnets for limit switch

Install the magnet as shown in Fig.8 and Fig.9. The magnet and limit switch are used to control the position of the gate. When the magnet is installed, release the gear clutch and push the sliding gate manually to pre-determine the position. Weld or fit the magnet bracket to the rack and then tighten the gear clutch. The lower bracket is for open position and higher bracket is for close position. Finally adjust the magnet to the proper position by moving the gate with the motor. The magnet should be 10-15mm away from the magnetic limit switch. If it is too far away, the switch will fail to work. Adjust the position of the magnets until the positions of the opening and closing meet the requirement.

Important Note: Please note the two magnet brackets (fixed plate) are different: one is higher and another is lower. Verify and if necessary exchange the two brackets position. Also if necessary exchange the limit switch wires CL (close) and OP (open). Another common problem is there are two reed switches inside the magnetic limit switch: one is

upper and another is lower. The magnet position can be installed in the middle so it inducts both reed switches. Solution: adjust the magnet upper or lower.

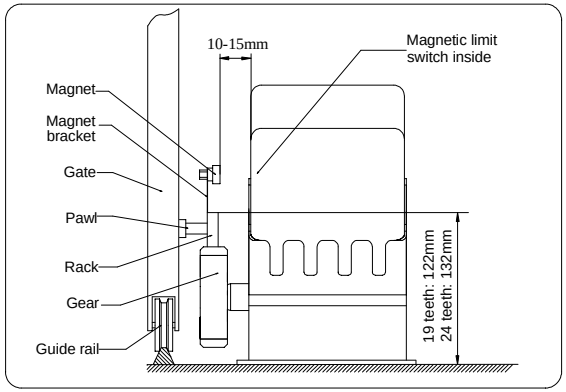


Fig.8

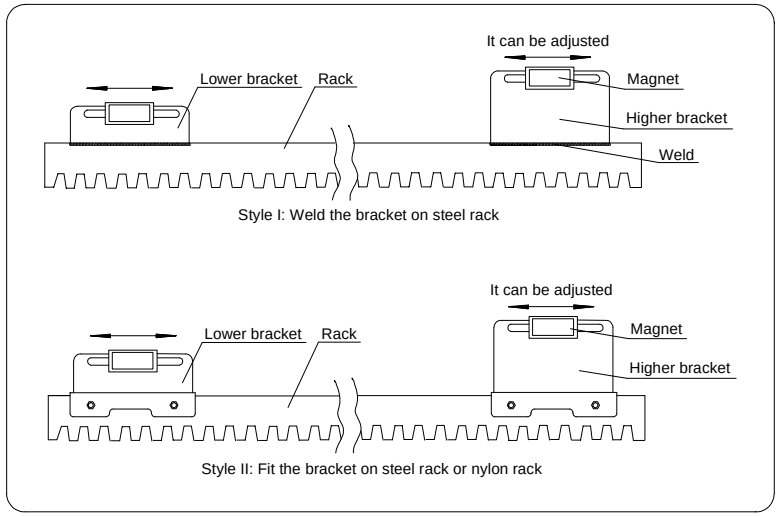


Fig.9

Spring limit switch

Install the block as shown in Fig.10 and Fig.11. Release the gear clutch with the key and push the sliding gate manually to pre-determine the position, screw 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.

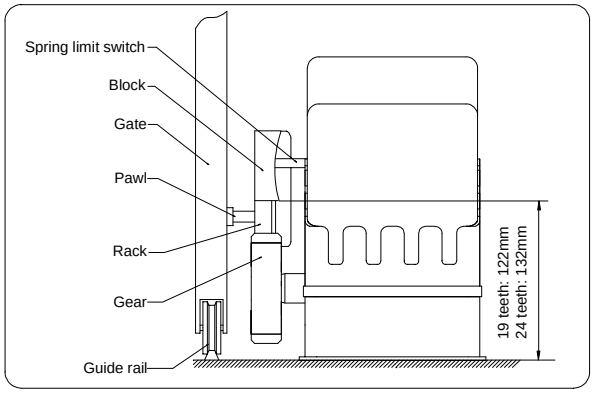


Fig.10

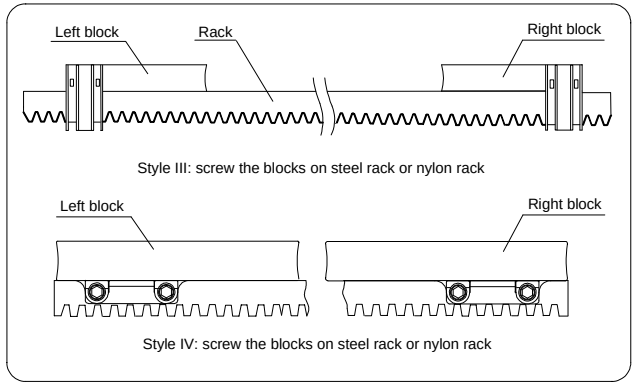


Fig.11

Tab. 2

Limit switch	Rack	Magnet bracket	Block
Magnetic limit switch	Steel	Style I (see Fig.9)	/
		Style II (see Fig.9)	/
	Nylon	Style II (see Fig.9)	/
Spring limit switch	Steel	/	Style III (see Fig.11)
		/	Style IV (see Fig.11)
	Nylon	/	Style III (see Fig.11)
		/	Style IV (see Fig.11)
Note: the rack and magnet bracket / block came with your gate operator depends on your order, select the proper installation method according to your needs.			

Manual operation (see Fig.12)

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

- Remove the cover.
- Fit the supplied key in the hole.
- Turn the key **counterclockwise** to release the clutch.
- Open and close the gate manually.
- After power-restored use the manual release key to engage the clutch by turning the key **clockwise** and resume normal operation.

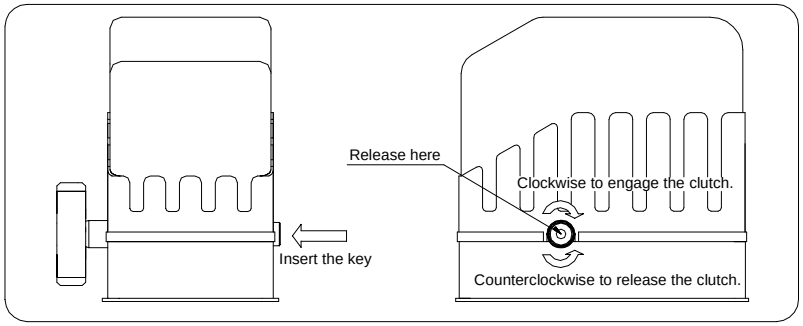


Fig.12

6. Connecting ----DKC400(U)

Make sure the control box power switch is OFF before connecting.

The DKC400(U) has a terminal block, Fig.13 shows the wiring of motor and limit switch, the DKC400(U) is not equipped with control box, the control box (XF24W or XF24U) can be purchased through your dealer.

Three different types of control boards (See Fig.14 KZB01 control board with SCR, Fig.15 KZB05 control board with relay, Fig.16 KZB13 control board with SCR & relay) can be used for the control box, identify the type of your control board before connecting, select the proper board diagram according to your order and connect the external button switch and safety devices see Fig.14 - Fig.16 and wiring notes. Programming and adjusting refer to 8.CONTROL section.

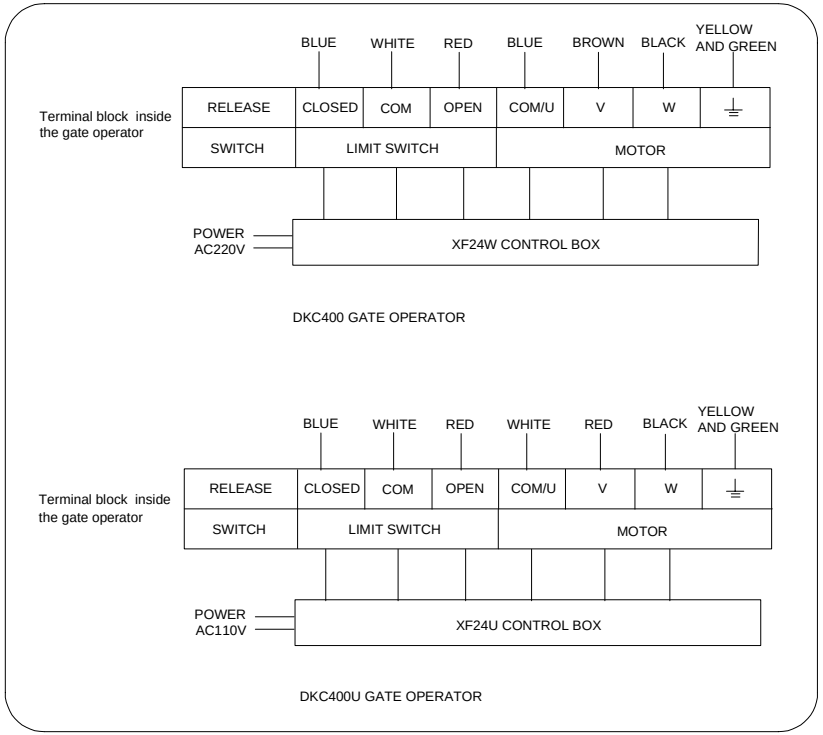


Fig.13

7. Connecting ----DKC400(U)Y

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

Control board included in the gate operator, there are three different types of control boards can be used for the gate operator, select the proper board diagram according to your order. Perform the wiring (See Fig.14 KZB01 control board with SCR, Fig.15 KZB05 control board with relay or Fig.16 KZB13 control board with SCR & relay.)

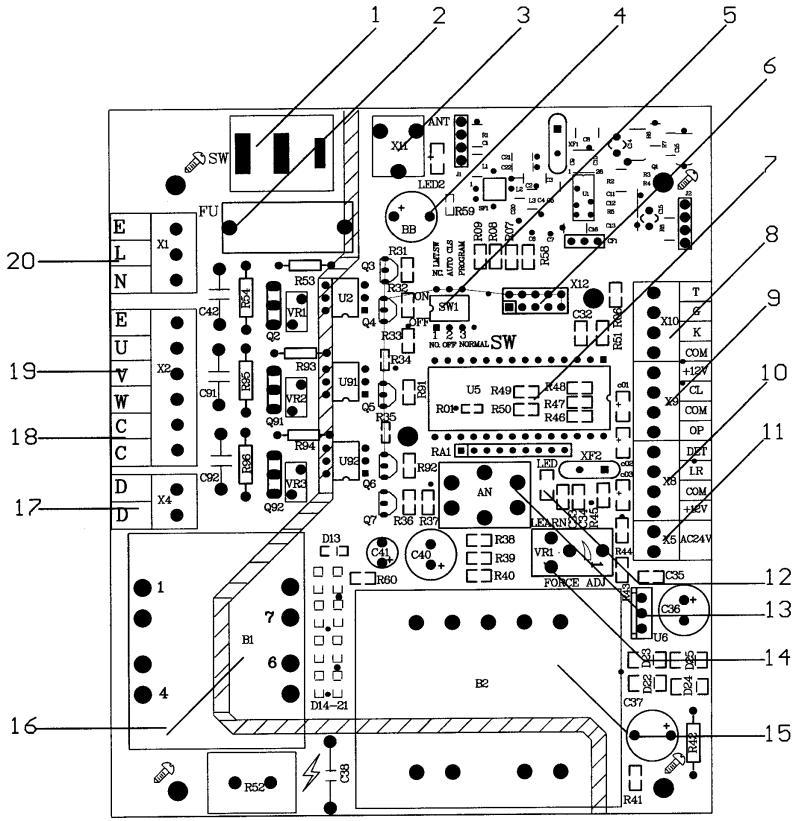
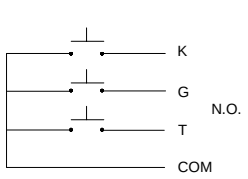


Fig.14 KZB01 control board with silicon controlled rectifier

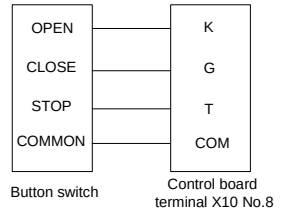
Wiring notes for control board (KZB01)

1. Power switch: ON/OFF
2. Fuse: DKC400Y/XF24W: 5A, Ø5x20; DKC400UY/XF24U: 10A, Ø5x20
3. Antenna: ANT
4. Beeper: DC12V
5. Dip-switch
6. Memory Card: 93C66
7. MCU: PIC 16C57C
8. Three button switch / single button switch (keypad):

Three button switch (normally open, three-button mode): T (Stop), G (Close), K (Open), COM (Common)



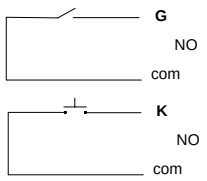
Schematic diagram



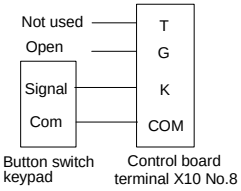
Wiring diagram

Single button switch / Keypad (normally open, single-button mode): T (Not used), G (Open priority), K (Open/stop/close), COM (Common)

To install the keypad attach one lead of your keypad to 'K' of terminal X10 and the other to the 'COM'. The keypad will function in single channel mode.



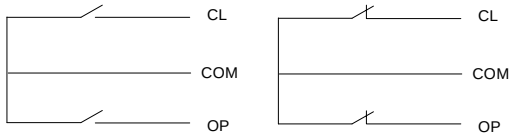
Schematic diagram



Wiring diagram

NOTE: Two modes (three-button mode or single-button mode) you can select according to your order.

9. Limit switch: CL (Close limit), CO (Com), OP (Open limit)，DC12V (Output power supply)

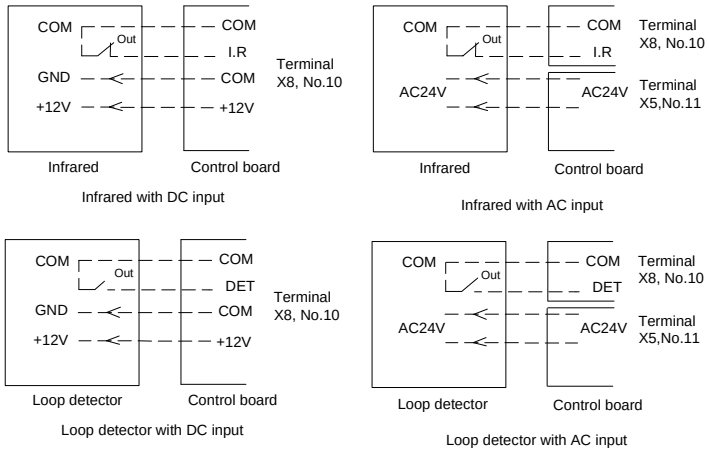


N.O. (For N.O. limit switch) N.C. (For N.C. limit switch)

Limit switch mode is adjustable by DIP-switch. (See table 3)

Schematic diagram

10. Output power supply: +12V (DC +12V), COM (CO)，DET (Loop detector), I.R. (Infrared N.C)



Schematic diagram

11. Output power supply: AC24V
12. Power Indicator: LED
13. Learn button: AN
14. Force Adjustor (VR1): Clockwise +, Counterclockwise –
15. Power Transformer
16. Sampling Transformer: 110V/8.8V 4W
17. Alarm Lamp: DKC400Y/XF24W: AC220V; DKC400UY/XF24U: AC110V
18. Motor Capacitor
19. Motor: U (com), V (Positive direction), W (Opposite direction), E (grounding)
20. Power Input: E (Earth), L (Live), N (Neutral)
    DKC400Y/XF24W: AC220V; DKC400UY/XF24U: AC110V

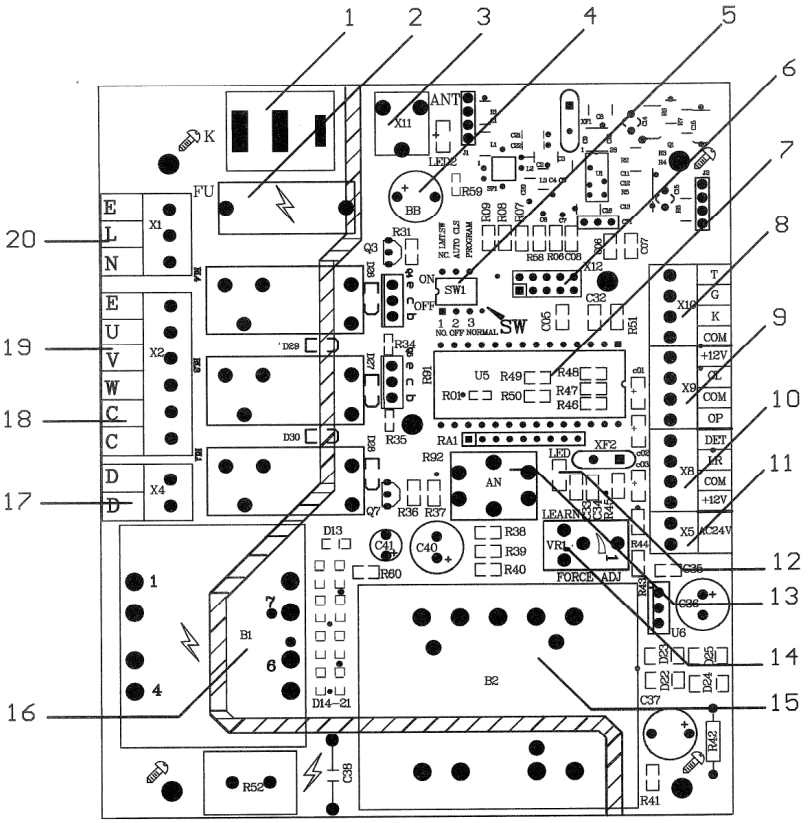
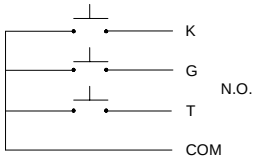


Fig.15 KZB05 control board with relay

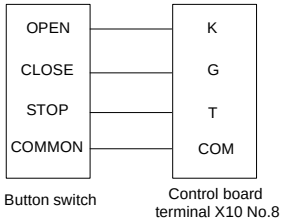
Wiring notes for control board (KZB05)

1. Power switch: ON/OFF
2. Fuse: DKC400Y/XF24W: 5A, Ø5x20; DKC400UY/XF24U: 10A, Ø5x20
3. Antenna: ANT
4. Beeper: DC12V
5. Dip-switch
6. Memory Card: 93C66
7. MCU: PIC 16C57C
8. Three button switch / single button switch (keypad)

   Three button switch (normally open, three-button mode): T (Stop), G (Close), K (Open), COM (Common)



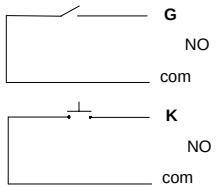
Schematic diagram



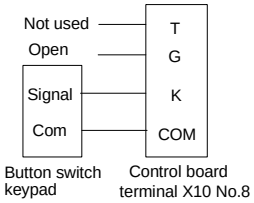
Wiring diagram

Single button switch / Keypad (normally open, single-button mode): T (Not used), G (Open priority), K (Open/stop/close), COM (Common)

To install the keypad attach one lead of your keypad to 'K' of terminal X10 and the other to the 'COM'. The keypad will function in single channel mode.



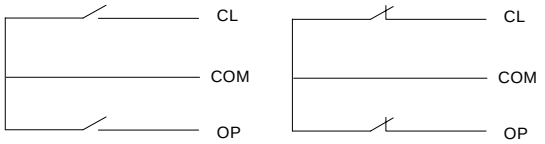
Schematic diagram



Wiring diagram

NOTE: Two modes (three-button mode or single-button mode) you can select according to your order.

9. Limit switch: CL (Close limit), CO (Com), OP (Open limit)，DC12V (Output power supply)

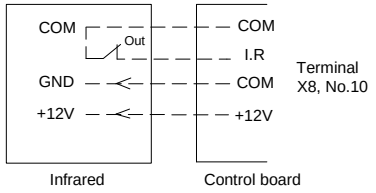


N.O. (For N.O. limit switch) N.C. (For N.C. limit switch)

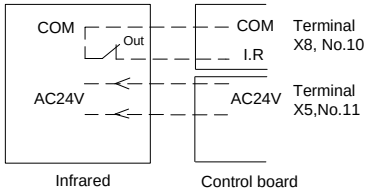
Limit switch mode is adjustable by DIP-switch. (See table 3)

Schematic diagram

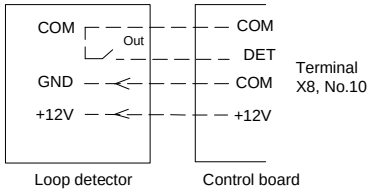
10. Output power supply: +12V (DC +12V), COM (CO)，DET (Loop detector), I.R. (Infrared N.C)



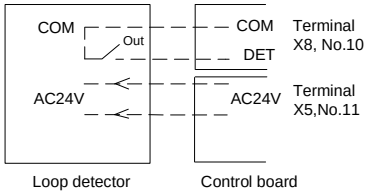
Infrared with DC input



Infrared with AC input



Loop detector with DC input



Loop detector with AC input

Schematic diagram

11. Output power supply: AC24V
12. Power Indicator: LED
13. Learn button: AN
14. Force Adjustor (VR1): Clockwise +, Counterclockwise –
15. Power Transformer
16. Sampling Transformer: 110V/8.8V 4W
17. Alarm Lamp: DKC400Y/XF24W: AC220V; DKC400UY/XF24U: AC110V
18. Motor Capacitor
19. Motor: U (com), V (Positive direction), W (Opposite direction), E (grounding)
20. Power Input: E (Earth), L (Live), N (Neutral)

    DKC400Y/XF24W: AC220V; DKC400UY/XF24U: AC110V

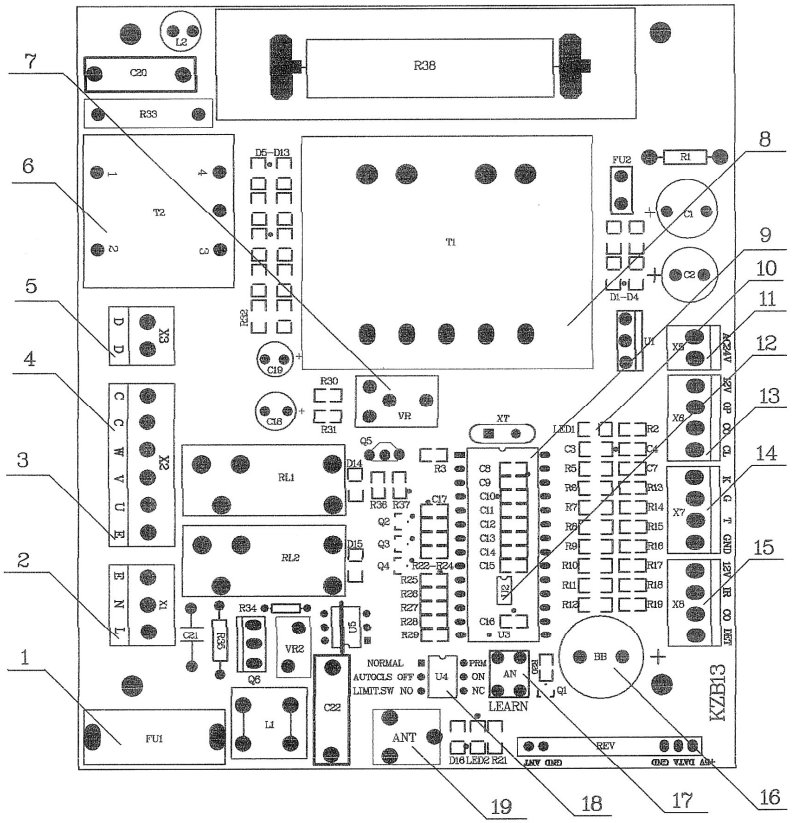
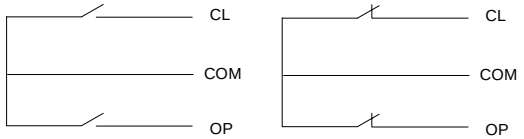


Fig.16 KZB13 control board with silicon controlled rectifier & relay

Wiring notes for control board (KZB13)

1. Fuse: DKC400Y/XF24W: 5A, Ø5x20; DKC400UY/XF24U: 10A, Ø5x20
2. Power Input: E (Earth), L (Live), N (Neutral)
   DKC400Y/XF24W: AC220V; DKC400UY/XF24U: AC110V
3. Motor: U (com), V (Positive direction), W (Opposite direction), E (grounding)
4. Capacitor: DKC400Y/XF24W:14uf; DKC400UY/XF24U: 55 uF
5. Alarm lamp: DKC400Y/XF24W: AC220V; DKC400UY/XF24U: AC110V
6. Sampling transformer: 220V/12V 1W
7. Force Adjustor (VR): Clockwise +, Counterclockwise –
8. Power Transformer
9. MCU: PIC 16C57C
10. Power indicator: LED1
11. Output power supply: AC24V
12. Memory Card: 93C66
13. Limit switch: CL (Close limit), CO (Com), OP (Open limit)，DC12V (Output power supply)



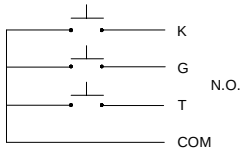
N.O. (For N.O. limit switch) N.C. (For N.C. limit switch)

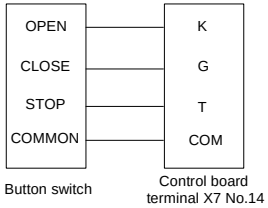
Limit switch mode is adjustable by DIP-switch. (See table 3)

Schematic diagram

14. Three button switch / single button switch (keypad)

Three button switch (normally open, three-button mode): T (Stop), G (Close), K (Open), COM (Common)

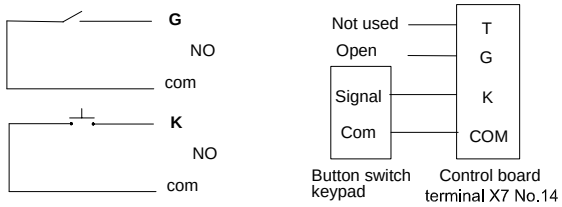




Schematic diagram Wiring diagram

Single button switch / Keypad (normally open, single-button mode): T (Not used), G (Open priority), K (Open/stop/close), COM (Common)

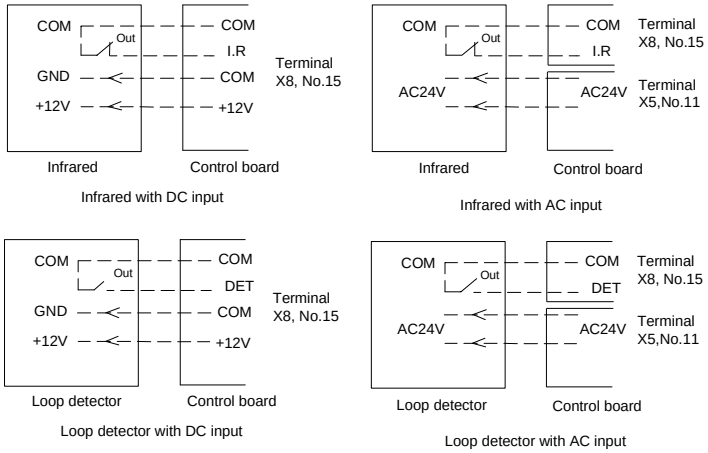
To install the keypad attach one lead of your keypad to 'K' of terminal X7 and the other to the 'COM'. The keypad will function in single channel mode.



Schematic diagram Wiring diagram

NOTE: Two modes (three-button mode or single-button mode) you can select according to your order.

15. Output power supply: +12V (DC +12V), COM (CO)，DET (Loop detector), I.R. (Infrared N.C)



Schematic diagram

16. Beeper: DC12V
17. Learn button: AN
18. Dip-switch
19. Antenna: ANT

8. Control

Below are all of the available remote controls for DKC400 series gate operators, the remote control came with your operator depends on your order.
Additional remote controls can be purchased through your dealer.

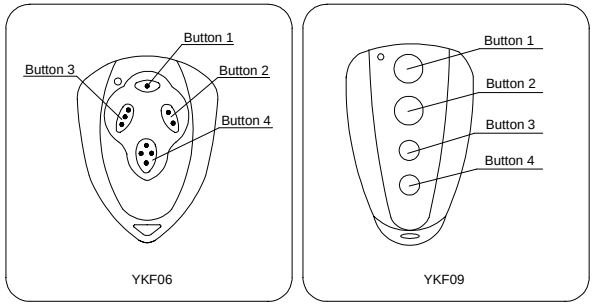


Fig.17

You can select program / learn process (supporting up 100 remote controls or 25 remote controls) according to your order. If you have any problem, please contact the dealer.

- Adding extra remote controls (learn): Press the button 'AN' (See Fig.14, Fig.15 terminal 13 or Fig.16 terminal 17) on the control board, then the 'LED2' will be on and turn off, the beeper will ring about 1 second, then press the remote control button which you want to use, the beeper will ring about 2 seconds and the 'LED2' will turn on and then turn off, The learning process is finished.
  Up to 100 remote controls may be used.
- Adding extra remote controls (learn): press the button "AN" (See Fig.14, Fig.15 terminal 13 or Fig.16 terminal 17) on the control board, then the beeper will ring about 1 second, when you press the remote control button, the beeper will ring again, press the same remote control button again, the beeper will ring at 1/2Hz frequency and then stop. The learning process is finished.
  Up to 25 remote controls may be used.
- Erase remote controls: To erase all existing remote controls, press and hold 'AN' button until the beeper stops ringing. This indicates that all the remote controls have been erased completely.
- **Warning: For safety and security, we recommend that the factory setting be replaced with a personal code.**
- The remote control works in a single channel mode. It has four buttons. See Fig.17 The function of button 1, button 2 and button3 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 1, button 2 and button 3 are used to open or close the gate. Button 4 is available to set 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.
- Warning: Notify the users that the gate is never to be operated unless it is in full view.
- Verify open 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 exchanging wires 'V' and 'W', 'OP' and 'CL'.

Tab. 3 DIP-switch

(See Fig.14 KZB01, Fig.15 KZB05 terminal 5)

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.

(See Fig.16 KZB13 terminal 18)

Position	DIP-switch	Function
1	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.
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	Limit switch mode is NC.
	OFF	Limit switch mode is NO.

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.): for control board KZB01 or KZB05, please turn on the second and the third DIP-switch to ON position (**Note: for control board KZB13, please turn on the first and the second DIP-switch 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 for some 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 at its closed position automatically if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately **(for control board KZB13, return DIP-switch 1 to OFF)**. Thus the auto-close function has been set.

Cancel auto-close function: for control board KZB01 or KZB05, please turn on the second and the third DIP-switch to ON position (**Note: for control board KZB13, please turn on the first and the second DIP-switch to ON posi** 21 ress 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 at its closed position automatically if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately **(for control board KZB13, return DIP-switch 1 to OFF)**. Thus the auto-close function has been canceled.

Pedestrian mode: Pedestrian mode can be used to open gate about 1.5 meters for people pass through.

* Set width of pedestrian mode: for control board KZB01 or KZB05, please turn on the second and the third DIP-switch to ON position (**Note: for control board KZB13, please turn on the first and the second DIP-switch 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 at its closed position automatically if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately **(for control board KZB13, return DIP-switch 1 to OFF)**. 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: for control board KZB01 or KZB05, please turn on the second and the third DIP-switch to ON position (**Note: for control board KZB13, please turn on the first and the second DIP-switch 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 at its closed position automatically if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately **(for control board KZB13, return DIP-switch 1 to OFF)**. 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: for control board KZB01 or KZB05, please turn on the second and the third DIP-switch to ON position (**Note: for control board KZB13, please turn on the first and the second DIP-switch 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/button 4 to stop the gate or the gate will stop at its closed position automatically if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately **(for control board KZB13, return DIP-switch 1 to OFF)**. 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: for control board KZB01 or KZB05, please turn on the second and the third DIP-switch to ON position (**Note: for control board KZB13, please turn on the first and the second DIP-switch 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 at its closed position automatically if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately **(for control board KZB13, return DIP-switch 1 to OFF)**. 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: for control board KZB01 or KZB05, please turn on the second and the third DIP-switch to ON position (**Note: for control board KZB13, please turn on the first and the second DIP-switch 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 at its closed position automatically if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately **(for control board KZB13, return DIP-switch 1 to OFF)**. 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.

(2) If the gate cannot be moved, please check whether the gate is obstructed.

Adjustment of the auto-reverse function: rotate the 'VR1' (See Fig.14, Fig.15 terminal 14) or 'VR' knob (see Fig.16 terminal 7) with a screwdriver to adjust opening & closing force, the resistance may be increased (or decreased) by rotating clockwise (or counterclockwise). If you turn the variable resistor clockwise it will increase force. If you turn the variable resistor counterclockwise, it will decrease force. 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.

Please exchange two wires 'V' and 'W' if the auto-reverse direction is wrong. Exchange wires 'OP' and 'CL' if the limit direction is wrong.

WARNING: Do not attempt to tune the gate by placing your hand, arm or other body part in the path of the gate, as serious injury could result. Damage to the gate operator motors may also occur by placing a heavy immovable object in the path during the testing phase. Instead, place a light object in the path (e.g., a chair or trash can) which can be pushed out of the way without causing damage to gate motors. Once the tuning is complete you may replace the cover.

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)**

External button switch (not included): two different modes you can select according to your order.

Three-button external button switch: press 'OPEN' button, the gate will open. Press 'STOP' button, the gate will stop. Press 'CLOSE' button, the gate will close.

Single-button/keypad: 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 1.5 meters for people pass through.

Infrared photocell (not included): 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.

Loop detector (not included): If loop detector detects vehicles during closing, the gate will reopen immediately and stay open until the vehicles move out of the loop. After vehicles move out of the loop, the gate will continue to close.

If loop detector detects vehicles when the gate stops, the gate will remain stop until vehicles move out of the loop. After vehicles move out of the loop, the gate will close.

The gate will keep opening if loop detector detects vehicles during opening. After vehicles pass through the loop, the gate will close.

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.

9. Final Check

Check the power supply, grounding and wiring before running the device.

Release the gear clutch with the release key to determine whether or not the gate can be moved manually. If everything is in good working order, tighten the clutch with the key.

Switch on the power and run the device to ensure that the gate is sliding smoothly.

Adjust the magnet (block) position until the gate opened and closed properly at the limited positions.

The gate operator is installed with a thermal protector, the motor is only designed to work for

less than 5 minutes. If is runs continually for an extended period of time, the thermal protector will switch off the motor automatically in case of the temperature is higher than 120°C and switch on the motor when the temperature is lower than 85°C±5°C.

10. Maintenance

Keep operator clean at all times.

Ensure the operator is well earthed, and correctly terminated.

Regularly grease the wheels and axles to ensure the gate moves smoothly.

11. Troubleshooting

Tab.4

Trouble	Possible causes	Solutions
Motor only runs in one direction.	The wire connector terminal block becomes loose.	Check wire connector terminal block.
	The limit switch wire connector terminal block becomes loose.	Check limit switch wire connector terminal block. Check the limit switch mode.
	For control board KZB01 and KZB05, the electric component on the control board such as Q2, Q91 or Q92, (KZB13: Q6) may be damaged.	Replace the electric component Q2, Q91, Q92 or (KZB13: Q6). 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 **Set auto-close function** 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 **Set width of pedestrian mode** 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 **Set auto-close function of pedestrian mode** section.
The gate will not open or close.	The limit switch wire connector terminal block becomes loose.	Check the limit switch mode (see table 3 DIP-switch).
	Connecting wires or terminal blocks are too loose.	Check the connecting wires and terminal blocks.
	For control board KZB01 and KZB05, the electric component on the control board such as Q2, Q91 or Q92, (KZB13: Q6) may be damaged.	Replace the electric component Q2, Q91, Q92 or (KZB13: Q6). Replace the board.
	Power switch is OFF.	Make sure power switch is ON.
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. is adjusted too small.	Check the Force Adj. Adjust knob to increase force.
	Gate is obstructed.	Remove the obstruction.
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.	Erase remote controls and then re-program the codes in the device. See **Adding extra remote controls (learn)** section.
	Broken receive board.	Replace receive board.
The remote control operating distance is too short.	Signals are shielded by the gate.	Link a new antenna (1~1.2m BVR 0.75mm^2) 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.