

# **Sliding Gate Operator**

## **User's Manual**

**Model: DKC360Y**

**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
2. Packing list
3. Main Technical Parameters
4. Main Features
5. Working Principle and Main Structure
6. Installation and Adjustment
7. Connecting
8. Control
9. Maintenance

## 1. Important Safety Information

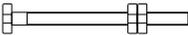
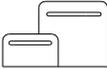
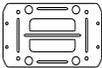
Carefully read and follow all safety precaution and warnings before attempting to install and use this operator, incorrect installation can lead to severe injury.

- The gate operator should be installed by a qualified technician; otherwise, serious personal injury or property damage may occur.
- 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.
- The control box should be installed in cool, dry and ventilated places, kept away from sunlight and rain.
- 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. It is forbidden to release the operator during opening or closing.
- The operator should be switched off before repairing it or opening its cover.
- Please erase and reprogram the code after installing the operator.
- Do not change the opening & closing speed,
- Additional safety equipment such as photoelectric sensors, alarm lamp must be installed to prevent injury.
- Any changing of the opening & closing speed is not allowed. If you have any special requirements, please kindly contact a dealer.
- Our company reserves the right to change the design and specification without prior notification.

## 2. Packing list

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

Packing list

No.		Item	Quantity
1	Bolts		4
2	Magnets		2(optional)
3	Magnet brackets		1(optional)
4	Blocks		2(optional)
5	Operator base		1
6	Remote control		2

### 3. Main Technical Parameters

Tab.1

Model	DKC360Y
Power supply	Single phase 220V AC 50Hz
Motor speed	1400rpm
Opening speed	10m/min
Max. gate weight	500Kg
Protection class	IP 44
Reduction ratio	1:28
Gear	16 teeth
Remoter control operating range	≥30 meters
Environmental temperature	-20°C~ +45°C
Relative humidity	90% (the lowest temperature is 40°C) ~ 50%(the top temperature is 40°C)

#### 4. Main Features

- The device is used to drive sliding gate.
- User programmable and user erasable remote codes.
- Infrared terminal (N.C) is supplied to use.
- Manual key release design for emergency purposes.

#### 5. Working Principle and Main Structure

DKC360Y sliding gate operator 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.

#### 6. Installation and Adjustment

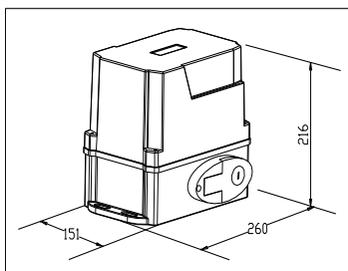
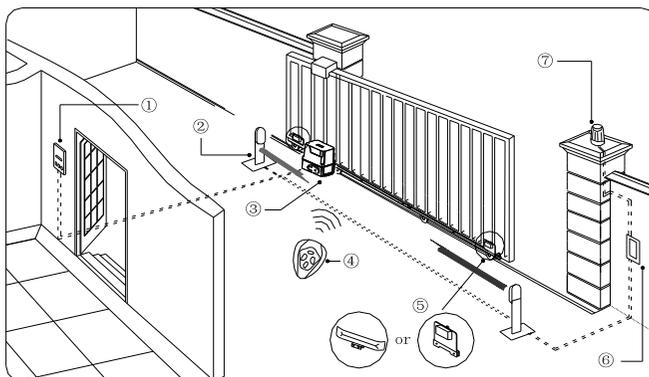


Fig.1



1. Control box 2. Infrared red 3. Gate operator 4. Remote control  
5. Magnet or block 6. Button switch 7. Alarm lamp

Fig.2

The DKC360Y rack-driven gate operator operates by forcing a drive rack past a drive gear. The entire configuration is shown in Fig.2. 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.

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 250mm 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.4. 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. Verify that the operator is leveled properly.

Operator

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

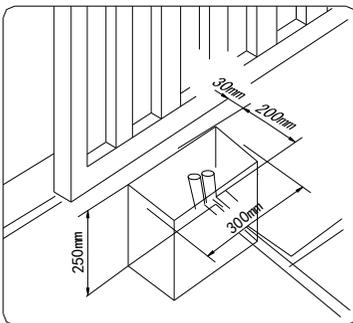


Fig.3

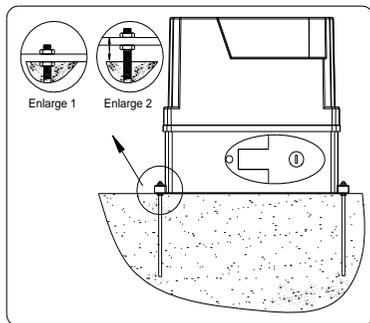


Fig.4

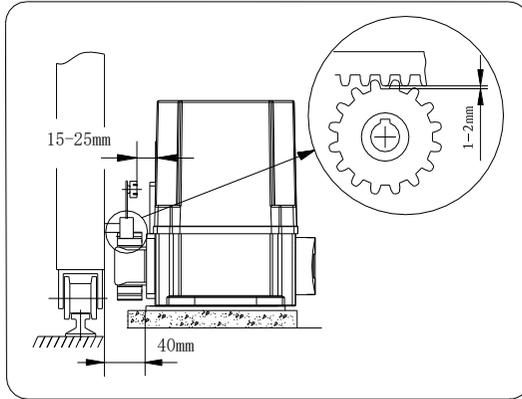


Fig.5

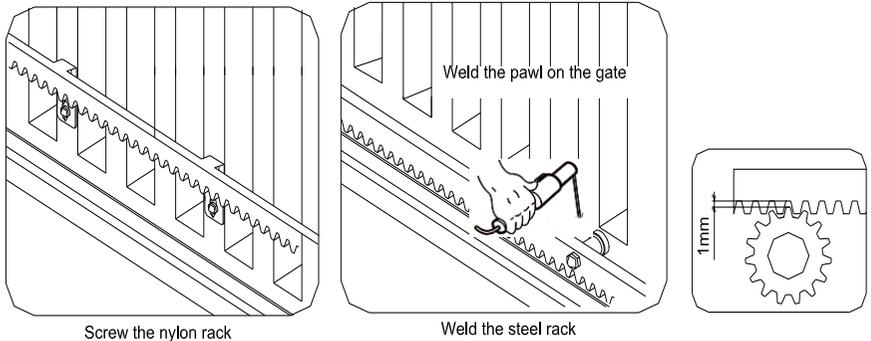


Fig.6

**Installing the rack** (see Fig.6)

**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.

**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.

#### Magnets for limit switch

Install the magnet as shown in Fig.7. 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 15-25mm 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.**

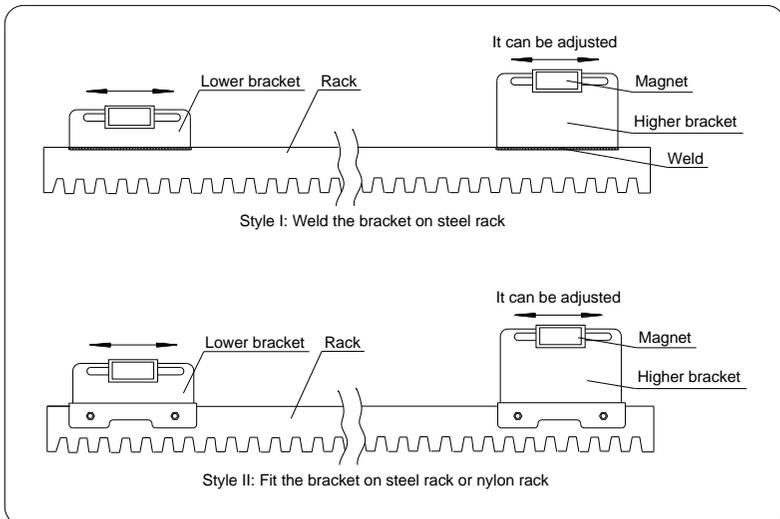


Fig.7

Spring limit switch

Install the block as shown in Fig.8. 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.

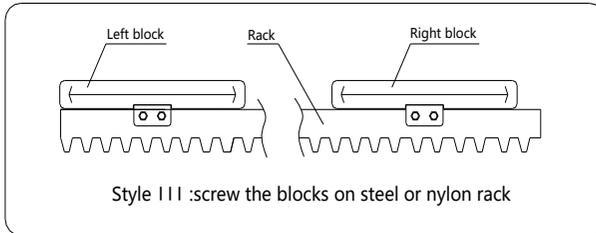


Fig.8

Tab. 2

Limit switch	Rack	Magnet bracket	Block
Magnetic limit switch	Steel	Style I (see Fig.7)	/
		Style II (see Fig.7)	/
	Nylon	Style II (see Fig.7)	/
Spring limit switch	Steel	/	Style III (see Fig.8)
	Nylon	/	Style III (see Fig.8)
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.9)

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 hole.
- Turn the key **counterclockwise** to release the clutch.
- Pull the release lever.
- Open and close the gate manually.
- After power-restored close the release lever, then use the manual release key to engage the clutch by turning the key **clockwise** and resume normal operation.

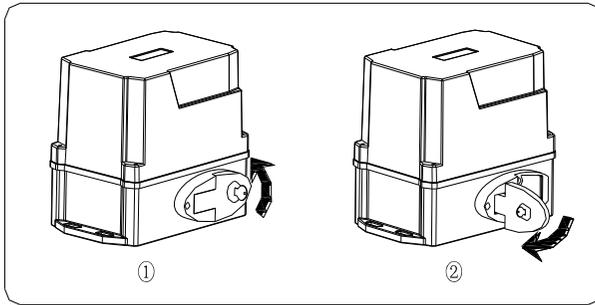


Fig.9

## 7. Connecting

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

Perform the wiring, see control board.

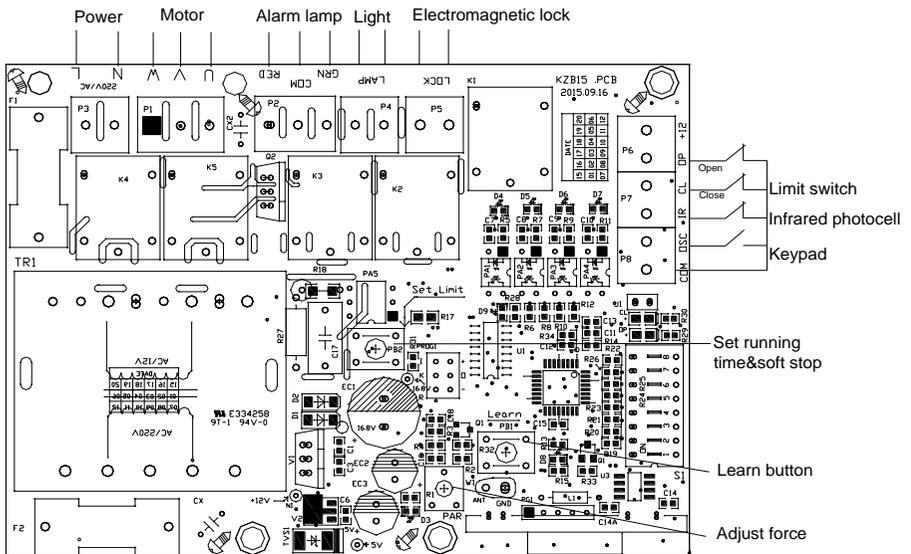


Fig.10 control board

## Wiring notes for control board

### Wiring

- Power Input: L(live), N(neutral)
- Motor: V (phase), W (phase), U (com).
- Limit switch: OP (Open limit), COM (Com), CL (Close limit)
- Connect light to 'LAMP' and 'LAMP'.
- Connect alarm lamp to 'RED'(red), 'COM' and 'GRN'(green).
- Connect external single button (keypad) to 'OSC' and 'COM'.
- Connect infrared photocell to IR(N.C.), +12(positive), Com and GND(negative)
- Connect electromagnetic lock to 'LOCK' and 'LOCK'.

## 8. Control

### Activities Covered in this section

- **The remote control** works in a single channel mode. With each press of the remote control button which has been programmed, the gate will open, stop, close or stop cycle.
- **Adding extra remote controls (Learn)**: Press 'PB1' on the control board, the 'D8' will be on, then press the remote control button which you want to use, the 'D8' will turn off, press the same remote control button again, the 'D8' will flash at 1/2Hz frequency and then turn off after 5 seconds, The learning process is finished.  
Up to 30 remote controls may be used.
- **Erase remote controls**: To erase all existing remote controls, press and hold 'PB1' button until the 'D8' turns on and then turns off. This indicates that all the remote controls have been erased completely.
- **Single-button/keypad**: with each press of the button, the gate will open, stop, close or stop cycle.
- **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. If not connect, it is important to short the 'J1' terminal with the jumper cap, remember to remove the jumper cap if connect the infrared photocell.
- **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 by DIP switch.
- **Red & green alarm lamp**: The green alarm lamp turns on if the door is in fully opened position. The red alarm lamp turns on if the gate is in fully closed position or during opening & closing.
- **Light**: the light will turns on in using and turns off after 1 minute.
- **Electric lock**: the gate will reverse about 2s and then the lock unlocked before opening.
- **Limit switch**: The switch is used to accurately stop the gate in the opened and closed positions. The limit switch mode (N.O. or N.C.) is adjustable by DIP switch.

- **Adjustment of force:** rotate the 'W1' knob with a screwdriver, the force may be increased (or decreased) by rotating counterclockwise (or clockwise).  
The gate will stop if obstructed when closing, and keep closing if removed obstruction.
- **Set soft stop:** make sure the fifth of 'DIP-switch' is in OFF position, press and hold 'PB2' more than 6 seconds, release the button then LED 'CL+' turns on, the gate close automatically, the gate stops at closed position automatically if closed limit position is reached, the 'CL+' turns off. The gate reverse to open after 1 second, LED 'OP+' turns on. Press 'PB2' if the gate is approximately 5-8cm (Soft stop point) from the fully opened position, the gate will stop if opened limit position is reached, 'OP+' turns off. The gate will do a complete open and close cycle.
- **Set running time:** press and hold 'PB2' more than 6 seconds, release the button then LED 'CL+' turns on, the gate close automatically, the gate will stop if closed limit position is reached, 'CL+' turns off, then the gate reverse to open after 1s, LED 'OP+' turns on, the gate will stop if the fully opened position is reached, 'OP+' turns off. The gate will do a complete open and close cycle.
- **DIP-switch**

Tab.3

DIP	ON	OFF
S1-1	Limit switch N. O.	Limit switch N.C.
S1-2	The transmitter and external button switch is useless before auto-closing.	The transmitter and external button switch can be used to close the gate before auto-closing.
S1-3	/	The gate will reverse about 2s and the lock unlocked before opening.
S1-4	The gate stops at opened & closed position according to 'the running time' which programmed in the control board.	The gate stops at desired opened & closed position by magnets.
S1-5	/	Soft stop
S1-6	/	/
S1-7	S1-7:ON & S1-8:ON, Auto-close function is useless.	
S1-8	S1-7:OFF & S1-8:ON, Auto-close time:15s	
	S1-7:ON & S1-8:OFF, Auto-close time:30s	
	S1-7:OFF & S1-8:OFF, Auto-close time:60s	

## 9. 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.