

Swing Gate Operator

ZK300DC

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. Important Safety Information



Please read these important safety instructions and follow all instructions as incorrect installation can lead to severe injury/death or property damage:

- DISCONNECT the power from the MAINS before making any repairs or removing its covers. ONLY experienced service gate installer can install the gate and control unit.
- Drive through the gate system only after complete opening.
- DO NOT operate the gate operator unless the gates are in full view and free from objects such as cars and children/people. SERIOUS PERSONAL INJURY and/or property damage can result from failure to follow this warning.
- The gate must be WELL BALANCED. Sticking or binding gate must be repaired by an experienced service gate installer prior to Opener installation.
- DO NOT allow control devices to be placed so that a person can access them by reaching through the gate.
- NEVER active your gate operator until you ensure that the area is clear of people, pets or other obstructions.
- When using the auto close mode, a PHOTOELECTRIC BEAM must be correctly fitted and correctly tested for operation at regular intervals. EXTREME CAUTION is recommended when using the Auto close mode. All the safety rules must be followed.
- NEVER mount any device that operates the gate operator where the user can reach over, under, around or through the gate to operate the controls.
- We strongly recommend the use of PHOTOELECTRIC BEAM to provide ADDITIONAL SAFETY PROTECTION.

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

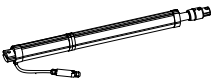







2. Additional Features

- One drive operator for single gate installation, and two drive operators for dual gate installation.
- Supports up to 40 remote control transmitters, (2 transmitters included in the packing)
- User programmable and user erasable remote codes.
- Remote control hopping code technology prevents your remote code being accessible to others.
- For safety protection, ZK300DC will stop if it encounters an obstruction during opening, and will reverse if it encounters an obstruction during closing.
- Manual key release design for emergency purposes.

3. 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 dealer.

Table 1 Packing List of ZK300DC Swing Gate Operator

Item	Diagram	Quantity		Remark
		For one drive operator	For two drive operators	
Gate Operator		1	2	In the same box.
Post bracket		1	2	
Gate bracket		1	2	
Accessories	Pin	2	4	
	Nut	2	4	
	Screw M6X16	2	4	
	Nut M6	2	4	
	Spring washer	2	4	
	Screw M8X25	2	4	
	Nut M8	2	4	
	Spring washer8	2	4	
	Level gauge	1	1	
User's manual		1	1	
Release Key		1	2	
Control box +2 remotes		1	1	
Stop block		1	2	Optional
Electric lock		1	1	Optional
Base plate		1	1	Optional

4. Specification

Table 2 Technical data

Power supply	AC240V, 50Hz
Motor	DC24V 50W
Rated force	1000N
90 ° opening or closing time (one gate)	20 seconds
Max. gate weight	300kg
Max. gate width	9.8 feet (3 meters)
Working angle of gate	90° or 105°
Limit switch	Encoder
Ambient temperature	-15°C~+50°C
Battery	3.5Ah, 24V

5. Necessary Tools

The following tools may be necessary to install the ZK300DC operator. You will need an electric drill, hacksaw, screwdrivers, tape measure, multimeter, level, wire cutters and wire stripper, a socket set, and possibly access to a welder if your installation cannot use the supplied brackets. If the brackets included do not fit your gate because of the dimensions of your gate, you may have to fabricate brackets for your application or notch a column in order to obtain the necessary set back.

6. Site Preparation

Before commencing installation, check the following:

- The gate moves freely by hand for the full length of open and close travel.
- Check that the structure is sufficiently strong and rigid, the operator must operate on a reinforced point on the gate and that its dimensions and weights conform to those listed in the specifications of this document.
- The gate should be mounted to the fence post and swinging freely, there should be little resistance in the swing of the gate.
- Make sure that the gate is plumb and level.
- The fence posts must be mounted in concrete.
- If you want to use electric lock, make sure the bottom of the gate is 45-50mm from the ground. If the electric lock is not required, make sure the distance from the bottom of the gate to the ground more than 20mm.
- In order to protect the wires, between the gate operator and the control box, armored cable, galvanized cable or PVC conduit must be set into the concrete when it is poured. The diameter of the cable must be more than 20mm.
- Wires within the cable shall be located or protected so that no damage can result from contact with any rough or sharp part.
- Use another cable for safety devices (such as electric lock, infrared photocell, flashing

light, external button switch etc.), electrical lock wire should be more than 1.5mm^2 , and the other wires should be more than 0.5 mm^2 .

- To prevent rainwater from entering into the cable, arrange the cable as show in Fig.1.

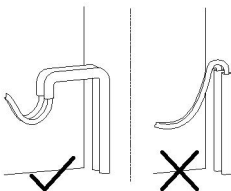


Fig.1

7. Mechanical / Installation

Main structure and dimension

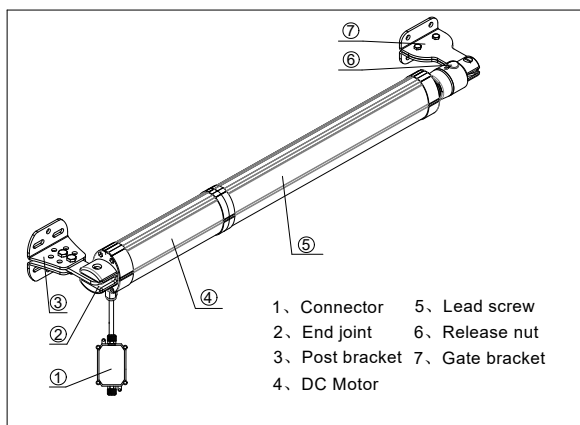


Fig.2

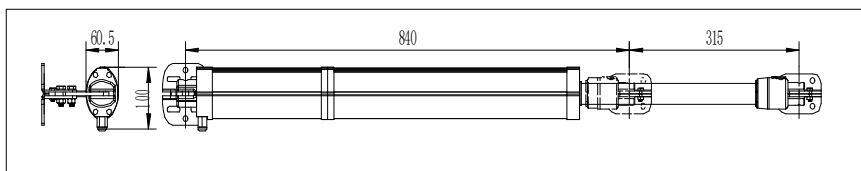


Fig.3

- To release the operator by turning the release nut anticlockwise.
- The gate is mounted on one face of the mounting post, and the operator is mounted on the face 90 degrees from it. Below is schematic of push to open configurations.
- As shown in the diagram below, correctly mounting geometry assures that the desired degrees of swing are achieved, that the gate speed is correct, and that the operator and gate will operate properly and have a long life.

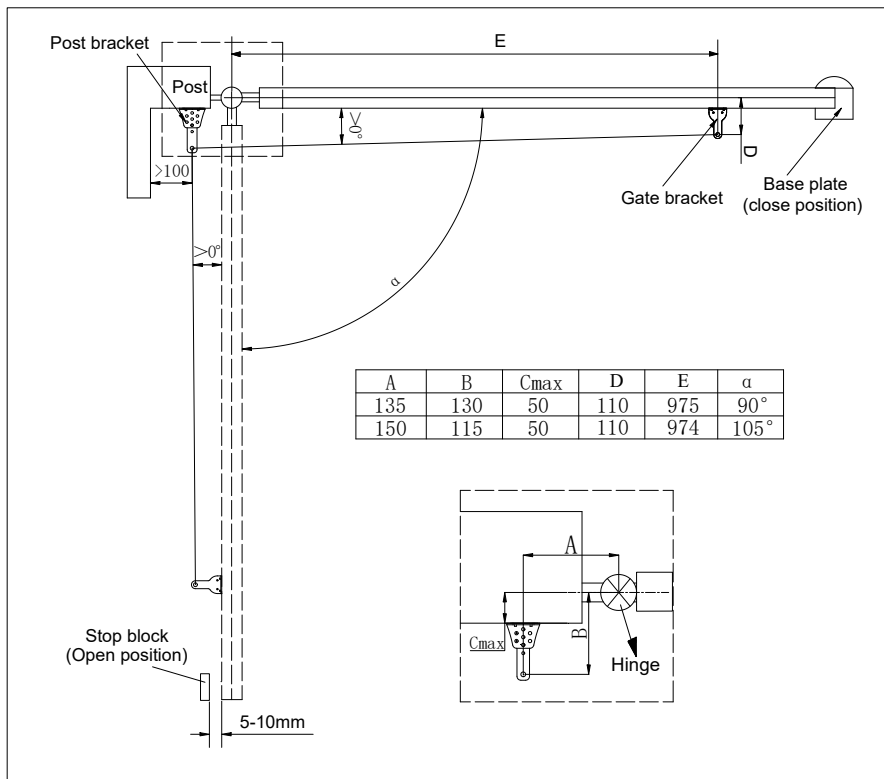
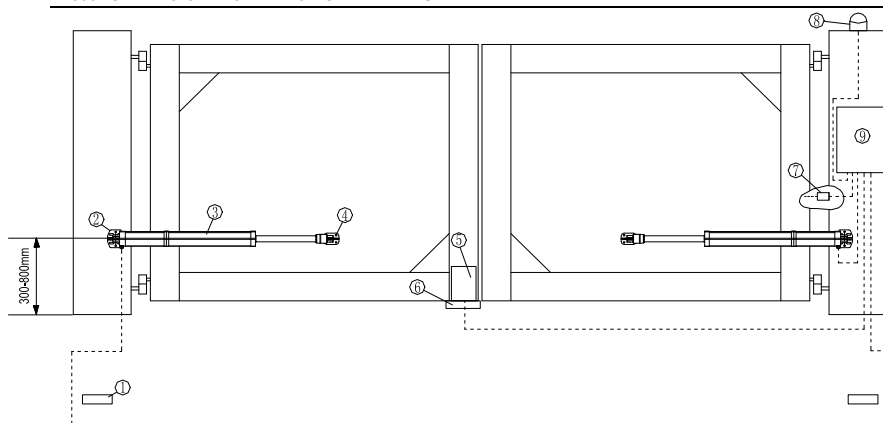


Fig.4 Pull to open mounting geometry

Install automatic gate operator (see Fig.5)

Locate the gate operator between the two hinges, the installation height range is 300 – 800mm. this will prevent the gate from twisting and flexing. Add a cross bar on the gate if necessary.

Note: If the operator is mounted at a height above the specified range, and the gate is not sturdy enough, then it may result in bending or damage to the gate and gate operator.



1.Stop block (optional) 2.Post bracket 3.Gate operator 4.Gate bracket 5.Electric lock (optional)
6.Base plate (optional) 7.Infrared photocell (optional) 8.Alarm lamp (optional) 9.Control box

Fig.5

Rear parts of gate operator

- Fix the post bracket on the cement pillar with screws and spacers (or welding for metal pillar). Make sure that the bracket is plumb and lever.
- Mount the rear part of the gate operator on the post bracket using the pin supplied, secure the pin using the nut. See Fig. 7.
- The bracket installation should meet the specifications as shown in figure 4.

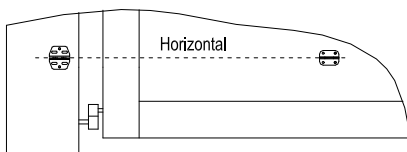
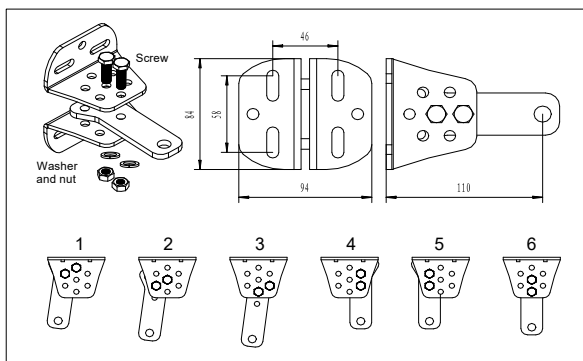


Fig.6



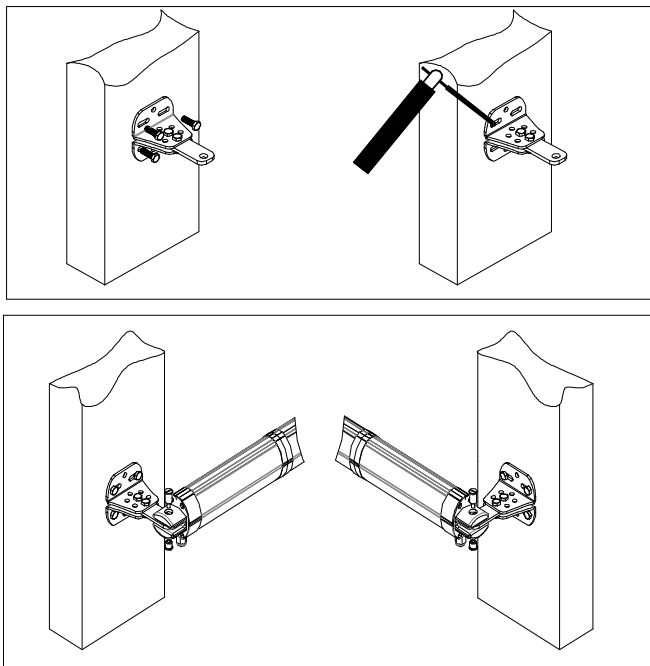


Fig.7

Front parts of gate operator

- Move the front part of gate operator up and down slowly, check the installation height of the gate bracket, fit the gate bracket to the gate, and use a level meter to check the flatness of the operator (See Fig.9). Tack weld the gate bracket on the gate, the bracket installation should meet the specifications as shown in Fig.4.
- Release the gate operator, open and close the gate manually, performing complete opening and closing travel. Movement must be smooth.
- If this is not the case, review bracket positioning and that its dimensions conform to those listed in the specifications of this document.
- After you have identified the desired position of the bracket, remove the gate operator, fix or weld the gate bracket on the gate permanently. See Fig.9.
- Mount the front part of gate operator on the bracket using the pin and nut supplied. See Fig.8.

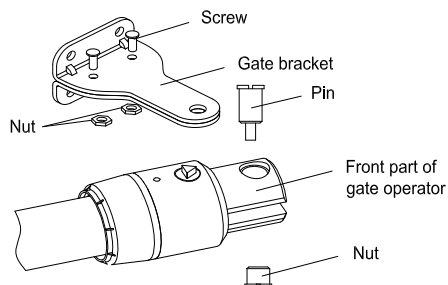


Fig.8

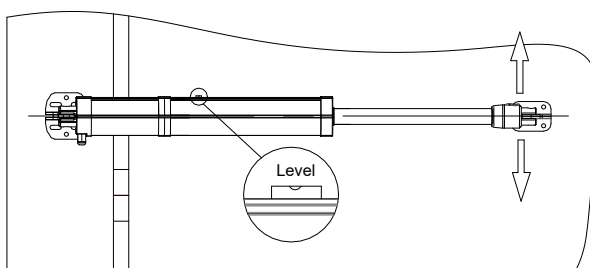


Fig.9

Release function

After installing the brackets, loose the release nut by turning the key about 5 circles anticlockwise, make sure that the release nut can not be pulled out. Manually open or close the gate, review bracket positioning and that its dimensions conform to those listed in the specifications of this document. After adjusting, tighten the release nut clockwise, then rotate the steel tube by hand until the tube is clamped (meanwhile, the tube is click), finally tighten the release nut firmly.

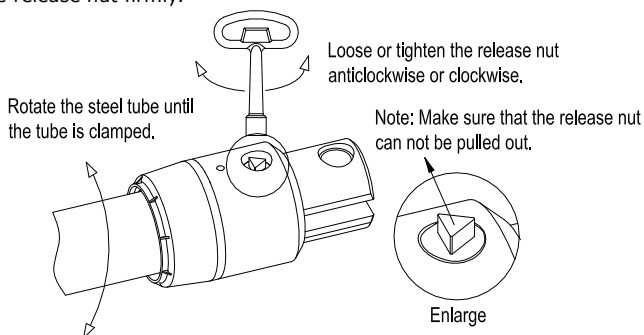


Fig.10

Stop block –open position

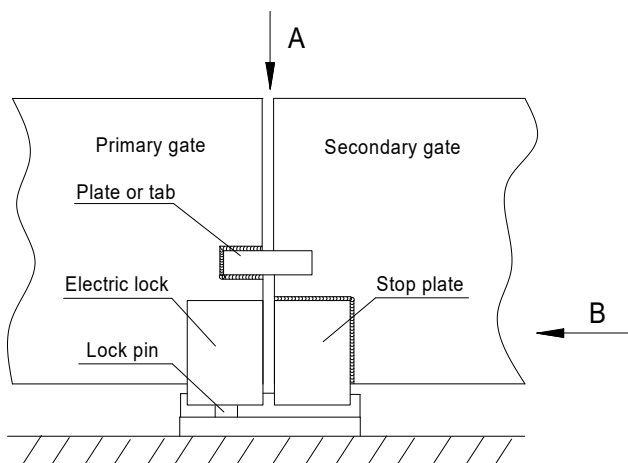
- After the gate reaches the desired angle (90°or 105°), ensure 5-10mm space exists between the gate and stop block See Fig.4. This margin is required to prevent the gate from bumping on the stop block.
- Fix the stop block to the ground with expansion bolts, add pad if necessary.
- After mounting the operator, with the key unlocked, move the gate, verify that it stops at the proper position.

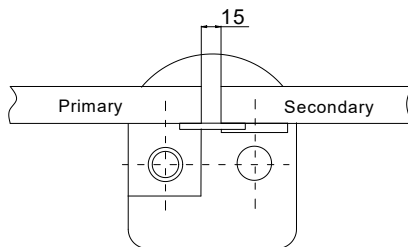
Electric lock

- An electric lock is provided for installation for gate lengths greater than 1.5 meters.
- To install the base plate of the lock, place the base plate between the two gates, determine the location, mark and drill the holes.
- Fix the base plate to the ground with 3 screws, make sure the gate is higher than base plate and that the lock pin can fit tightly in the hole in the plate.
- Weld the steel plate of the lock to the primary gate, and then fix the lock to the steel plate. See Fig.11 to determine the height of the electric lock.

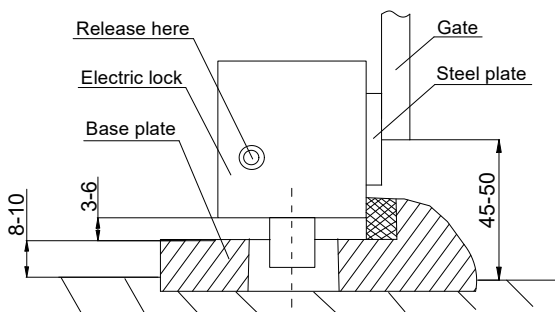
Stop plate (see Fig.11)

- The pair of gate sections will not start simultaneously. The gate section with the lock will start to open earlier than the other gate section, so that both sections can be locked properly.
- With the gate in the desired closed position.
- Weld a stop plate on the gate section without the lock.
- A plate or tab can be welded on the gate section with the lock so that when it closes, it will trap the gate section without the lock between itself and the base plate, thus locking both gate sections.





A- Top view



B- Side view

Fig.11

8. Electrical / Control Box Mounting

Install the control box

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

Place the control box in the desired mounting position, open the cover of the control box, mark the mounting holes, and install the control box. See Fig.12

Perform the wiring.

Note:

We regard the gate with the electrical lock as the Gate A (open first, close later), the other gate as the Gate B.

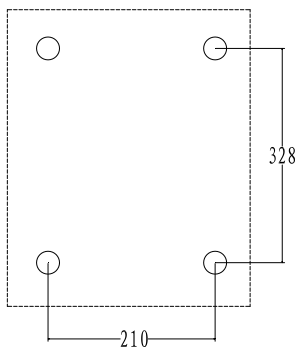


Fig.12

9. Electrical / Main Terminal Wiring

Connect the operator to the control box as shown in Fig.14.

Connect primary motor that on the primary gate (with electric lock) to MOTOR A, connect the secondary gate to MOTOR B. (See Fig.14)

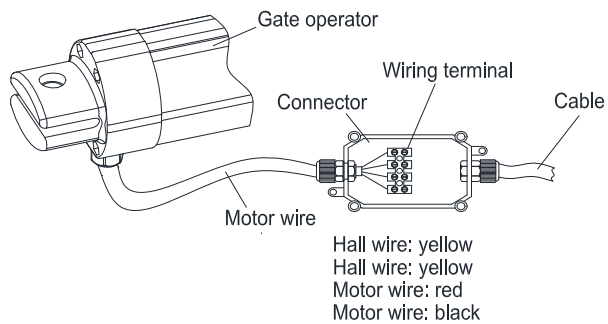


Fig.13

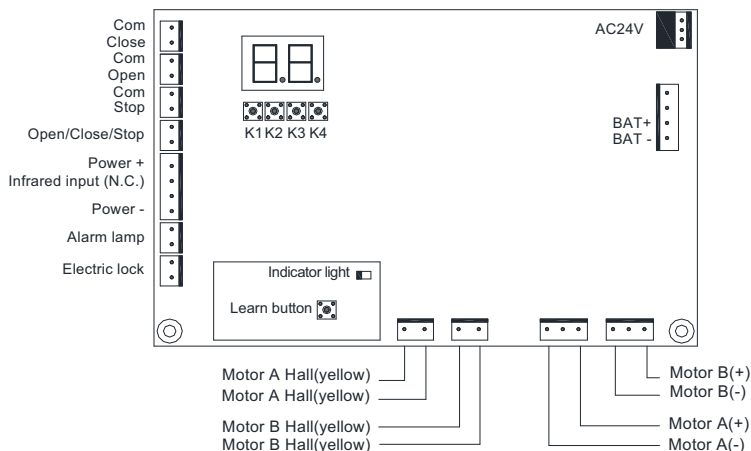
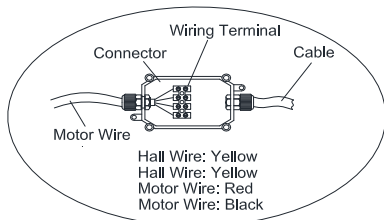


Fig.14 Control board diagram



Wiring:

Connect -: Motor Wire - **RED** to **NEGATIVE(-)**
: Motor Wire - **BLACK** to **POSITIVE(+)**

Connect -: Hall Wire **Yellow** to **Yellow**

Electric lock (DC24V)

Connect two wires of electric lock to port 'Electric lock'.

Flashing light (DC24V)

Attach two wires of flashing light to port 'Alarm lamp'.

Install the external button switch (Normally open)

The ZK300DC is equipped with an interface for an external button switch or keypad.

To install the keypad attach two wires of your keypad to the port 'Open/ Close/ Stop'.

The keypad will function in single channel mode.

For three-button switch installation, use the terminals for multi-channel mode. The port 'Com' is the common port, the port 'Open' is used to open the gate, 'Close' is used to close the gate, and 'Stop' is used to stop the gate.

Infrared photocell (Normally close)

If the infrared beam is interrupted during closing, the gates will stop immediately.

Connect signal wires of infrared device to 'Infrared input' and 'power+' (see Fig.14).

Connect common wire (i.e. 'power supply -') of infrared device to 'Power -', connect 'power supply +' of infrared device to 'Power +'.

Battery

Connect battery to 'BAT+' (red) and 'BAT-' (black). A fully charged standard battery still can provide enough power for operating 10 cycles after power disruption.

10. Electrical / Setting

Learn remote controls

Adding extra remote controls (Learn):

- Press the Learn Button on the control board for 1 second, release the button, the indicator 'LED' will be on.
- Press the button you want to use once, the 'LED' will flash 1 time, the learning process is completed.
- Up to 40 remote controls may be used.

To erase all remote controls

- Press and hold the Learn Button on the control board for 8 seconds until 'LED' turns off. This indicates that all the remote controls have been erased completely.
- The remote control works in single-channel mode, with each press of the button, the gate will open stop close stop cycle.
- Warning: DO NOT operate the gate operator unless the gates are in full view and free from objects such as cars and children/people.
- For safety and security, we recommend that the factory setting be replaced with a personal code.

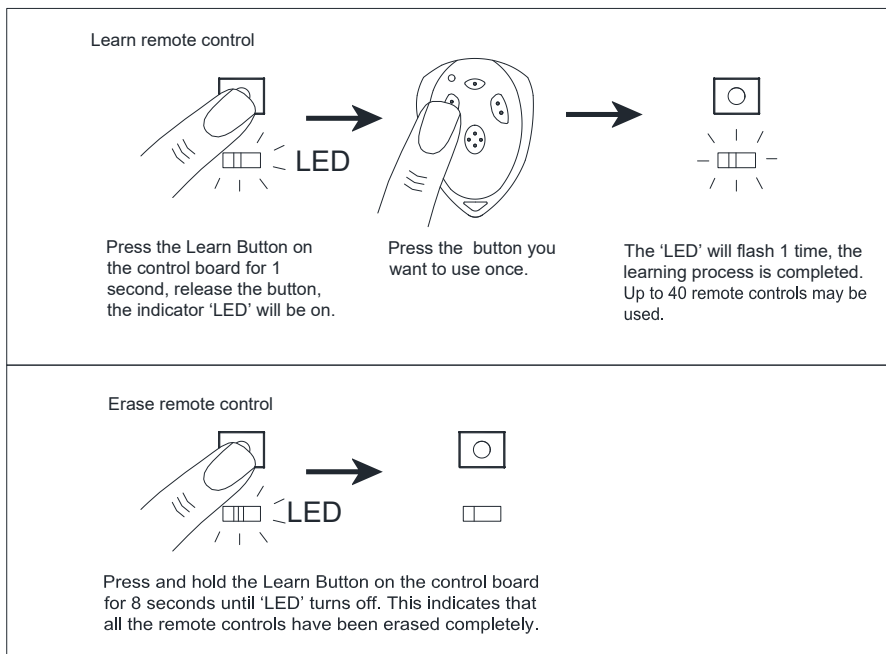


Fig.15

Setting open limit position

LED Display:

11: To set OPEN limit for Motor **B**22: To set OPEN limit for Motor **A**To set open Limit for **Motor B**:

- Press and hold **K1** button for 3 seconds, '11' will be displayed on the LED.
- Press **K2** and **K4** button to adjust the open limit for Motor B.
- Press **K1** button to confirm the open limit setting. Gate B will then close automatically to its closed position.

To set open Limit for **Motor A**:

- After finish setting open limit for Motor B, '22' will be displayed on LED.
- Press **K2** and **K4** button to adjust the open limit for Motor A.
- Press **K1** button to confirm the open limit setting. Gate A will then close automatically to its closed position.

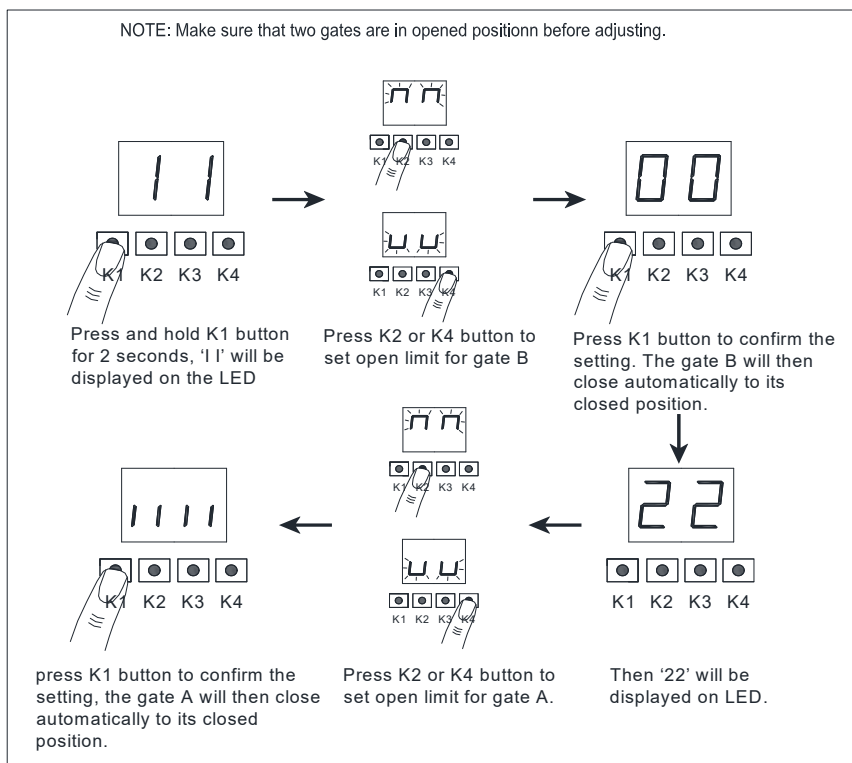


Fig.16

Setting Auto close time (Default: 0- disabled)

- Press and hold **K2** button for more than 4 seconds, release the button until '--' is displayed on LED.
- Press **K2** button to increase auto-close time, press **K4** button to decrease auto-close time. The auto-close delay time: 0-90 seconds. (01-10sec.....09-90sec.)
- Press **K1** to confirm the setting.

Note: When using auto close mode, a photo electric beam must be fitted correctly and tested for operation at regular intervals. Extreme caution is recommended when using auto close mode. All safety rules must be followed.

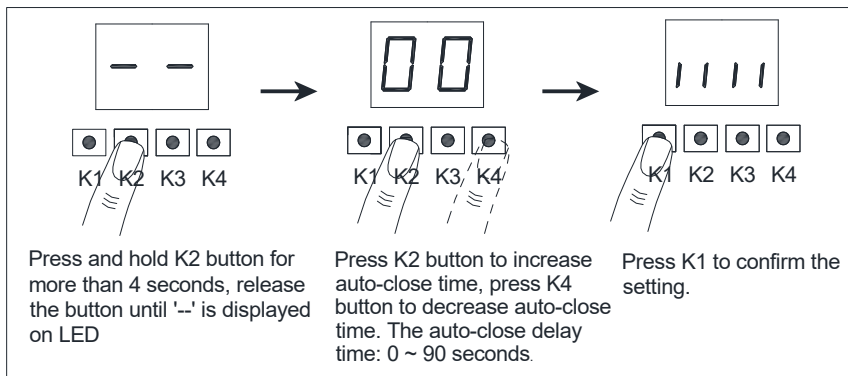


Fig.17

Setting Interval time between two gates (Default: 2 seconds)

- Press and hold **K4** button for more than 4 seconds, release the button until 'IIII' is displayed on LED.
- Press **K2** button, 'HH' is indicated on the LED display, without interval time, press **K4** button, 'IIII' is indicated on the LED display, the interval time between two gates is 2 seconds.
- Press **K1** to confirm the setting.

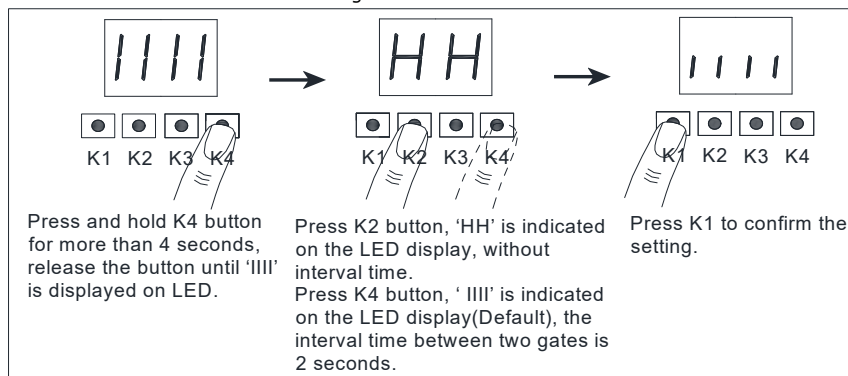


Fig.18

Setting obstruction force (level 01 - 20 adjustable) (Default: 12)

- ZK300DC will stop if it encounters an obstruction during opening, and will reverse if it encounters an obstruction during closing.
- Press and hold **K3** button for more than 4 seconds, until '--' is displayed on LED.
- Press **K2** to increase the obstruction force, the maximum force is level 20. Press **K4** to decrease force, the minimum force is level 1.
- Press **K1** to confirm the setting.

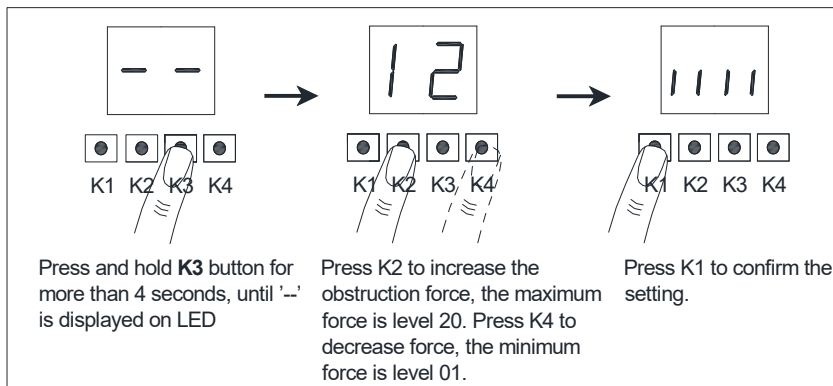


Fig.19

11. Maintenance

- Regularly verify that the gate swings freely.
- Make sure the hinges function perfectly.
- Verify correct operation of the safety devices.
- Keep operator clean at all times.

12. Troubleshooting

Table 3

Symptoms	Possible cause	Remedy
Motor runs, but gate does not open or close.	1.The gate is obstructed. 2.The operator is released.	1. Remove obstructions. 2. Engage the operator.
Gate does not open far enough or does not have the proper opening angle.	The gate operator is not installed properly according to Fig.4 in the gate geometry section of this manual.	Either modify the installation to meet Fig.4 or adjust the size or replace the installation brackets in accordance with the gate geometry section of this manual.
The motor does not run.	1.Power supply. 2.The fuse in the control box is broken.	1. Check the power supply. 2. Change the fuse.
Remote control does not work.	1. The indicator light of remote control does not light. 2. Remote control is broken. 3. The operating distance is too far away.	1. Check the batteries in your remote control. 2. Change the remote control. 3. Make sure the operating range is less than 30m.