ALEKO®

LockMaster

THE NAME OF QUALITY

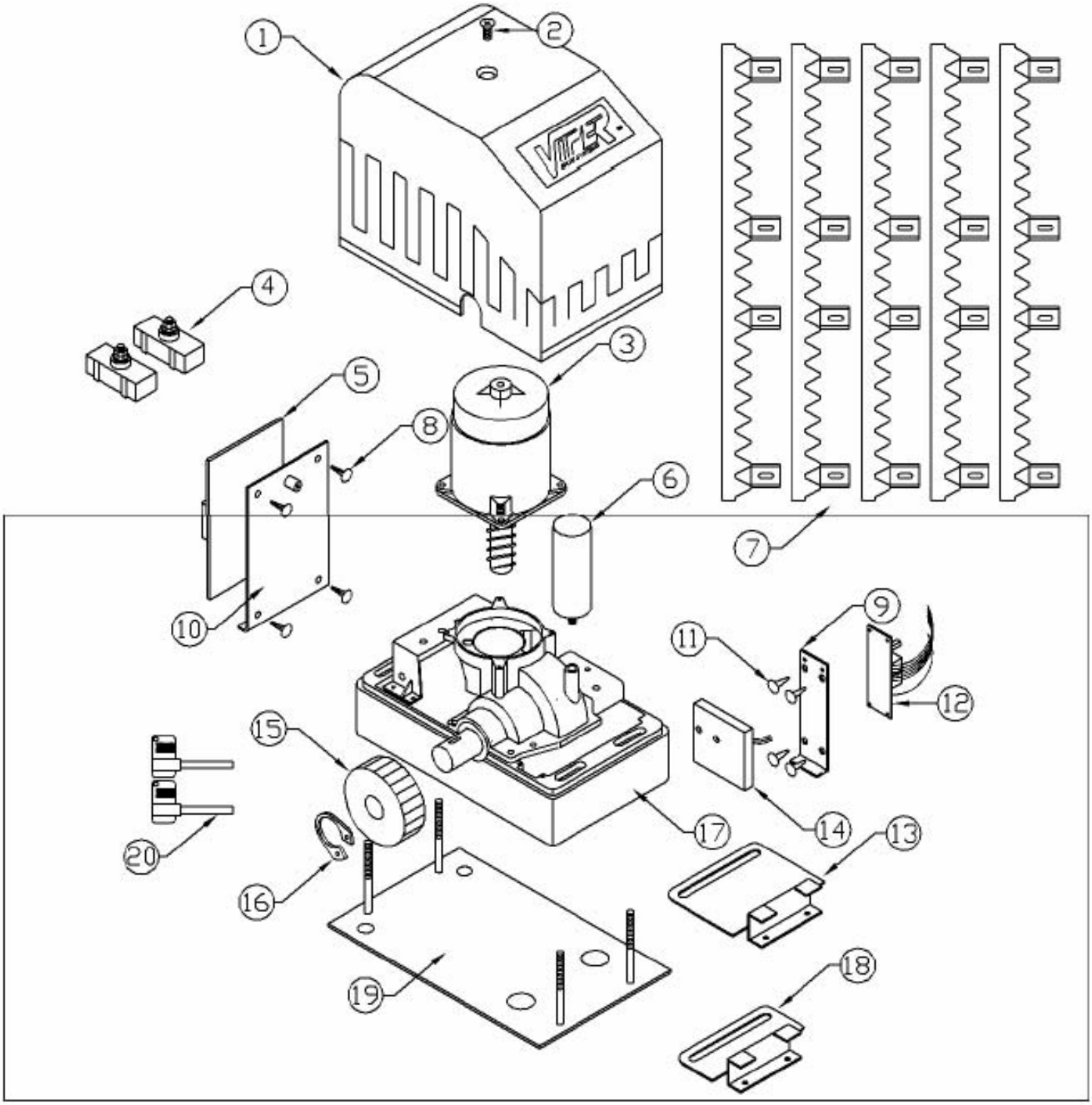
Sliding Gate Operator
User's Manual

Lockmaster DKC400UY
Lockmaster DKC400U
Aleko AR-1450

www.Gatemotors.com
Support@Gatemotors.com
Tel:305-809-6301

OUTLINE

AR-1450



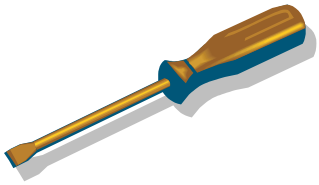
MODEL: **AR-1450**

	COMPONENT DESCRIPTION	COMPONENT MANUFACTURER	MFR'S PART NO.	QUANTITY
1	Cover	ALEKO	tr3cov1	1
2	Set Phillips screw	ALEKO	tr3sps2	1
3	½ h.p. Motor	ALEKO	tr3mot3	1
4	Limit magnets	ALEKO	tr3lm4	2
5	Control board	ALEKO	tr3c/b5	1
6	Capacitor	ALEKO	tr3cap6	1
7	Gear racks 2.3 ft.	ALEKO	tr3gr7	5
8	Plastic clip	ALEKO	tr3pc8	4
9	Base plate for receiver/ limit switch sensor	ALEKO	tr3bp9	1
10	Base plate for control board	ALEKO	tr3bp10	1
11	Plastic clip	ALEKO	tr3pc11	4
12	Receiver	ALEKO	tr3rec12	1
13	Large bracket for magnet (open limit)	ALEKO	tr3lbol13	1
14	Limit switch sensor	ALEKO	tr3ls14	1
15	19 tooth Sprocket	ALEKO	tr319spr15	1
16	C-Clamp	ALEKO	tr3ccl16	1
17	Motor housing	ALEKO	tr3mh17	1
18	Small bracket for magnet (close limit)	ALEKO	tr3sbcl18	1
19	Mounting base	ALEKO	tr3mb19	1
20	Manual release keys	ALEKO	tr3keys20	2

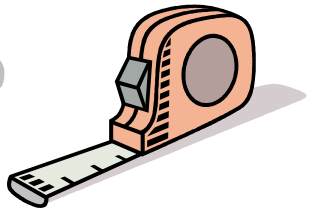
Tools you will need

During assembly and installation of your opener, the instructions will call for the use of various tools shown below. Other tools may be required as needed for the installation of the concrete pad and electrical connection.

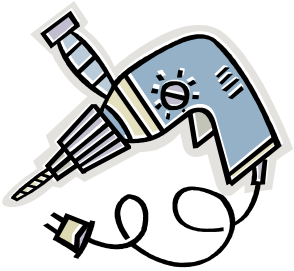
Table 3 Required Tools for Installation



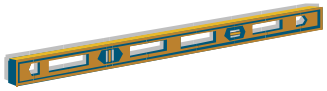
Screwdriver



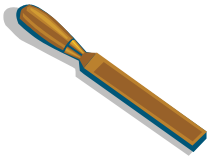
Tape Measure



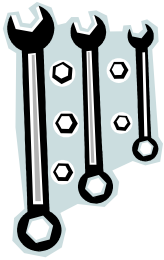
Electric Drill



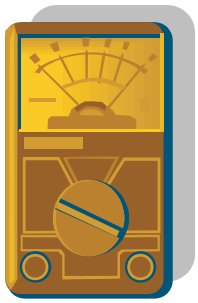
Level



File

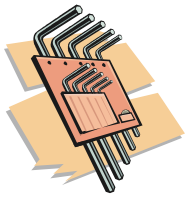


Wrenches

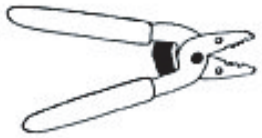


Multimeter

Pliers



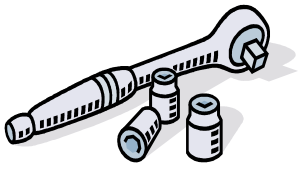
Allen Wrenches



Wire Strippers

Wire Cutter

Adjustable Wrench



Socket Wrench

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 AR-1450 will stop and reverse if it was obstructed on closing and stop when it was obstructed on opening.
- Supports up to 100 remote controls.
- 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.

3. Main technical parameters

Type	AR-1450	AR-1450
Power supply:	AC 220V, 50Hz	AC110V, 60Hz
Motor speed	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)
Output torque	14N • m	

Limit switch	Magnetic limit switch
Remote control operating range	30m
Frequency	433.92mHz
Remote control mode	Single-button
Auto-close time	0-44 sec.
Working time	90 sec.
Noise	≤62dB
Environmental temperature	-10° C~+55° C

4. Working principle and main structure

The device 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.

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.

5. Installation and adjustment

The AR-1450 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 AR-1450 sliding gate operator. The gate must be plumb, level, and move freely.

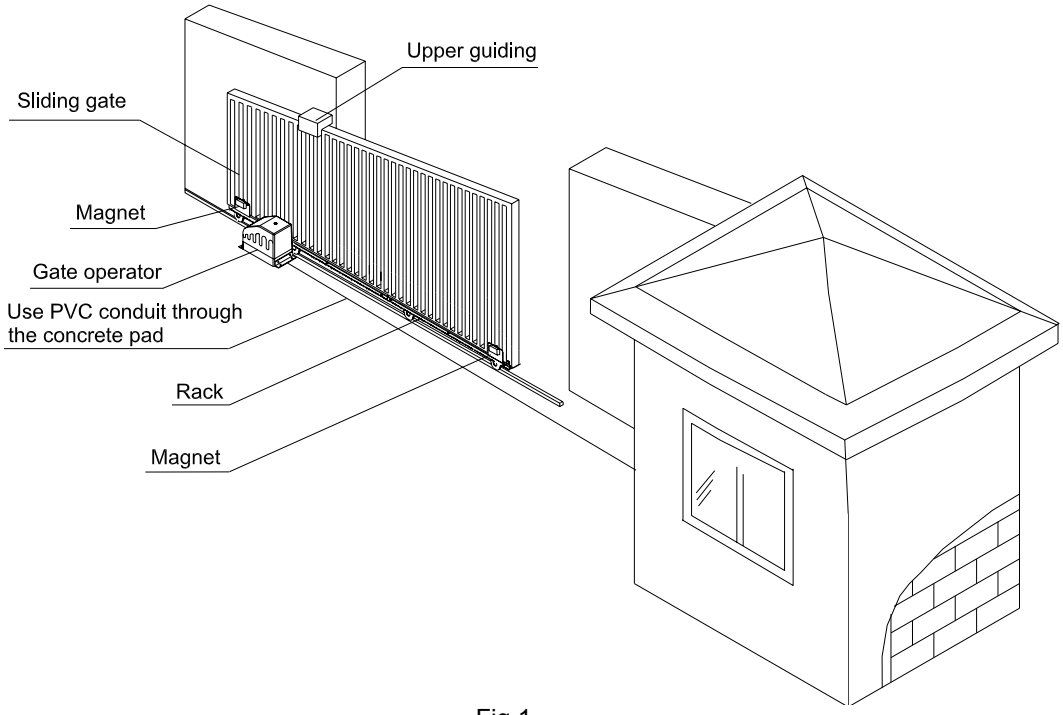


Fig.1

Conduit

In order to protect the wires, use PVC conduit for control 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.

Anchors

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

Operator

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

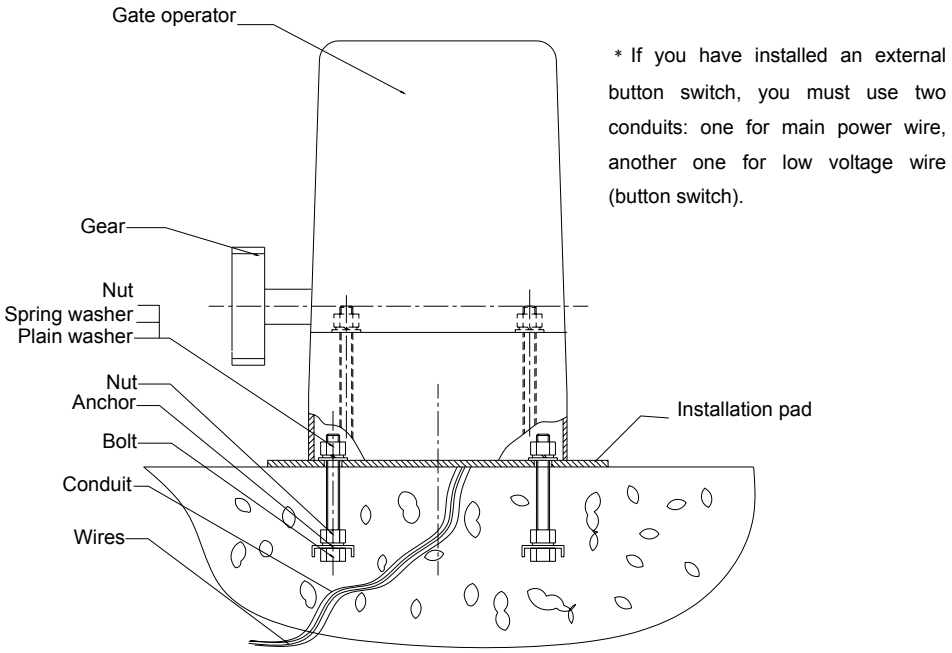


Fig.2

Installation of 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 1mm.

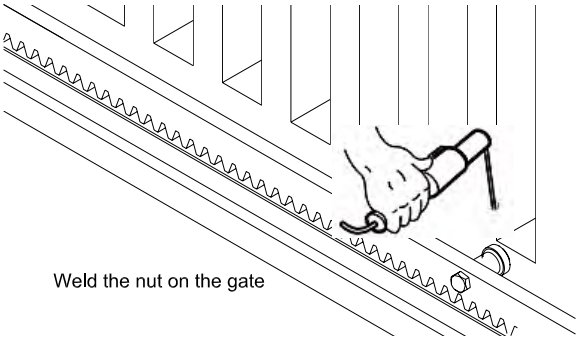


Fig.3

Magnets for limit switch

To ensure safety, it is recommended to install limit devices at both ends of the gate to prevent the gate from sliding out of the rails. The rails must be installed horizontally.

Install the magnet as shown in Fig.4 and Fig.5. The magnet and limit switch are used to control the position of the gate.

Release the gear clutch and push the sliding gate manually to pre-determine the position.

Solder 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. Fix the magnet to the bracket. Adjust the position of gate operator, the magnet should be 10~15mm away from the magnetic limit switch, if too far away, the switch will fail to work. Moving the gate electrically, adjust the magnet to the proper position until the position of the opening and closing meet the requirement.

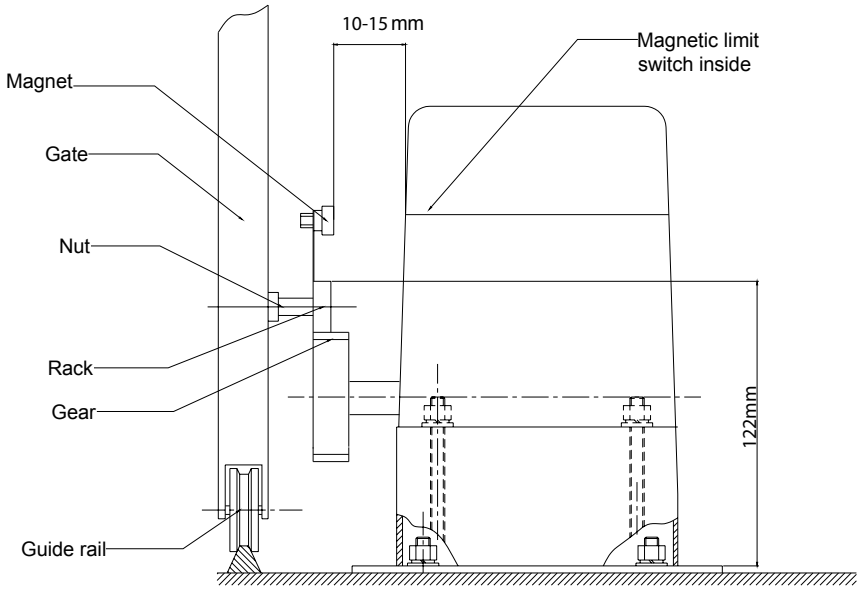


Fig.4

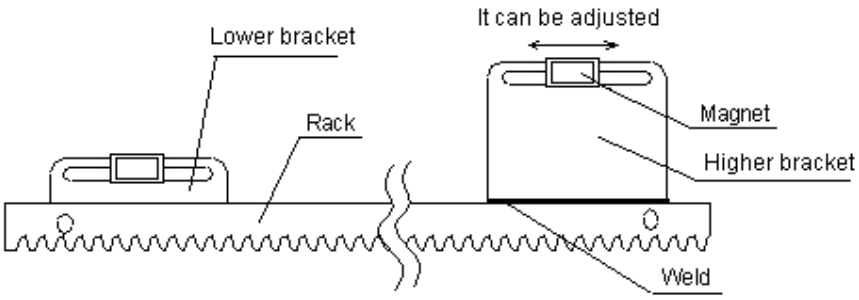
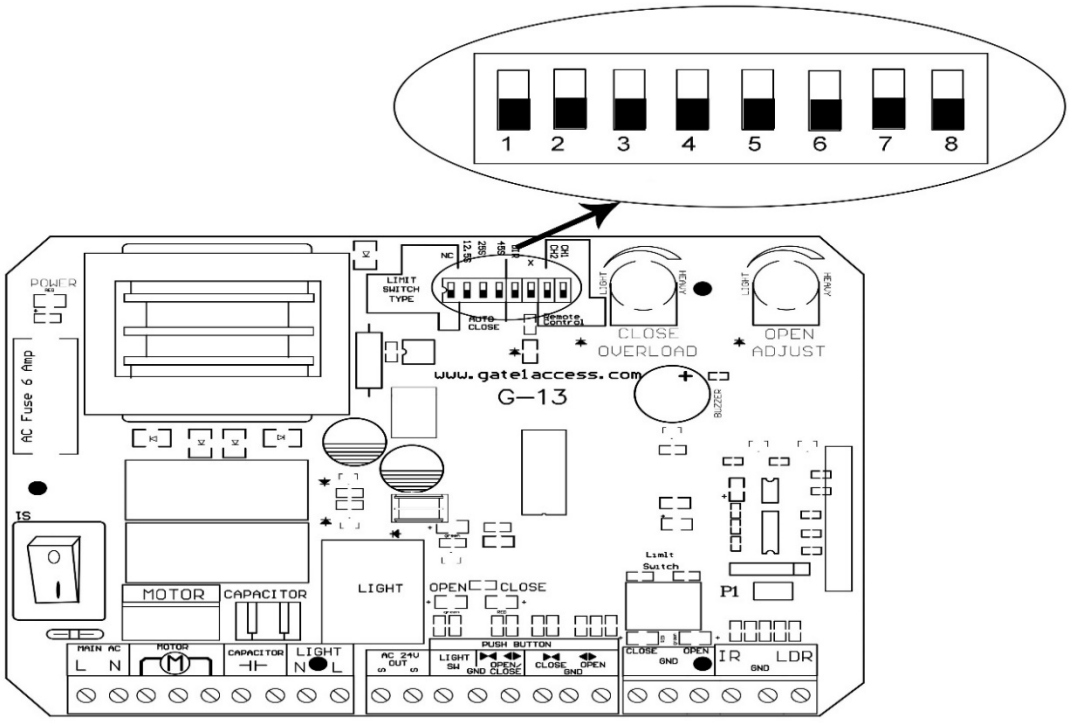


Fig.5

Setting of the Control Board

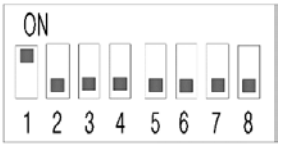
1. DIP Switches

The DIP switches are used to set the limit switch of the opener to be NO or NC, auto close time of the gate opener and fast change the open/close direction which is determined by the position of the gate opener installed.



Setting of the Control Board

DIP Switch #1: Limit switch NC (*normally closed*) or NO (*normally open*)

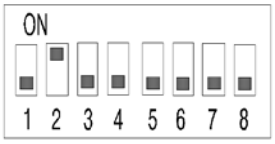


DIP Switch #1 : ON – NO / OFF –NC

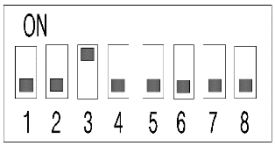
This mode enables user to set the board to work with motor with NC or NO limit switch

NOTE: Factory default setting is NO

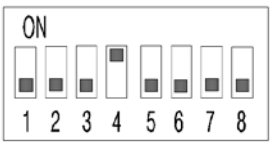
DIP Switch #2–#4: Auto close time of the gate opener



DIP Switch #2: ON – 12.5 Seconds OFF – 0 Seconds



DIP Switch #3: ON – 25 Seconds OFF – 0 Seconds



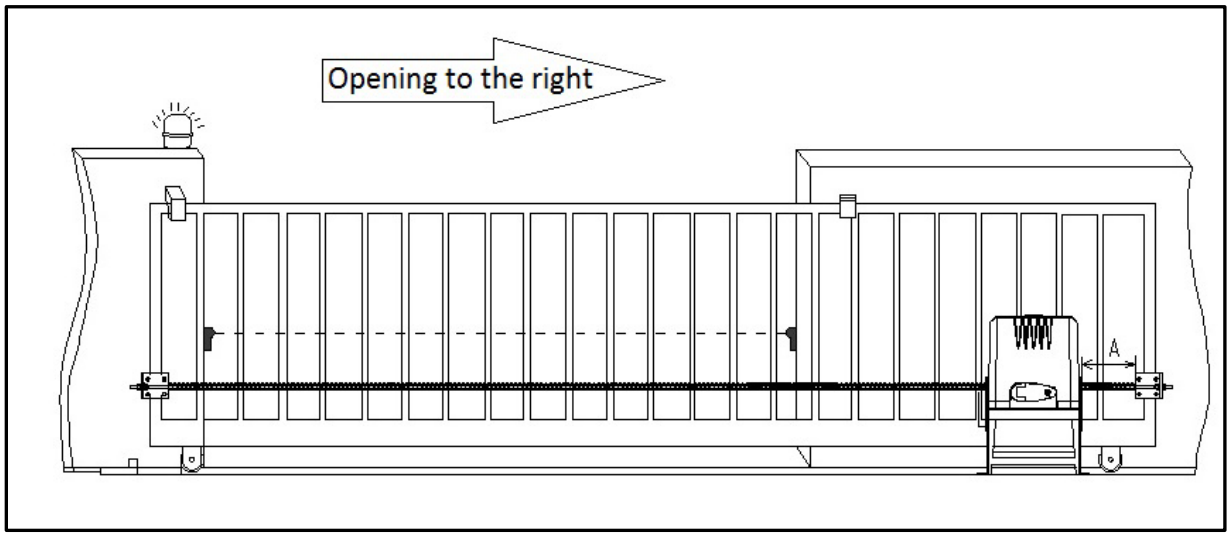
DIP Switch #4: ON – 45 Seconds OFF – 0 Seconds

NOTE: The auto-close function would be disabled if all 3 dip switches are turned to off (factory default setting).

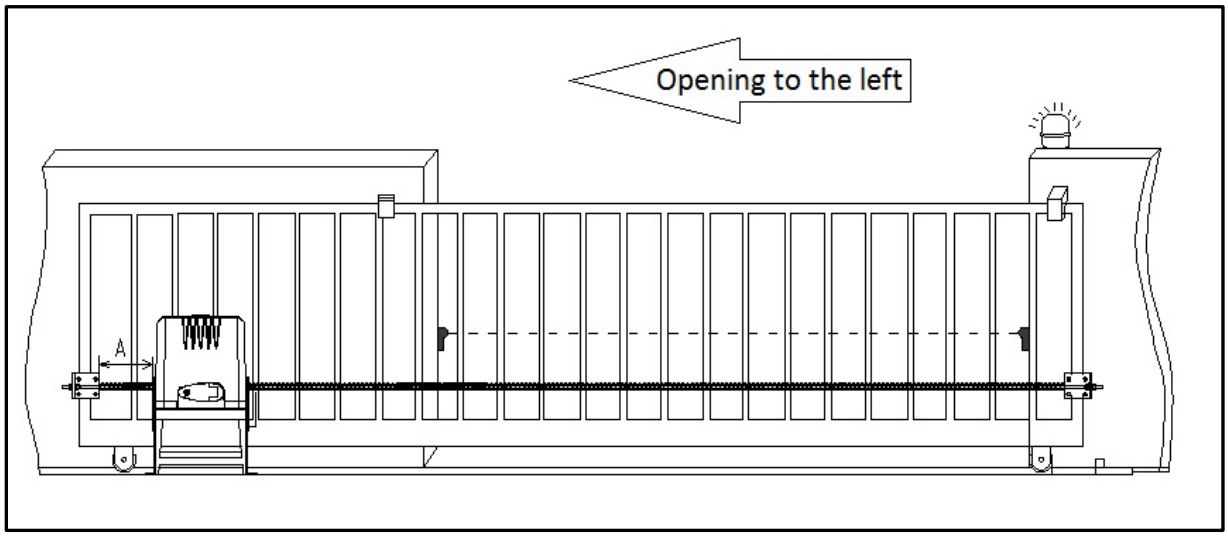
DIP Switch #5: <u>Direction of gate opening</u>.*

(Direction from the inside of the property where the opener is installed.)*

DIP Switch #5: **<u>OFF</u>** – Opens to the right.



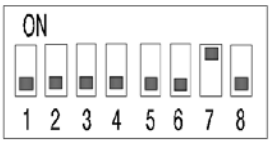
DIP Switch #5: **<u>ON</u> –** Opens to the left.



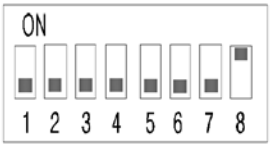
Note: If opening is to the left, the Limit Switch wires on the control board (yellow & red) need to be reversed. The black wire stays the same.

DIP Switch #6: <u>(NOT USED)</u>

DIP Switch #7–#8: <u>Remote Control Button (yellow & blue) Setting</u>



DIP Switch #7: **<u>ON</u>** – Yellow Button is Working **<u>OFF</u>** – Yellow Button is Not Working



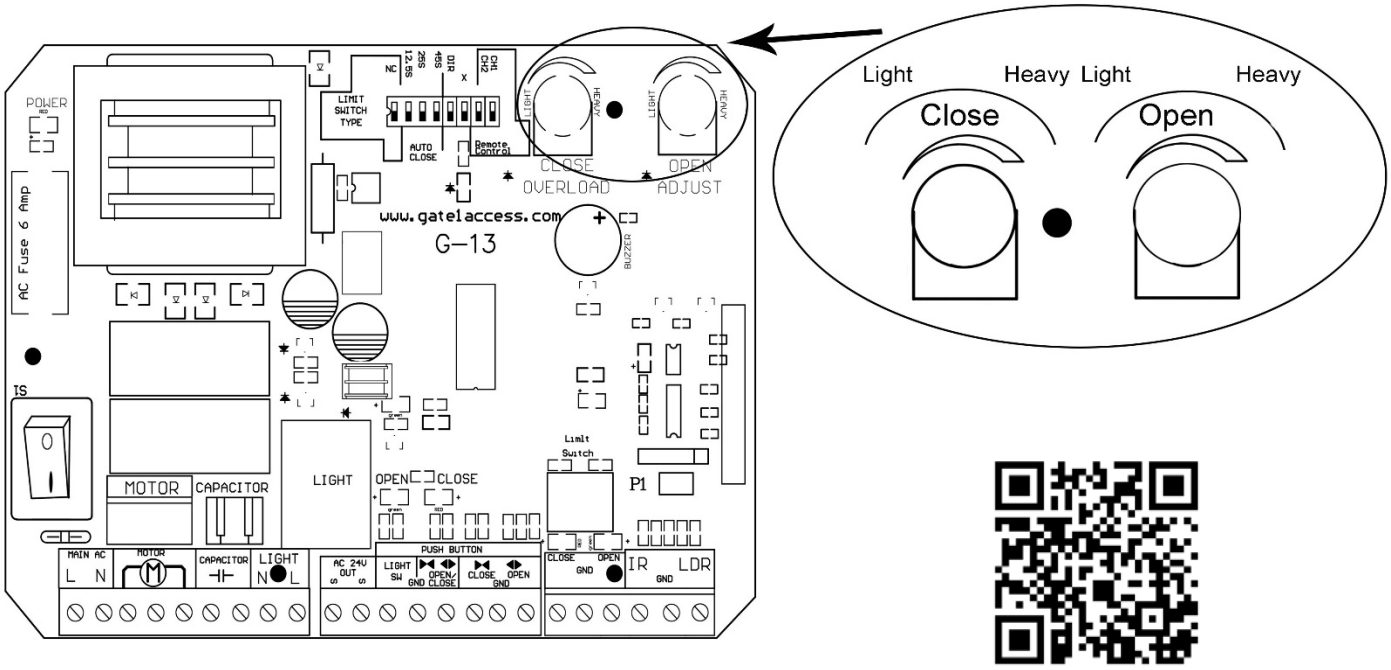
DIP Switch #8: **<u>ON</u>** – Blue Button is Working **<u>OFF</u>** –Blue Button is Not Working

2. Potentiometers

The left potentiometer is to adjust the **CLOSE** stall force of the gate opener. The right Potentiometer is used to adjust the **OPEN** stall force of the gate opener.

Turn the potentiometer clockwise to increase the stall force.

Turn the potentiometer counter-clockwise to decrease the stall force.



Test the reversing sensitivity

For the sake of safety, it is very important to test the reversing sensitivity as soon as the control board set is finished.

The reversing sensitivity adjustment is inverse correlation with stall force adjustment in **potentiometer 1 and potentiometer 2**. In other word, the stall force level is higher; the reversing sensitivity level is lower.

Put an immobile object along the gate path, and then operate the gate to strike it during the open and close cycles. The gate must reverse as soon as object is struck with it. If the gate doesn't reverse, please increase the reversing sensitivity by turning the potentiometer in counter-clockwise direction. (Turning the stall force potentiometer toward to "Light" position to increase the reversing sensitivity)

> **<u>Note 1</u>: If the sensitivity setting is too higher, the gate will stop or reverses very easy by itself while there is little obstruction or resistance such as strong wind or heavy snow sometimes.**
>
> **<u>Note 2</u>: Always check the gate reversing function every each time of control board set or restart after power off.**

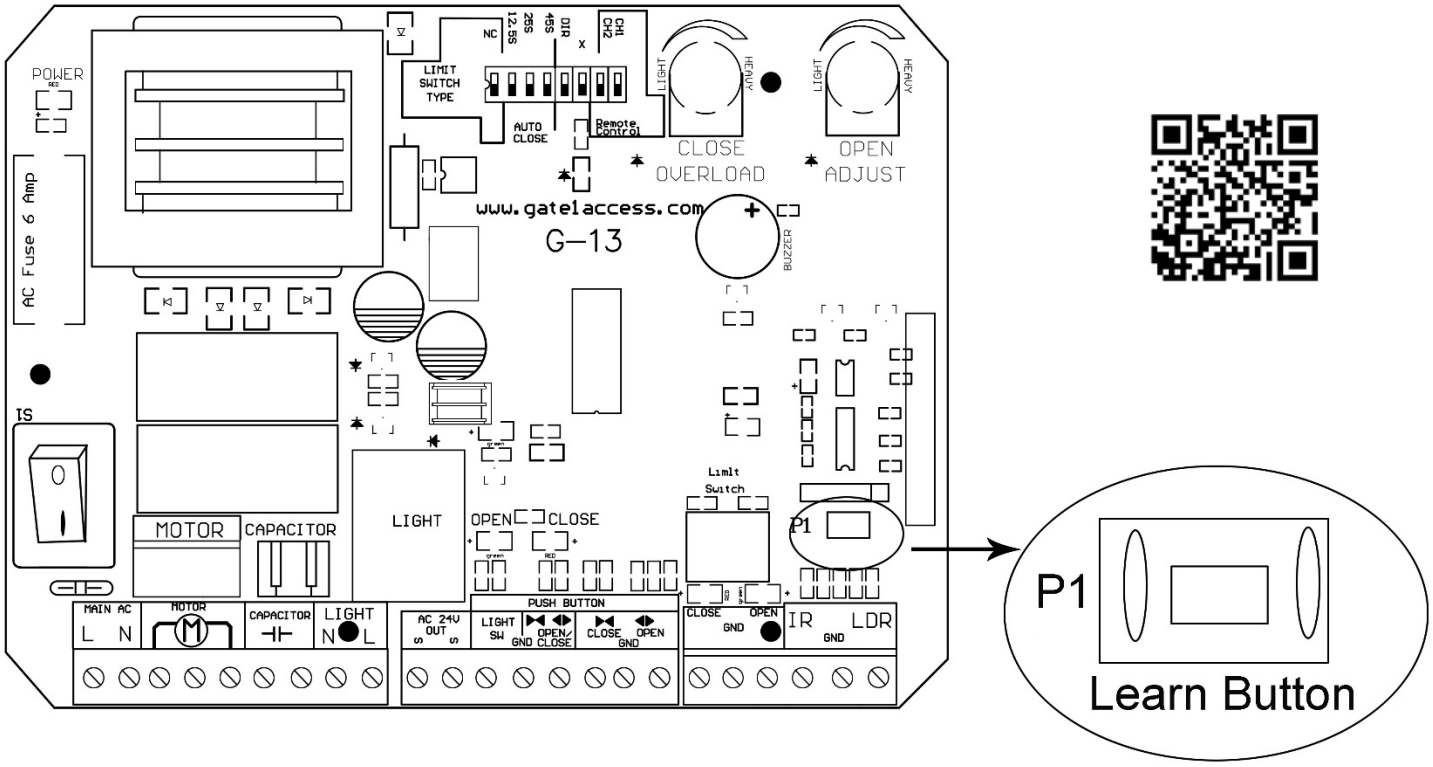
How to learn or erase the remote

Learn the remote

Press and release the learn button, the **BLUE LED** light will be on, then press any button in the remote within 5 seconds, the **BLUE LED** light will go off. Now the remote has been learnt successfully.

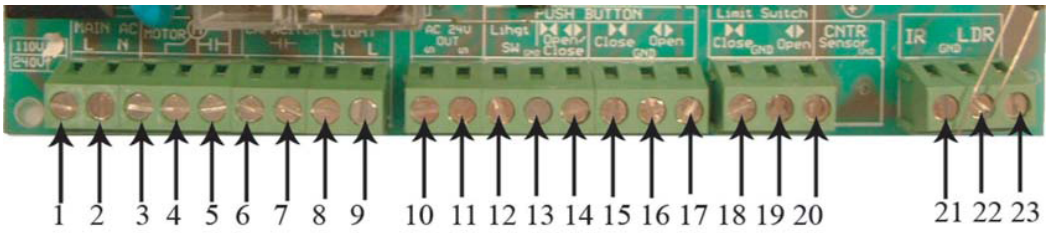
Erase all the remote codes

Press and hold the learn button until the **BLUE LED l**ight goes off after flashing 5 times. Now all remote codes have been erased.



AR1450	Residential Sliding Gate Operator

Optional Equipment Installation Procedures



Green
Brown
Red
Black

Blue
Brown
Black
White

11. Trouble Shooting

Motor only runs in one direction.	The wire connector terminal block becomes loose.	Check wire connector terminal block make sure it is plugged in terminal block 10 (X8).
	The limit switch wire connector terminal block becomes loose.	Check limit switch wire connector terminal block make sure it is plugged in terminal block 9 (X9). Check the limit switch mode.
	The electric component on the control board such as Q2, Q91 or Q92 may be damaged.	Replace the electric component Q2, Q91 or Q92 (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 **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 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 Q2, Q91 or Q92 may be damaged.	Replace the electric component Q2, Q91 or Q92 (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 **Adding extra remote controls (learning)** 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.
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 see parts list) 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.
The gate opens, but stops and will not return.	1. Please note the two magnet brackets (fixed plate) are different: one is higher and another is lower. Please try to exchange the two brackets position. 2. Please try to exchange the limit switch wires CL (close) and OP (open).	There are two reed switches inside the magnetic limit switch: one is upper and another is lower. Maybe the magnet position was installed in the middle so it inducts both reed switches. Solution: adjust the magnet upper or lower.

Gate1Access LLC.
P.O. box 121776
Clermont Fl. 34712
sales@Gatemotors.com
www.Gatemotors.com