Sliding Gate Opener
User’s Manual
Model: GA2500

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★ Please read and follow all warnings, precautions and instructions before installation and use
★ Periodic checks of the opener are required to ensure safe operation.
★ For residential use only
★ Save this manual
Thank you for purchasing GA2500 gear rack drive sliding gate opener. We are sure that the products will be greatlysatisfying as soon as you start to use it. The product is supplied with a user’s manual which encloses installation and safety precautions. These should be read carefully before installation and operation as they provide important information about safety, installation, operation and maintenance. This product complies with the recognized technical standards and safety regulations.

⚠️ General Safety

**WARNING!** An incorrect installation or improper use of the product can cause damage to persons, animals or properties.

- Scrap packing materials (plastic, cardboard, polystyrene etc.) according to the provisions set out by current standards. Keep nylon or polystyrene bags out of children’s reach.
- This product was exclusively designed and manufactured for the use specified in the present documentation. Any other use not specified in this documentation could damage the product and be dangerous.
- The factory declines all responsibility for any consequences resulting from improper use of the product, or use which is different from that expected and specified in the present documentation.
- Do not install the product in explosive atmosphere.
- The factory declines all responsibility for any consequences resulting from failure to observe Good Technical Practice when constructing closing structures (door, gates etc.), as well as from any deformation which might occur during use.
- Disconnect the electrical power supply before carrying out any work on the installation. Also disconnect any buffer batteries, if fitted.
- Check that a differential switch with a 0.03A threshold is fitted just before the power supply mains.
- Check that earthing is carried out correctly: connect all metal parts for closure (doors, gates etc.) and all system components provided with an earth terminal.
- Fit all the safety devices (photocells, electric edges etc.) which are needed to protect the area from any danger caused by squashing, conveying and shearing.
- Position at least one luminous signal indication device (blinker) where it can be easily seen, and fix a Warning sign to the structure.
- The factory declines all responsibility with respect to the automation safety and correct operation when other supplier’s components are used.
- Only use original parts for any maintenance or repair operation.
- Do not modify the automation components, unless explicitly authorized by the factory.
- Instruct the product user about the control systems provided and the manual opening operation in case of emergency.
- Do not allow persons or children to remain in the automation operation area.
- Keep radio control or other control devices out of children’s reach, in order to avoid unintentional automation activation.
- The user must avoid any attempt to carry out work or repair on the automation system, and always request the assistance of qualified personnel.
- Anything which is not expressly provided for in the present instructions is not allowed.
- Installation must be carried out using the safety devices and controls prescribed by the EN 12978 standard.
PARTS CHECKLIST

<table>
<thead>
<tr>
<th>Gate Operator (1 pc)</th>
<th>Base Plate (1 pc)</th>
<th>Gear Racks (3 Pieces)</th>
<th>M10*80 Ground Expansion Bolt (4 pcs)</th>
<th>M10*45 Hex bolt (4 pcs)</th>
<th>10 Washers (4 pcs)</th>
<th>10 Lock Washers (4 pcs)</th>
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Technical Specifications & Features

Specifications:
- Power supply: 120V/50HZ
- Motor: 110VAC
- Absorbed motor power: 370W
- Gate moving speed: (7.9”/second) 20 cm/second
- Max gate weight: 800KGS
- Max torque: 35Nm
- Environmental conditions: From -15°C to +40°C
- Protection class: IP44
- Dimensions: 30cmX19.5cmX49.6cm (L*W*H)

Features:
- Easy to install and low maintenance.
- Quick selection for gate open/close direction.
- Home-link compatible technology.
- Emergency release key in case of power failure
- Stop/Reverse in case of obstruction during gate opening/closing
- Built in adjustable auto-close (0, 12.5, 25, 45 seconds).
- Reliable inner mechanical limit switch brings easy and accurate setting.
- Can be equipped with wide range accessories
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Important Safety Instructions

**WARNING** – To reduce the risk of injury or death: READ AND FOLLOW ALL INSTRUCTIONS.

1) Never let children operate or play with gate controls. Keep the remote control away from children.

2) Always keep people and objects away from the gate. NO PERSON SHOULD CROSS THE PATH OF THE MOVING GATE.

3) Test the gate opener monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate opener. Failure to adjust and retest the gate opener properly can increase the risk of injury or death.

4) Use the emergency release only when the gate is not moving.

5) KEEP GATES PROPERLY MAINTAINED. Read the owner’s manual. Have a qualified service person make repairs to gate hardware.

6) The entrance is for vehicles only. Pedestrians must use separate entrance.

7) SAVE THESE INSTRUCTIONS.
Safety Instructions for Installation

A. Install the gate opener only when:

1) The opener is appropriate for the construction of the gate and the usage Class of the gate,

2) All openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet (1.22 m) above the ground to prevent a 2-1/4 inch (57.2 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position,

3) All exposed pinch points are eliminated or guarded.

4) Guarding is supplied for exposed rollers.

B. The opener is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.

C. The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment.

D. The gate must be properly installed and work freely in both directions prior to the installation of the gate opener. Do not over-tighten the opener clutch or pressure relief valve to compensate for a damaged gate.

E. For gate openers utilizing Type D protection:

1) The gate opener controls must be placed so that the user has full view of the gate area when the gate is moving.

2) The placard provided marked in letters at least 1/4-in (6.4-mm) high with the word "WARNING" and the following statement or the equivalent: “Moving Gate Has the Potential of Inflicting Injury or Death – Do Not Start Gate Unless the Path is Clear” shall be placed adjacent to the controls,

3) An automatic closing device (such as a timer, loop sensor, or similar device) shall not be employed.

4) No other activation device shall be connected.

F. Controls intended for user activation must be located at least ten feet (10’) away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use.

G. The Stop and/or Reset button must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the opener to start.
H. A minimum of two (2) WARNING SIGNS shall be installed, one on each side of the gate where easily visible.

![Warning Sign Image]

1) See instructions on the placement of non-contact sensors for each Type of application,

2) Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving in the opening direction.

3) One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.

I. For a gate opener utilizing a contact sensor in accordance with Usage Class:

1) One or more contact sensors shall be located where the risk of entrapment or obstruction exists, such as at the leading edge, trailing edge, and post-mounted both inside and outside of a vehicular horizontal slide gate.

2) One or more contact sensors shall be located at the bottom edge of a vehicular vertical lift gate.

3) One or more contact sensors shall be located at the pinch point of a vehicular vertical pivot gate.

4) A hardwired contact sensor shall be located and its wiring arranged so that the communication between the sensor and the gate opener is not subjected to mechanical damage.

5) A wireless contact sensor such as one that transmits radio frequency (RF) signals to the gate opener for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless contact sensor shall function under the intended end-use conditions.

6) One or more contact sensors shall be located on the inside and outside leading edge of a sliding gate. Additionally, if the bottom edge of a sliding gate is greater than 6 inches (152 mm) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.
Installation Overview

Installation of the Gate Opener

Caution

- Be sure that the opener is installed in a level and paralleled position and is properly secured.
- Improper installation could result in property damage, severe injury, and/or death.
- Before starting installation, ensure that there is no point of friction during the entire movement of the gate and there is no danger of derailment.
- Ensure that the Warning Signs are present.

Necessary Tools:
The following tools may be necessary to install the Gate Opener.

- Screwdrivers
- Electric drill
- Wire cutters
- Wire stripper
- A socket set
The installation procedures are as follows:

1. The limit default setting is for gate in close position. Before installation, please make sure gate is closed.
2. Prepare one or more conduits for the electrical cables. Cable conduits have to pass through the hole in the base plate.
3. Secure the base plate to the ground temporarily. Further adjustment will be required when installing the nylon gear rack. *(Additional adjustments will be necessary during the installation process.)*
4. Make sure the nylon gear rack goes on top of the gear. Mount the gate opener base to the concrete using the mounting bolts provided.
5. Mount the nylon gear rack to the gate by using screws and washers. Make sure you don’t tighten the screws too much in case you need to adjust them later.

![Diagram of installation process]

**Manual Operation**

The opener comes with an easy operating manual release. It brings the easiest manual release operation just in case of any emergency.

- Insert the manual release key supplied in package to release lock, then turning the key clockwise 90 degrees.
- Pull out the release lock part to be more than 90 degrees, now the gear and shaft are disengaged.

Refer to the figures below
Installation of the Gear Rack

Fitting the Nylon Gear Rack Reinforced with Steel

1. Start with the gate in the closed position.
2. The package contains three sections of nylon gear rack which are 3.4 feet in length each (a total of 10 feet). (You can order extra gear rack if necessary.)
3. Place one of the ends of a gear rack section on the top of the gear of the opener as a temporary support. Install the gear rack, connecting one section at a time and make sure it is leveled. Mark the rack’s mounting holes on the gate before fastening the screws onto the gate.
4. Fit the gear rack with self-threading screws. This kind of nylon gear rack is quieter and allows height adjustments to be made even after it has been installed. Please keep 1/16 inch space between the rack and the gear to avoid the weight of the gate to affect the opener.

Important:
1. Check that the gear rack teeth engages with the gear teeth throughout the full distance. If not, adjust the position of the opener and/or place a few shims between the rack and gate.
2. Manually slide the gate leaf to ensure the rack is properly installed on the gear of the gate opener.
3. IMPORTANT: The gear rack length must be longer than the actual travel distance of the gate. Cut away any excess gear rack not needed.
Inner Mechanical Limit Switch Setting
This newly developed internal mechanical limit switch is much easier and more accurate compared to the traditional magnetic limit switch. User does not need to mount any external parts for limits. It is user-friendly and saves on cost and labor.

Remove the cover from the gate opener and you can see the limit switch is located above the manual release lever. There are 2 adjustable screws that can be used to set open/close limit. If your gate opens to the left, please refer to Diagram A (left). If your gate opens to the right, please refer to Diagram B (right).

When turning the Left or the Right hand screw clockwise, it will decrease the distance the gate will travel. Turning them counter-clockwise will increase the distance the gate will travel.

After setting the open limit, operate to close the gate, if the gate will not stop at the fully close position. At this point Fine-tuned the set screw in small increments

NOTE: If the gate is set to open to the left, then your RIGHT hand screw is set for opening limit and your LEFT hand screw is set for closing limit. If the gate is set to open to the right, then your RIGHT hand screw is set for closing limit and your LEFT hand screw is set for opening limit.
Wiring of the Control Board

1. Motor
The BLUE wire of the motor should be connected into the “3” terminal.
The YELLOW wire of the motor should be connected into the “4” terminal.
The WHITE wire of the motor should be connected into the “5” terminal.

2. Start Capacitor
One pin of the start capacitor should be wired to the “6” terminal, another to “7” terminal.

3. Limit Switches
The YELLOW wire of the limit switches should be connected into the “18” terminal.
The BLACK wire of the limit switches should be connected into the “19” terminal.
The RED wire of the limit switches should be connected into the “20” terminal.
Note: If opening is to the right, the Limit Switch wires on the control board (yellow & red) need to be reversed. The black wire stays the same.

4. Alarm Lamp
One wire of the alarm lamp should be connected into the “8” terminal, another should be connected into the “9” terminal.

5. Photocell (Normal Open) Retro reflective type
Connecting the BLACK wire of the retro reflective photo beam to “10” terminal, connecting the BROWN wire to “11” terminal. The GRAY wire should be connected to the “21” terminal. The WHITE wire should be connected to the “22” terminal.

6. Push Button
The push button should be wired to the “13” and “14” terminals. The gate opener works alternately by pushing the button (open-stop-close-stop-open)

7. Loop Detector
First insert the LOOP DETECTOR BOARD into the CONTROL BOARD, and then connect the twisted-pair to the “15” and “16” terminals to realize the auto close function. Or connecting to the “16” and “17” to realize the auto open function.

8. External Receiver
The RED wire of the wired keypad should be connected into the “10” terminal.
The BLACK wire of the wired keypad should be connected into the “11” terminal.
The BROWN wire of the external receiver should be connected into the “13” terminal.
The BLUE wire of the external receiver should be connected into the “14” terminal.

9. Wired Keypad (12VDC)
The RED wire of the wired keypad should be connected into the “10” terminal.
The BLACK wire of the wired keypad should be connected into the “11” terminal.
The WHITE wire of the wired keypad should be connected into the “13” terminal.
The BLUE wire of the wired keypad should be connected into the “14” terminal.
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.

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: Direction of gate opening.*

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

DIP Switch #5: **OFF** – Opens to the left.

Note: If opening is to the right, the Limit Switch wires on the control board (yellow & red) need to be reversed. The black wire stays the same.
DIP Switch #6: (NOT USED)

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

DIP Switch #7: **ON** – Yellow Button is Working  **OFF** – Yellow Button is Not Working

DIP Switch #8: **ON** – Blue Button is Working  **OFF** – 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)

**Note 1:** If the sensitivity setting is too high, the gate will stop or reverse very easy by itself while there is little obstruction or resistance such as strong wind or heavy snow sometimes.

**Note 2:** 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** light goes off after flashing 5 times. Now all remote codes have been erased.
Trouble Shooting

Have a multi-meter to check voltage and continuity. Use caution when checking high voltage terminals.

1. Motor only runs toward one direction.
   a. The limit switch is failed. Disconnect the limit switches and try it again.
   b. The start capacitor of the motor is failed. Replace the capacitor.
   c. The electric component on the control board may be damaged. Replace the electric component or replace the control board.

2. The gate will not open or close.
   a. The power switch is OFF. Make sure the power switch is ON.
   b. The limit switches are failed. Disconnect the limit switches and try it again.
   c. Connecting wires or terminal blocks are too loose. Check the connecting wires and terminal blocks.
   d. The motor has been damaged. Replace the motor if necessary.
   e. The thermal protector is working because the high temperature after long working time. Please wait for 20 minutes to let the motor become cold.
   f. The electric component on the control board has been damaged. Replace the electric component or replace the control board.

3. Remote control does not work.
   a. The distance you use the remote is too far away from the opener. Try it again closer.
   b. 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.
   c. Broken receive board. Replace receive board.
   d. The indicator light of remote control is not on. Check the battery in your remote control. Replace the battery if necessary.

4. When you open or close the gate by pressing key #1 and key #2 which have been programmed, gate will stop in mid-travel or reverse before reaching the fully limit position.
   a. The opening force or closing force is adjusted too small. Turn the Potentiometer 1 and 2 to increase the force.
   b. Gate is obstructed. Remove the obstruction.

5. The gate opens, but stops and will not return.
   a. 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.
   b. 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 switches. Adjust the magnet upper or lower.
6. The gate can open, but fails to close.
   a. Photocell is obstructed. Remove obstruction.
   b. The limit switch is failed. Disconnect the limit switches and try it again.
   c. The start capacitor of the motor is failed. Replace the capacitor.
   d. The electric component on the control board has been damaged. Replace the electric component or replace the control board.

7. The motor is run but the gate doesn’t move.
   a. The clutch for emergency release is adjusted properly and is not slipping.

Maintenance

Every six months check the following items for proper operation of the unit.
* Lubricate shafts and sprockets.
* Keep opener clean at all times.
* Check and tighten anchors bolts.
* Check for loose or corroded wire
* Ensure the opener is well earthed, and correctly terminated.
* Always check the Stop/Reverse in case of obstruction function when performing any maintenance. If this function can’t be made operable, remove this opener from service until the cause of the malfunction is identified and corrected.

According to Waste of Electrical and Electronic Equipment (WEEE) directive, WEEE should be separately collected and treated. If at any time in future you need to dispose of this product please do NOT dispose of this product with household waste. Please send this product to WEEE collecting points where available.