Sliding Gate Operator
User's Manual
PY500AC

OUTLINE

1. Products introduction

please read the instructions carefully before proceeding.

MCU is supplied to control the gate operator.

Keypad / single button interface.

Photo beam safety beam interface.

User can select Auto-close function.

Manual key release design for emergency purposes.

Gate operator has auto-reverse function, and the reverse power can change by user.

2. Important safety information

Carefully read and follow all safety precautions and warning before attempting to install and use this automatic gate operator.

Make sure the Power supply(AC220V or AC110V) of the gate operator is suitable for the power supply in your area.

3. Main technical parameters

Type	PY500AC	PY500ACU
Power supply	220V, 50Hz	110V, 60Hz
Motor speed	42rpm	47rpm
Rated output power of motor	150W	
Remote control operating distance	30m (Frequency: 433.92mHz)	
Remote control mode	Single button	
Output shaft height	58.5mm	
Max. gate weight	500Kg	
Output torque	14N · m	
Limit switch	Spring limit switch	
Noise	≤60dB	
Duty cycle	S2, 15 minutes	
extra remote control	*100*	
Environmental temperature	-20°C~+50°C	
Gate Move speed	*12m/min*	

4. Mechanical Installation

The PY500AC will handle gate weighting up to 500kg and up to 12m if the proper installation procedures have been followed.

The PY500AC gate operator operates by forcing a drive rack by a drive gear.   The entire configuration

is shown in the diagram below. The gate operator must be installed on the inside of the gate.
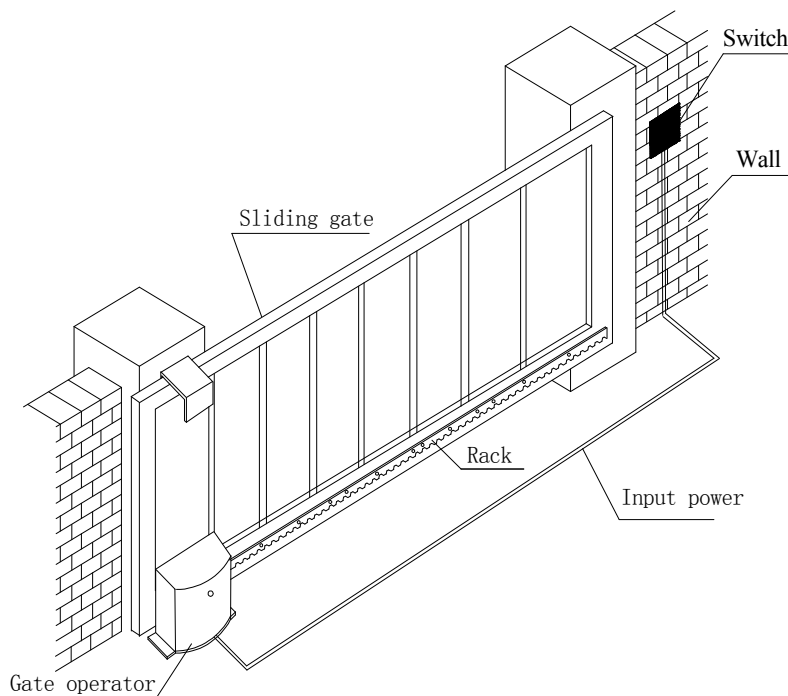

Fig.1

Gate preparation

Be sure the gate is properly installed and slides smoothly before installing the PY500AC sliding gate operator. The gate must be plumb, level, and move freely.

Conduit

In order to protect the cable, use PVC conduit for low voltage power cable and control wires. Conduit must be preset 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 400mm x 250mm x 200mm deep in order to provide for adequate weight and structure to insure proper stable installation.

Anchors (see Fig.2)

You can use anchor bolts, anchors, washers and nuts. These anchors must be set into the concrete when it is poured or you can use wedge anchors to fasten the operator.
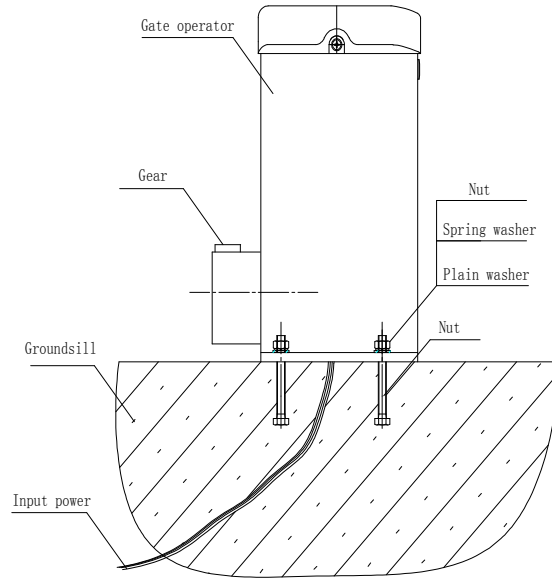
Fig.2

<u>Operator base</u> (see Fig.3)

After the concrete has hardened, mount the gate operator base to the concrete pad. Verify that the base is properly leveled.

Using bolts and washers mount the gate operator to the base and insert the cover. Check the operator and make sure it is lined up with the gate.

Fig.3

Installation of Rack

- 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.
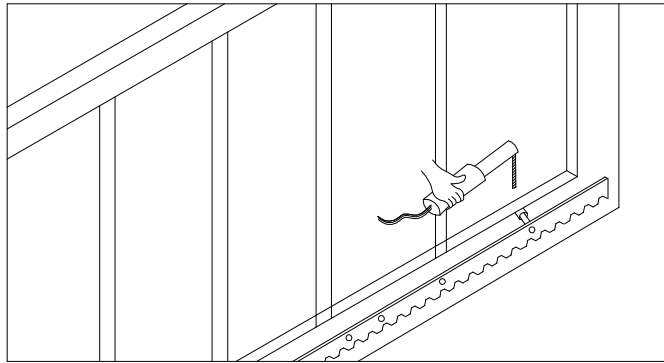- The space between rack and gear is about 0.5mm.

Fig.4

5. Adjustment

Spring limit switch

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

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

- Release the gear with the key and push the sliding gate manually to pre-determine the position, fix the block to the rack and lock the gear by push up the release bar. Moving the gate electrically, adjust the block to the proper position until the position of the opening and closing meet the requirement.
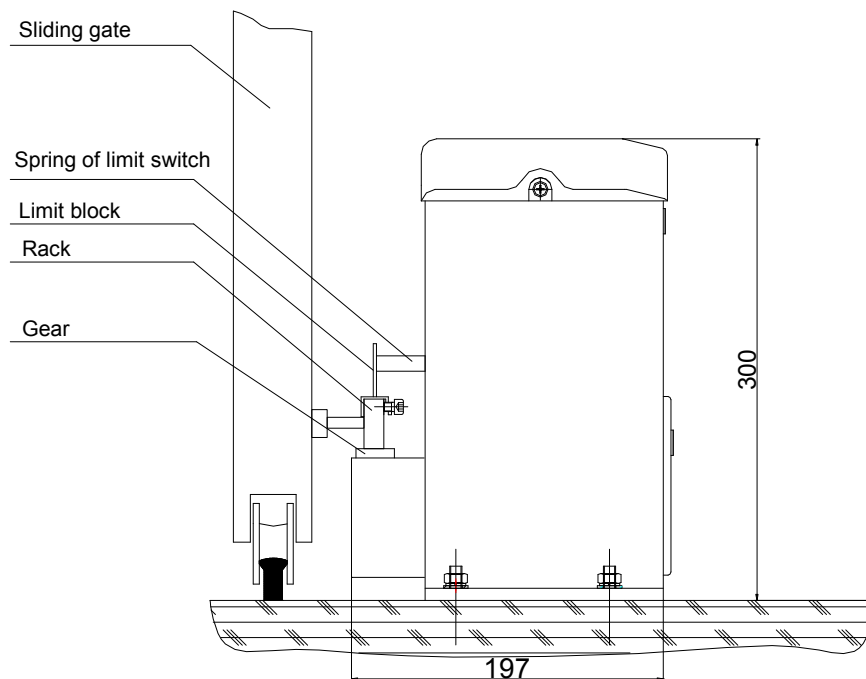

Sliding gate

Spring of limit switch

Limit block
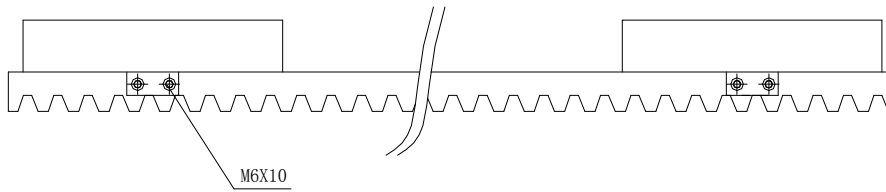
Rack

Gear

300

197

Fig.5

5

Fig.6

Manual operation

In case of power failure use key unlock the lock and pull down the release bar about 90 degree to open or close gate manually, use the release key as follow:

● Fit the supplied key in the lock.

● Turn the key and pull down the release bar about 90° to release the gear. (Note: Do not exceed 90°, be careful not to use too much force, otherwise the release bar will be damaged.)

● Open and close the gate manually.

Note: If the gate bumps the mounting post and cannot be electric opened, move the gate a few inches by hand, thus you can release the gate with the key, open and close the gate manually.
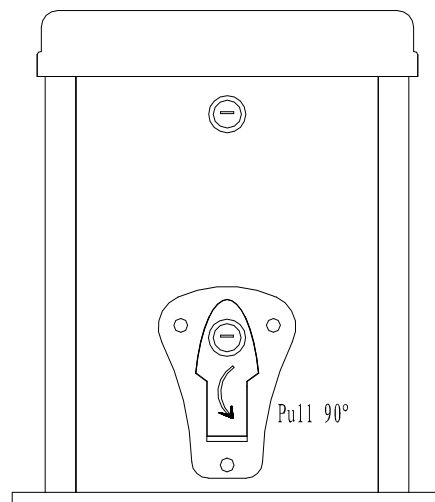

Fig.7

6. Wire Connecting

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

Remove the cover, perform the wiring (See Fig.8 and wiring notes for control board) and replace the cover again.
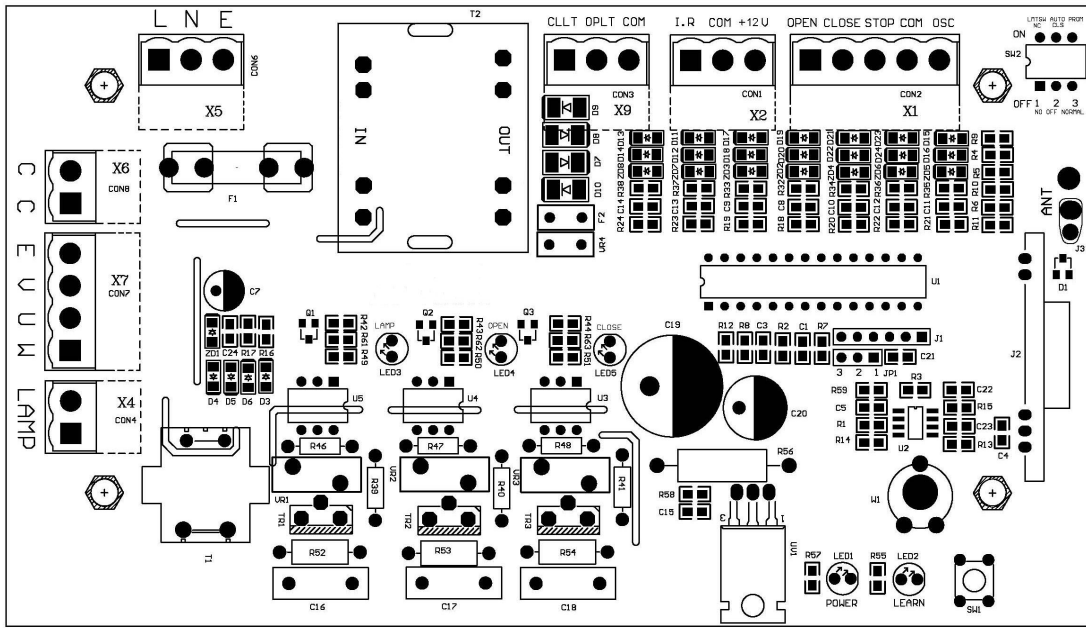
Fig.8

Wiring notes of control board

a.   Power Input:E (Earth),L (Live),N (Neutral).

PY500AC: AC220V

PY500ACU:AC110V

b.   Caution light: connect caution light wire to LAMP(terminal X4)

PY500AC: AC220V

PY500ACU : AC110V

c.   Output power supply: +12V (DC12V), COM (COM), I.R. (N.C Infrared)

If the infrared beam is interrupted during closing, the gate will reverse and open immediately. The product is not factory equipped with an infrared device, the infrared output signal must be N.C.
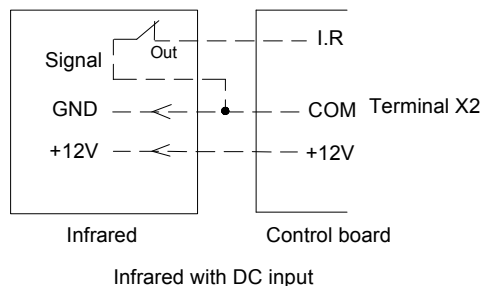

Infrared with DC input

Fig.9 infrared Schematic diagram

d.   Three-button switch / single-button switch (keypad): The PY500AC is equipped with interfaces for three-button switch and single-button switch (keypad).

To install the keypad attach one lead of your keypad to 'OSC' of terminal X1 and the other to the 'COM'. The keypad will function in single channel mode.

For three-button switch installation, use the terminals for multi-channel mode. Connect open wire of external button switch to 'OPEN' of terminal X1, connect close wire of switch to 'CLOSE', connect stop wire of switch to 'STOP', connect common wire of switch to 'COM'.
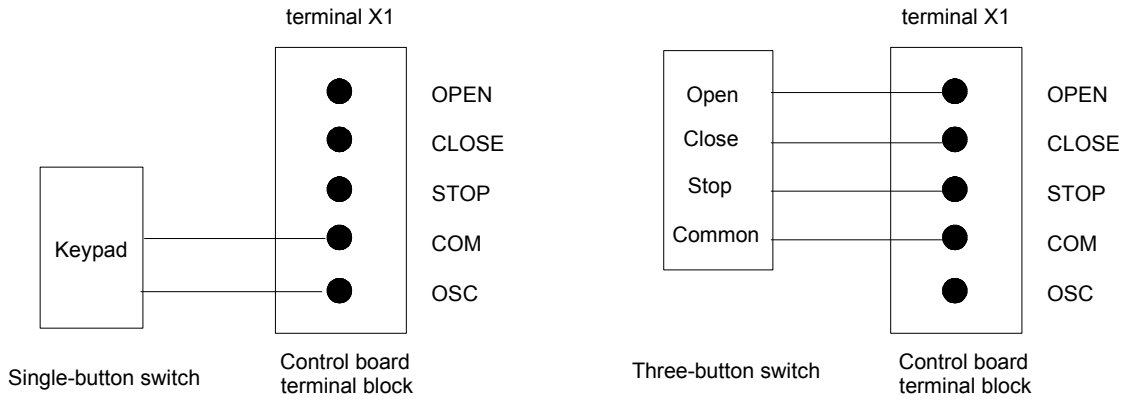

Fig.10

Motor and capacitor (Terminal X7, X6): V (com), U (Positive direction), W (Opposite direction), E (grounding), C (capacitor)

Fi
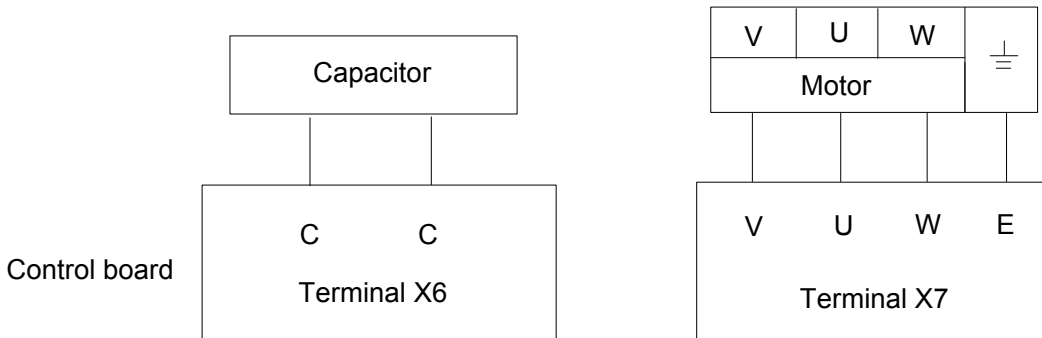
Fig.11

7. Tuning and operation

Remote control

- The remote control works in a single channel mode. It has four buttons. See Fig.12 Remote transmitter. 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 4 is available for 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.

Fig.12 Remote transmitter

- Adding extra remote controls (Learn): Remove the cover, press the learn button 'SW1' (Fig.8), then the 'LED2' (Fig.8) will be on and turn off, then press the remote control button which you want to use, the 'LED2' will turn on about 2 seconds and then turn off again. The learning process is finished. Up to 100 remote controls may be used.
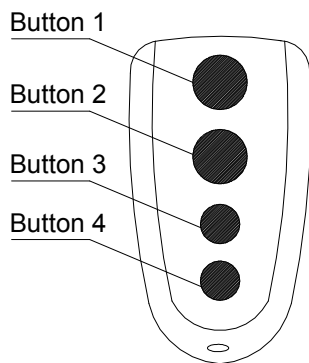
- Erase remote controls: To erase all existing remote controls, press and hold learn button 'SW1', the 'LED2' turns on, release the button once the 'LED2' turns off. This indicates that all the remote controls have been erased completely.

- **Note**: Press the 'OPEN' button of external button switch or remote control button which has been learned, the gate will open, the motor rotates clockwise, and the 'LED3' and 'LED4' is turns on. The output voltage between 'LAMP' (terminal X4) is AC220V/110V, the voltage between 'V' and 'U' is AC220V/110V. Press 'STOP' button or the same remote control button, the gate stops running. And the 'LED3' and 'LED4' is turns off. Then press 'CLOSE' button or the same remote control button again, the gate will close, the motor rotates anticlockwise, and the 'LED3' and 'LED5' is turns on. The output voltage between 'LAMP' (terminal X4) is AC220V/110V, the voltage between 'V' and 'W' is AC220V/110V. Press the 'STOP' button or the same remote control button, the gate stops running. And the 'LED3' and 'LED5' is turns off.

- Verify open direction: If the gate does not move in the desired direction, then you will need to reverse the motor operating direction, open the black plastic cover, you can do this by exchanging wires 'U' and 'W', 'OPLT' and 'CLLT'.

8. Porgramming Process

Table of the DIP-switch (SW2)

Position	DIP-switch	Function SET
1	ON	Limit switch mode is NC.
1	OFF	Limit switch mode is NO.
2	ON	Auto-close function and auto-close function of pedestrian mode are available.
2	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.
3	OFF	Normal / In this position the control board can be normally used.

- *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.): Turn on the second and the third DIP-switch (See Fig.8) 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 a few 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 automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the **auto-close function** has been set.

- *Cancel auto-close function:* Turn on the second and the third DIP-switch (see Fig.8) 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 until the gate close automatically (45 sec.). Press the same button to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. Thus the auto-close function has been canceled.

- *Pedestrian mode:* Pedestrian mode can be used to open gate about 0.3~1.5 meters for people pass

through.

Set width of pedestrian mode: Turn on the second and the third DIP-switch (See Fig.9) 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 automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. 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: Turn on the second and the third DIP-switch (See Fig.9) 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 automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. 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: Turn on the second and the third DIP-switch (See Fig.9) 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 to stop the gate or the gate will stop automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. 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: Turn on the second and the third DIP-switch (See Fig.9) 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 automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. 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: Turn on the second and the third DIP-switch (See Fig.9) 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 automatically at its closed position if the limit switch is reached. After this setup is complete, return DIP-switch 3 to OFF position immediately. 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 during setting. If your device responds to your requested function correctly, you have set the function successfully, otherwise repeat the above setup instruction until your device responds to your expected function.**

(2) **If the gate can not be moved, please check whether the gate is obstructed or the gate is too**

weight.

- *Adjustment of the auto-reverse function:* rotate the 'W1' knob (Fig.8) by hand, the resistance may be increased or decreased by rotating clockwise or counterclockwise. 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.

- If the auto-reverse direction is wrong, please open the black plastic cover, exchange two wires 'U' and 'W' and Exchange wires 'OPLT' and 'CLLT' if the limit direction is wrong.

Activities Covered in this section

- **Remote transmitter:** With each press of the button, the gate will close, stop, open or stop cycle. **(Single-button mode)**

- **Three-button mode external button switch (not supply):** press 'OPEN' button, the gate opens. Press 'STOP' button, the gate stops. Press 'CLOSE' button, the gate closes.

- **Single-button mode external button switch / keypad (not supply):** 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 0.3~1.5 meters for people pass through.

- **Safe guard (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.

- **Open priority:** The gate will return to open if press 'OPEN' button of external button switch during closing.

- **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.

● 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.

9. Maintenance

● Check the door once a month. The door should be carefully checked for balance. The door must be in good working order.
● The auto-reverse function should be regularly inspected, and adjusted if necessary. For service, call an experienced serviceman.
● We suggest for safety reasons, photocells be used on all gates.
● Disconnect from mains supply before replacing bulb.
● Be sure to read the entire manual before attempting to perform any installation or service to the door operator.
● Our company reserves the right to change the design and specification without prior notification.

10. Troubleshooting

Trouble	Possible causes	Solutions
The door fails to open and close. LED display does not light.	1. Power is OFF 2. Fuse burn	1. Make sure that power is ON. 2. Replace fuse.
The door can open, fails to close.	1. Infrared beam is obstructed. 2.Infrared photocell function is enable, but the photocell has not been installed.	1. Remove obstructions. 2.Make sure the infrared photocell function is disable.
Remote transmitter does not work.	1. Battery level may be low 2. Transmitter code is lost	1. Replace the battery inside the transmitter. 2.Re-program the transmitter.
The transmitter operating distance is too short.	Battery level may be low.	Replace battery.

11. 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 our dealer. You should find the following items in our standard packing:

No.	Item	Quantity
1	PY500AC sliding gate operator	1
2	Transmitter	2
3	Release key	1
4	User's manual	1