Sliding Gate Operator

User's Manual

HATO 800AC/HATO 1400AC

1. Products introduction

Please read the instructions carefully before proceeding.

MCU is supplied to control the gate operator.

Keypad / single button interface.

Have Infrared safety sensor interface.

Soft start and soft stop function and the soft stop width are adjustable.

Working time is adjustable.

Motor output torque is adjustable.

User can select Auto-close function.

Manual key release designed for emergency purposes.

2. Important safety information

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

● 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.

● If enable the auto-close function, must use the infrared sensor.

● 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 transmitter code after installing the 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	HATO 800 AC	HATO 1400 AC
Power supply	220V, 50Hz	220V, 50Hz
Motor speed	52rpm	52rpm
Rated output power of motor	360W	500W
Remote control operating distance	30m (Frequency: 433.92mHz)	30m (Frequency:433.92mHz)
Remote control mode	Single button	Single button
Output shaft height	58.5mm	58.5mm
Max. gate weight	800Kg	1400Kg
Output torque	22N·m	32N·m
Noise	≤60dB	≤60dB

Duty cycle	S2, 15 minutes		S2, 15 minutes	
extra remote control	20		20	
Environmental temperature	-20°C~+50°C		-20°C~+50°C	
Gate Move speed	12m/min	14m/min	12m/min	14m/min

4. Mechanical Installation

The HATO 800AC/HATO1400AC will handle gate weighting up to 800kg/1400 kg and up to 14m/20m if the proper installation procedures have been followed.

The HATO 800AC/HATO 1400AC 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.
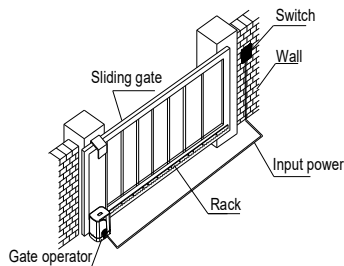

Fig.1

Gate preparation

Be sure the gate is properly installed and slides smoothly before installing the HATO 800AC/HATO 1400AC 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 450mm x 300mm x 200mm deep in order to providing 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.
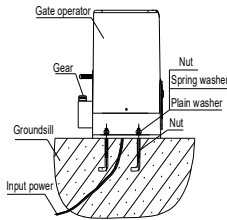
Fig.2

Operator base (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.
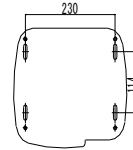
Fig.3

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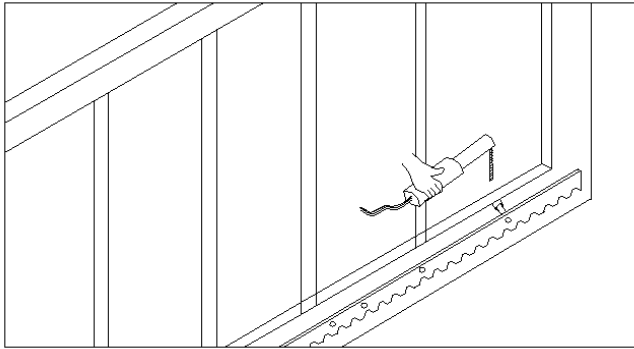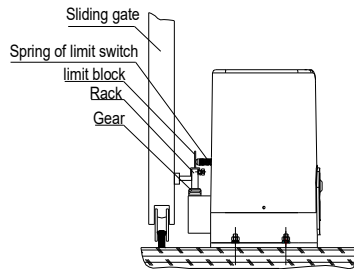● The space between rack and gear is about 0.5mm.

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.5 and Fig.6. 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.

8

Magnetic 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 magnetic of 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.
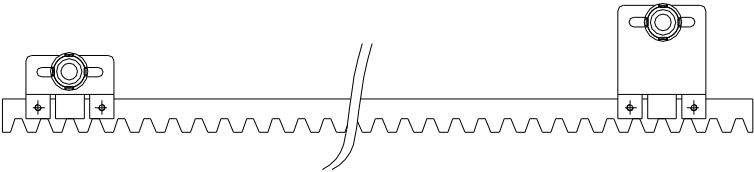

Spring limit

Sliding gate
Magnetic
Limit block
Rack
Gear
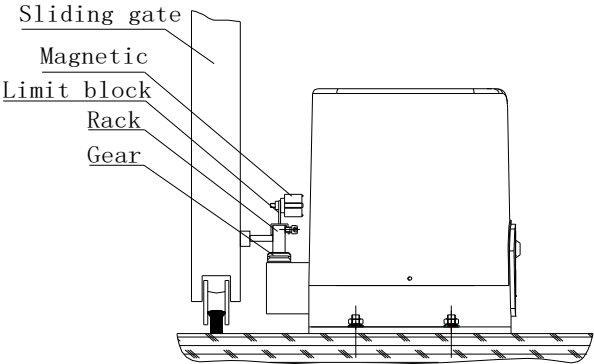
Magnetic limit

Fig.5

M6X10

Spring limit

Magnetic limit

Fig.6

Manual operation

In case of power failure use release key unlock the lock (clockwise is unlock, and counterclockwise is lock).

10

- Remove the cover of the release.
- Fit the supplied release key in the lock.
- Turn the release key 2-3 circles clockwise unlock the output gear.
- 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.
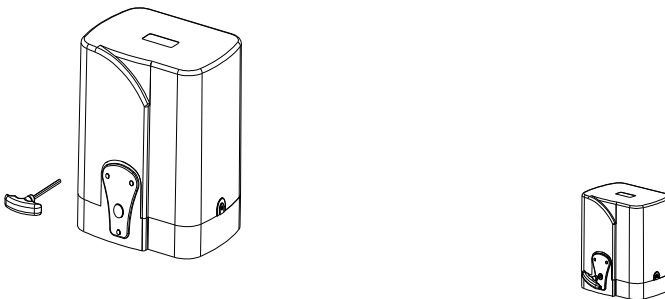

Fig.7

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.
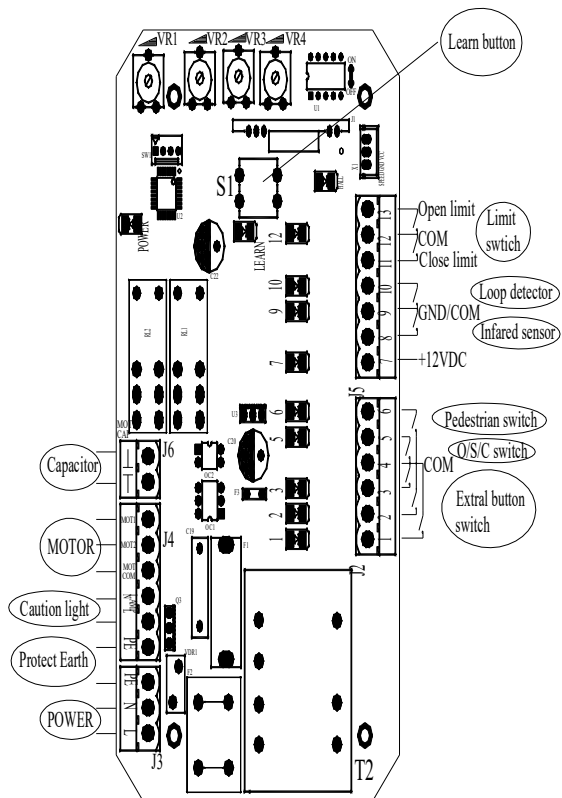
11

Fig.8

Wiring notes of control board

a.　Power Input (terminal J3): PE (Earth),L (Live),N (Neutral).

　　PY800AC/PY1400AC: AC220V

　　PY800AC/PY1400ACU:AC110V

b.　Caution light: connect caution light wire to L and N of LAMP(terminal J4)

      PY800AC/PY1400AC: AC220V

      PY800AC/PY1400ACU: AC110V

c.   Output power supply: 12VDC(7 of J5), COM (9 of J5), I.R. (8 of J5 is 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.
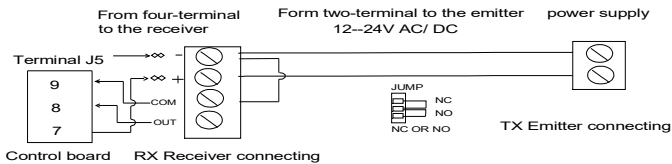

Fig.9 infrared Schematic diagram

d.   Three-button switch / single-button switch (keypad): The PY800AC/PY1400AC is equipped with interfaces for three-button switch and single-button switch (keypad).

    To install the keypad attach one lead of your keypad to '5' of terminal J2 and the other to the '4(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 '1 (OPEN)' of terminal J2, connect close wire of switch to '2 (CLOSE)', connect stop wire of switch to '3(STOP)', connect
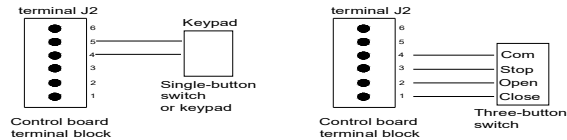
common wire of switch to '4(COM)'.

Fig.10A

e.   Pedestrian switch

Connect pedestrian switch wire to 4 and 6 terminal of J2. press the switch the door will open 1 meter when the door is closed.
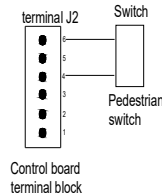

Fig.10B

Motor and capacitor (Terminal J2, J4): MOT COM (com), MOT1 (Positive direction), MOT2 (Opposite direction), PE (Protect Earth), C and C (capacitor)
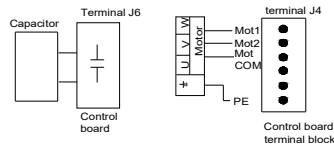
Fig.11

f. Loop detector interface
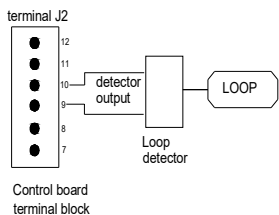
  Connect wire see the Fig.11A

Fig.11A

  The car through the loop the door will close itself when the door opened. The car arrived the loop the door will reverse when the door closing, and the door will auto closed after the car through the loop.

  If the car stops on the loop the door can't close.

7. Tuning and operation

a. Adjust the Adjustable resistance (see Fig.8)

VR1: For motor working total time adjustment.
Clockwise rotation to increase, counter-clockwise rotation to reduce.
The total time can be set to 10 seconds as minimum and 90 second
s as maximum.

VR2: For brake force adjustment in limit position.
Clockwise rotation to increase, counter-clockwise rotation to reduce.
Rotate to minimum to cancel brake function in place.

VR3: For slow stop width adjustment.
Clockwise rotation to increase, counter-clockwise rotation to reduce.

VR4: For motor output force adjustment to keep safe usage.
Clockwise rotation to increase, counter-clockwise rotation to reduce.
Warning:
Motor force can not be set too large, just drive the door is ok.

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 、   button3 are the same and button 4 is
    pedestrian mode. With each press of the remote control button
    (1, 2 and 3) which has been programmed, the gate will close,
    stop, open or stop cycle.

Remote Pedestrian button: After you learn the button 4, you press the remote button 4 the door will open 1 meter when the door is closed.

● You can program/learn button 1, button 2, and button 3 individually. If you learn button1, the button 1 and button 4 are enable, if you learn button 2 too, the button 2 and button 4 are enable, the button 1 is disable.
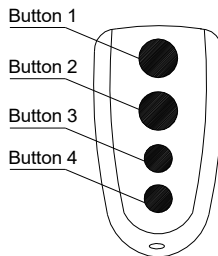
Button 1

Button 2

Button 3

Button 4

Fig.12 Remote transmitter

● Adding extra remote controls (Learn): Remove the cover, press and hold the learn button 'S1' (Fig.8) more than 2 seconds, then the 'LED of LEARN' (Fig.8) will be on, then press the remote control button which you want to use, the 'LED' will turn on about 2 seconds and then turn off again. The learning process is finished. Up to 25 remote controls may be used.

● Erase remote controls: To erase all existing remote controls, press and hold learn button 'S1', the LED of 'LEARN' will turns on, release the button until the LED turns off. This indicates that all the remote controls have been erased completely.

● 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 'MOT1' and 'MOT2', 'Open limit(13 of J5)' and
'Close limit(11 of J5)'.

8. Programming Process

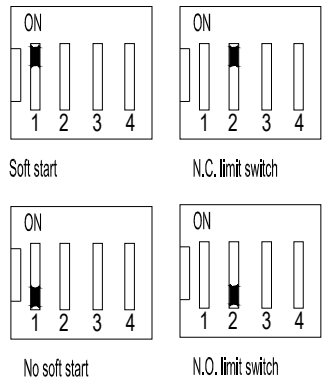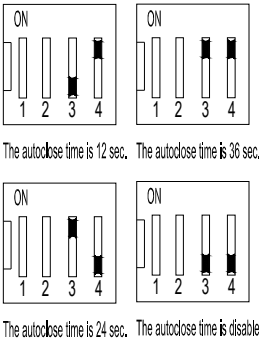**Adjust the DIP switch （ see Fig13B and table 1 ）**

Fig. 13C   Fig. 13D

Table 1: DIP switch adjust

DIP	DIP-switch	Function SET
1	ON (see Fig.13A)	No soft start mode
	OFF (see Fig.13A)	Soft start mode(need to power on reset).

2	ON (see Fig.13B)	N.C. limit switch(spring limit)
	OFF	N.O. limit switch(magnetic limit)
3	ON	When the 3 and 4 all OFF, the Auto-close function is disable. When the 3 OFF and the 4 is ON, auto-close time is near 12 Sec. when the 3 ON and the 4 is OFF auto-close time is near 24 sec. when the 3 and the 4 is all in ON position, the auto-close time is near 36 sec.
	OFF (see Fig.13C)	
4	ON	
	OFF (see Fig.13D)	

NOTE:

☎🗁🌙 **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.**

☎🗎🌙 **If the gate can not be moved, please check whether the gate is obstructed or the gate is too weight.**

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-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 12, 24 and 36 seconds.

● **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. **LED indicate**
   a) LED of Power indicated the input power.
   b) LED of LEARN indicated the transmitter learn status.
   c) LED 1 indicate the 'CLOSE' external button, if the button is pressed the LED will light.
   d) LED 2 indicate the 'OPEN' external button, if the button is pressed the LED will light.

e)   LED 3 indicate the 'STOP' external button, if the button is pressed the LED will light.

f)   LED 5 indicate the 'O/S/C' external button, if the button is pressed the LED will light.

g)   LED 6 indicate the 'pedestrian switch' external button, if the button is pressed the LED will light.

h)   LED 7 indicate the 'infrared sensor' status, if the output is connected the LED will light.

i)   LED 9 indicate the 'Loop detector' status, if the output is connected the LED will light.

j)   LED 10 indicate the 'Close limit switch' status, if the switch is connected the LED will light.

k)   LED 12 indicate the 'Open limit switch' status, if the switch is connected the LED will light.

All these LED position see the Fig.8

10.

Maintenance

● Check the door once a month. The door should be carefully checked for balance. The door must be in good working order.

● 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.

11.

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 sensor function is enabling, but the sensor has not been installed.	1. Remove obstructions. 2. Make sure the infrared sensor function is disabling.
Remote transmitter does not work.	1. Battery level may be low 2. Transmitter code is lost	1. Replace the battery inside the transmitter. 2. Reprogram the transmitter.
The transmitter operating distance is too short.	Battery level may be low.	Replace battery.

12. 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	PY800AC/PY1400AC sliding gate operator	1
2	Transmitter	2
3	Release key	1
4	User's manual	1