

Oil Immersed SLIDING GATE OPERATOR

USER'S MANUAL

(MAGNETIC LIMIT SWITCH)

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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.
- 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 reset the code after installing the operator.

2. Main features

- The device is used to drive the sliding gate.
- For your safety, the operator will stop and reverse if it was obstructed on closing and stop when it was obstructed on opening.
- Supports up to 100 remote controls.
- Infrared terminal (N.C) is supplied to use.
- Memory card can be unplugged.
- Auto-close feature is available for this operator.
- Pedestrian mode.
- Manual key release design for emergency purposes.

3. Technical parameters

Table 1

Type	SL200
Power supply	AC220V, 50Hz
Motor speed	1400 r/min
Gate moving speed	12m/min
Output torque (It is adjustable by pressure screw see Fig.2)	38N • m
Limit switch	Magnetic limit switch
Remote control operating range	30m
Frequency	433.92MHz
Remote control mode	Four-button
Auto-close time	0-44 sec.
Working time	90 sec.
Noise	≤58dB
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 rack attached to the sliding gate, thus moving the gate. The dimension is shown in Fig.1.

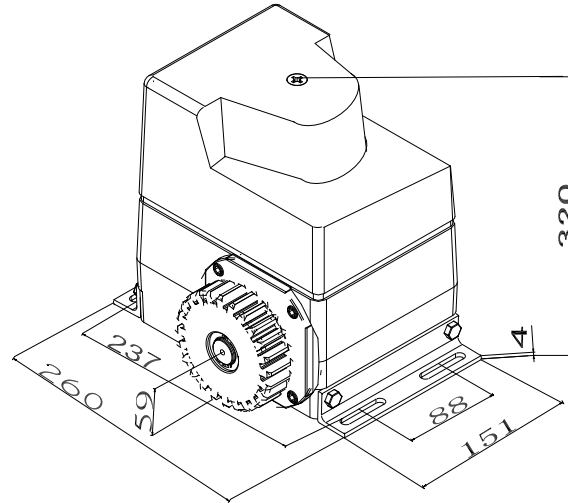


Fig.1

The structure of the motor and worm is shown in Fig2. Output torque can be adjusted by pressure screw, tighten (or release) the pressure screw to increase (or decrease) the output torque.

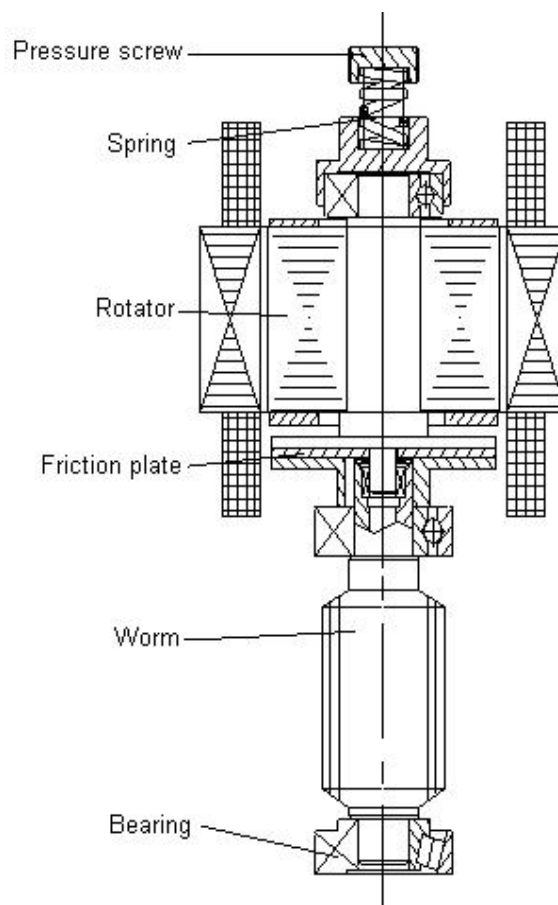


Fig.2

Release function: the worm gear components are shown in Fig.3. It includes a pair of plastic gear clutches. In case of power failure you can use the key to release the clutch, then the gate can be moved manually.

The device is well lubricated and cooled by the cooling oil (#25 transformer oil), which fills the whole device, including the stator, the rotator of the motor, the worm gear and the worm.

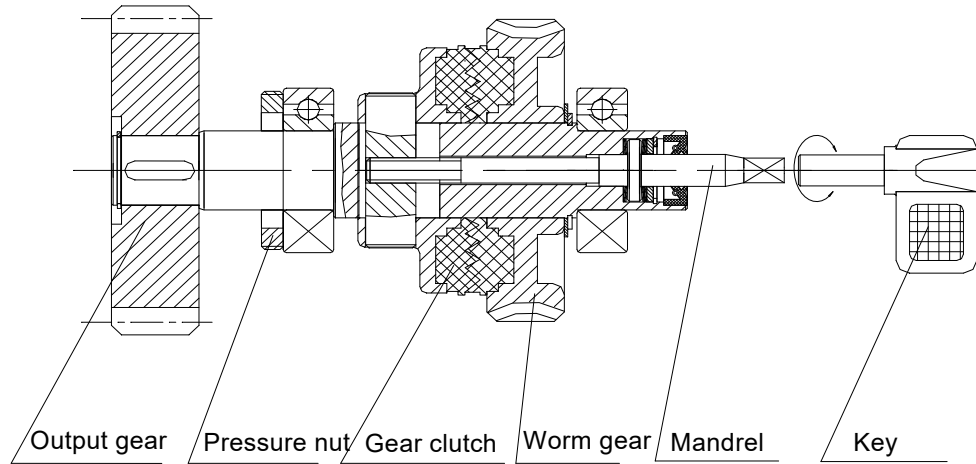


Fig.3

The device is equipped with a thermal protector, the thermal protector will switch off the motor automatically in case of temperature is higher than 95°C and switch on the motor automatically when the temperature is lower than $60 \pm 5^{\circ}\text{C}$.

5. Installation and adjustment

The SL200 rack-driven gate operator operates by forcing a drive rack past a drive gear. The entire configuration is shown in the diagram below.

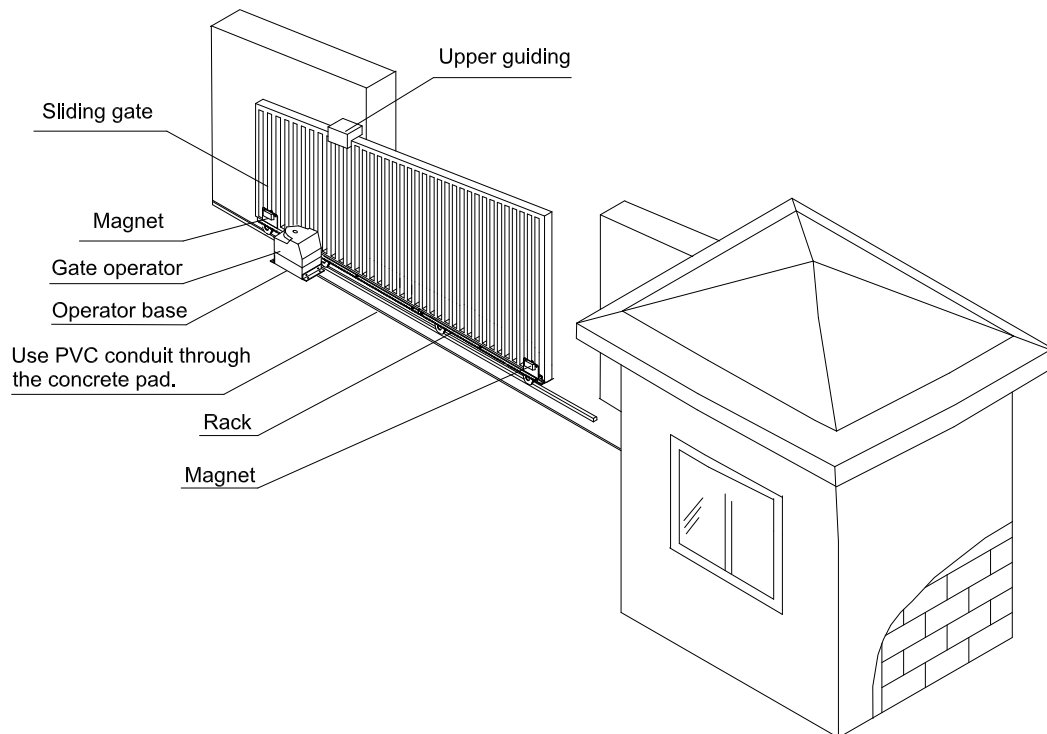


Fig.4

Conduit

In order to protect the 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. If you have installed an external button switch, we advise you to use two conduits: one for main power wire, another one for control wire. Always separate power wires from control wires.

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 operation.

Anchors

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

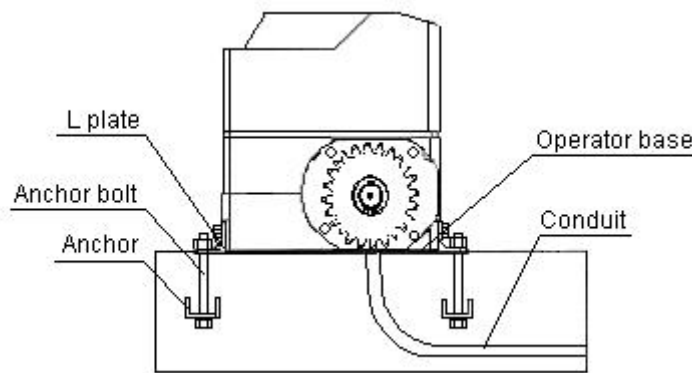


Fig.5

Operator Base

Mount the gate operator base to the concrete pad.

Operator

Mount the gate operator to the base using nuts and washers. Verify that the operator is leveled properly.

Installation of Rack (see Fig.6)

- 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 the 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.

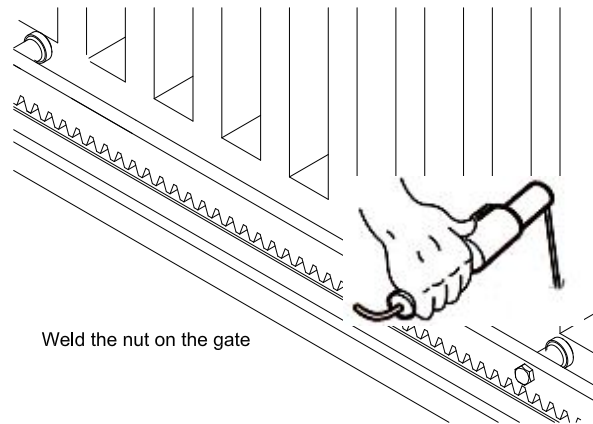


Fig.6

Magnets for limit switch

Install the magnet as shown in Fig.7 and Fig.8 below. The magnet and limit switch are used to control the position of the gate.

When the magnet is installed, release the gear clutch and push the sliding gate manually to pre-determine the position. Weld 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. Finally adjust the magnet to the proper position by moving the gate with the motor. The magnet should be 10~15mm away from the magnetic limit switch. If it is too far away, the switch will fail to work. Adjust the position of the magnetic limit switch until the positions of the opening and closing meet the requirement.

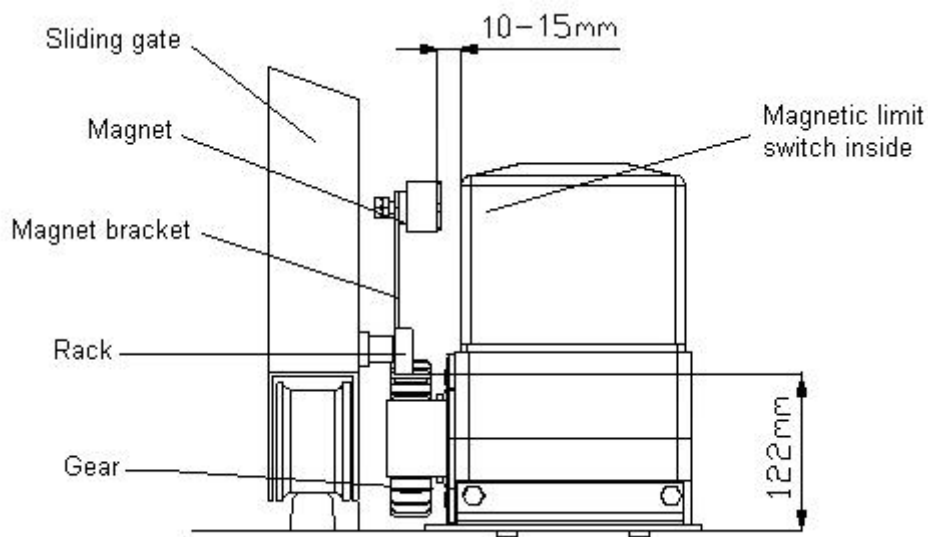


Fig.7

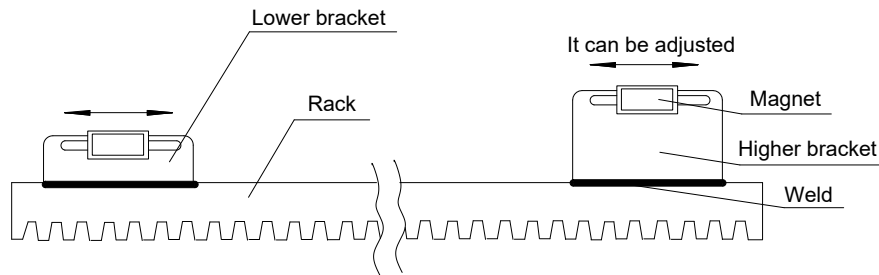


Fig.8

6. Maintenance:

Please check and add transformer oil (DB25-GB2536) regularly, you may change the oil according the weather. If the temperature is lower than -20°C , you can select #45 oil.

Table 3 Parameters of DB25 transformer oil

Kinematic viscosity (20°C)	Break down voltage	Solidification point
≤ 30 Centistoke	≥ 35 kV	$\leq -25^{\circ}\text{C}$

Ensure the operator is well earthed, and correctly terminated.

Regularly grease the wheels and axles to ensure the gate moves smoothly.

Ensure the power is switched off before removing the cover.

Keep operator clean at all times.

7. Troubleshooting

Table 4

Trouble	Possible causes	Solutions
Motor only runs in one direction.	The wire connector terminal block becomes loose.	Check wire connector terminal block.
	The limit switch wire connector terminal block becomes loose.	Check limit switch wire connector terminal block. Check the limit switch mode.
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 2 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 Q6 may be damaged.	Replace the electric component Q6 or replace the board.
	Power switch is OFF	Make sure power switch is ON.
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. (VR) is adjusted too small.	Check the Force Adj. (VR). Adjust VR to increase force.
	Gate is obstructed.	Remove the obstruction.
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) 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.