SXK-D01
Boom Barrier Gate
Installation Quick Guide
S XK-D01 Barrier Gate
Installation Quick Guide

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I. GET TO KNOW OUR BARRIER GATES

1.1 FUNCTIONS and SPECIFICATION

- Unique design for housing, with features of state-of-art workmanship and red/green LED arrow sign indicator. The control system can be reset automatically when power on.
- Special craft machine core with the mechanism and the electronic technology which just need one standard of balance spring.
- Barrier Arm Length: 19.7ft (6meters) maximum
- Drive: motor, Heavy duty, 100 duty cycle
- Power Failure: Manuel hand clutch is standard
- Control: PLC
- Arm: 100x46mm octagonal beam
- Raise/Lower Time: 1S, 3-6 seconds, depending on the motor and arm length
- Thermic Motor Protection: Standard.
- Power Supply: Switching, 100-240 V, 50-60 Hz.
- Cabinet: IP 54, galvanized, electrostatic powder coated.
- Desktop Keyboard: Up, down, emergency stop buttons. Radio control is standard.
- Motor Cooling Fan: Standard.
- Environmental Conditions: -20° C and +75° C, 95% non-condensing humidity.
- Cabinet Cooling mechanism: Standard with dust filter.

OPTIONAL ACCESSORIES:
Red/ green traffic lights connection.
Infrared Photoelectric cell for anti-bumping function
Inductive loop detectors.
UPS
IC card connection.

<table>
<thead>
<tr>
<th>TECHNICAL PARAMETERS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor working temperature(℃ Min/Max)</td>
<td>−20~ +70℃</td>
</tr>
<tr>
<td>Control board working temperature(℃ Min/Max)</td>
<td>−10 ~+70℃</td>
</tr>
<tr>
<td>Rating voltage (V)</td>
<td>AC 220/110V±10%</td>
</tr>
<tr>
<td>Rating frequency (Hz)</td>
<td>50/60</td>
</tr>
<tr>
<td>Rating Power (W)</td>
<td>120</td>
</tr>
<tr>
<td>Relative humidity (%)</td>
<td>≤90</td>
</tr>
<tr>
<td>Remote control distance (M)</td>
<td>≤30</td>
</tr>
<tr>
<td>Weight (KG)</td>
<td>50</td>
</tr>
</tbody>
</table>
I. GET TO KNOW OUR BARRIER GATES

1.2 SIZE MEASUREMENTS

measurements in mm
I. GET TO KNOW OUR BARRIER GATES

1.3 DRIVE UNIT AND MECHANISM
II. TOOLS AND MATERIALS

2.1 Tools and Materials

2.2 Materials

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>110V Power Supply</td>
<td>RVV3*1.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Control line</td>
<td>RVV4*0.5 mm²</td>
<td>Barrier gate to Control Terminal</td>
</tr>
<tr>
<td>Photoelectric cells TX</td>
<td>2*0.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Photoelectric cells RX</td>
<td>4*0.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Loop Coils</td>
<td>Ø0.75 mm²</td>
<td>High-temperature resistant</td>
</tr>
<tr>
<td>PVC tube</td>
<td>Ø20-25 mm²</td>
<td></td>
</tr>
</tbody>
</table>
III. Grooving and Buried Loop Coils

Parking Equip. Location Map
III. Grooving and Buried Loop Coils

3.1 Grooving notice

Loop coils is an important part in whole system, the stability of loop coil will influence the effect of parking system directly, before producing loop coils, please take the following points into consideration:

- There should be no metal parts within 50cm radius, such as manhole, rain ditch cove
- No 110V voltage power supply circuit within 1m radius.
- If need make several loop coils, make sure their distance is over 2m

3.2 Groove cutting loop coils

Draw the line according to the drawing’s plan, using cutting machine groove a square shape, here’s tips:

- Size of Loop coils is around 2*1.2m (based on lane width is 3m)
- Cutting a chamfer with 10*10cm at the edge
- groove depth is 4cm, width is 0.3-0.5cm, lead wire should be twisted

<table>
<thead>
<tr>
<th>Coils Circumference</th>
<th>Number of Turns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bellow 3m</td>
<td>Inductance between 100uH—200uH, 3—6m</td>
</tr>
<tr>
<td>3—6m</td>
<td>5-6 turns</td>
</tr>
<tr>
<td>6—10m</td>
<td>4-5 turns</td>
</tr>
<tr>
<td>10—25m</td>
<td>3 turns</td>
</tr>
<tr>
<td>Above 25m</td>
<td>2 turns</td>
</tr>
</tbody>
</table>
III. Grooving and Buried Loop Coils

3.3 Buried Loop Coils

- It’s better to pour 0.5cm thick fine sand under the loop coils to protect coils
- Above Ø0.5mm² single-standard copper core would be preferred, heat resistant
- Coil winding at clockwise rotation for 4-6 turns, the more coils’ big in size, the less number of turns needed, the line should be slack put in groove, and compress tightly turn by turn to slot bottom.
- The lead wire should be twisted clockwise to lead groove, and keep lead wire for 1.5m length.
- After compress the lead and loop coils, pour 0.5cm thick find sand so as to prevent coils from melting
- Pouring melting Hard asphalt or epoxy resin into groove, after cooled and solidification, repour again till the surface is on the same level.
IV. PIPE LAYING

4.1 Barrier gate system Tube & Wiring Diagram

1 Entry/1Exit Car Parking System Wiring Diagram

- PVC tube Surface conduit to managing pc
- 2pcs galvanized iron pipe, 1pcs power line(RVV3*6.0)
- 1pcs network cable(fiber or Cat.5)
- 2pcs PVC tube, 1pcs power code(RVV3*1.0), 2pcs communication line(RVV 2*0.75)
- 2pcs PVC tube, 1pcs power code(RVV3*1.0), 2pcs control line(RVV 6*0.5)
- Camera center of loop coil is bellow of arm
- Loop Coils
- Barrier Gate
- Control Station

FIGURE:
- Control station to Barrier gate
- Communication line to PC
- Video line from camera to PC
- Network cable to management workstation
IV. PIPE LAYING

4.2 Pipe Laying

Pipe laying according to real site and Device Installing Location drawings:

- First laying the tubes buried in concrete pad. Confirm the start and end of the pipe on the basis of device location
- Pay attention to pipe alignment to avoid expansion screws which for fixing the base.
V. POUR CONCRETE PAD

5. Pour Concrete Pad

A Concrete pad can protect device and cables, also, it will guide the traffic lane, and promote the project image:

- Draw the concrete pad line according the drawings.
- If build concrete pad on soft surface, dig the hole 50cm deeper and concrete pouring; if surface is hard, pouring a concrete pad for 10cm high with board fence up.
- Cement, cobblestone and sand should be 1:1:1, the base must be perfectly level, clean.
- Brush yellow and black/red and white traffic paint around the concrete pad
VI. INSTALLING BARRIER GATE

6.1 Assembly

- Assembly position

Car direction
a. Barrier assembled on the left

Car direction
b. Barrier assembled on the right

- Mould weight assembly
VI. INSTALLING BARRIER GATE

6.2 Mount Barrier gate on concrete pad

View of the foundation, all dimensions are in cm.
VI. INSTALLING BARRIER GATE

6.2 Mount Barrier gate on concrete pad

① Refer to the installation sketch, Use M16 drilling bit to expand the orientation holes
( the drilling bit should be used vertically, and the depth of the holds should be 10cm )

② Fix expansion screw nuts on the 4 holes of the basement

③ Place the barrier gate nearby the fixed well expansion screw nut, match the flat gasket and bounce gasket to the hole, then screw on hexagonal screw nut ( 4 M12×30 hexagonal screws for basement holes)

④ Adjusting the barrier gate and screw tight the screw
VI. INSTALLING BARRIER GATE

6.3 Mounting boom arms

a) Make ready for the installation boom,
b) Refer to Figure 6, press the boom press board on the boom and insert 2pcs of M12x70 screw bolt through the screw holes.
c) Fix the boom on the boom holder.

Caution: Before installing the boom, the power should be turned off, and the boom arm hold should be at the vertical position.
VI. INSTALLING BARRIER GATE

6.4 Installing the Mechanical parts

a) Select the left fixed barriers and fix the barriers base with screws.

b) Demount the cover of the booms. And mount the boom on and fixed it by the screws on compress board. And then cover the barrier's cover.

c) Unlock the clutch by clutch handle clockwise, pull barrier's boom by hand to the horizontal position and vertical position by hand, and power on the system.

![Diagram of Clutch Handle]
VI. INSTALLING BARRIER GATE

6.5 Adjust the Mechanical parts

a) Almost all barriers have been well set in our factory. According to different situation of usage, the user can adjust it by their needs.

**Caution:** If it is not necessary, we do not advise the user make any adjustment of the barrier gate, and all the adjustment on mechanical part should be under the case of power off!

b) Open the barriers cover:

- Firstly, screw the cover fixed screws.
- Secondly, open the barriers door and screw the lock nut.
- Thirdly, open the barriers cover.
VI. INSTALLING BARRIER GATE

6.5 Adjust the Mechanical parts

c) Adjust the arm to vertical position precisely:

When the barrier gate fully open, but the boom is not on the vertical position, please adjust the machine by following steps:

- Before the adjustment, the boom should rise to the up limit position.
- Reduce the distance between the screw and cushion, and check if the boom is at vertical position.
- If not, continue to adjust the distance between the screw1 and cushion. If the bar is unsteady you can screw adjust screws of the balance spring clockwise to make the pull spring tighten.

(Note: the pull spring cannot be too tight when adjusting the booms)

d) Adjust the booms when the boom moves to vertical position by hand or the boom come back for hitting something.

e) If the boom is unsteady at the vertical position you can make the boom stop at the position refer Fig.9.1 (next page) and adjust the pull spring tighten or loosen. Make the boom stop at that position steady.

f) If the boom vibrates too much when come back for hitting something, you can power off firstly and unlock the clutch by clutch handle, then move the boom to the vertical position and continue the step e). If the boom is unsteady still after step e), you can do it as the following ways:

- change the pull spring link position from hole 1 to hole 2.
- change the pull spring type then re-adjust the boom again by step e)
VI. INSTALLING BARRIER GATE

6.5 Adjust the Mechanical parts

![Diagram of barrier gate components]

- Conditioning nut 1
- Clutch bearing
- Conditioning screw 1 for vibration insulator
- Rubber vibration insulator
- Connecting rod
- Conditioning screw for balancing spring

Fig. 9.1
VI. INSTALLING BARRIER GATE

6.5 Adjust the Mechanical parts

g) Adjust the arm to horizontal position precisely:

- loosen the screw 2 that use to adjust the vibrancy of the bars when it at the horizontal position.
- Screw it between the link pole anticlockwise or clockwise until the bar to the horizontal position.

① If the boom vibrates too much when the bar go to the horizontal position (refer Fig.9.1), you can loosen the screw 2 that use to adjust the vibrancy of the bars when it at the horizontal position. If this way can not solve the problem, you can unlock the clutch and move the booms to the vertical position to adjust the pull spring tighten or loosen, and lock the clutch to turn on the control system and check it. If the boom still librates too much, you can repeat the last step.

② If the clutch cannot unlock, you should check that the contact between the screw 2 that use to adjust the vibrancy of the booms and the cushion is too tight or check if the adjust balance spring is suitable length. you can pull up or pull down the booms lightly when unlock the clutch.
VI. INSTALLING BARRIER GATE

6.6 Balancing Spring

6.6.1 The usage of balancing spring:

<table>
<thead>
<tr>
<th>No.</th>
<th>Arm length (L=meter)</th>
<th>Lead diagram of balancing spring (D=mm)</th>
<th>Link hole place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.5&lt;L≤3.5</td>
<td>D=5.5</td>
<td>Link hole 2</td>
</tr>
<tr>
<td>2</td>
<td>3.5&lt;L&lt;4.0</td>
<td>D=5.5</td>
<td>Link hole 1</td>
</tr>
<tr>
<td>3</td>
<td>4.0≤L≤5.5</td>
<td>D=6.5</td>
<td>Link hole 2</td>
</tr>
<tr>
<td>4</td>
<td>5.5&lt;L≤6.0</td>
<td>D=6.5</td>
<td>Link hole 1</td>
</tr>
</tbody>
</table>
VI. INSTALLING BARRIER GATE

6.6.2 Fix Balancing Spring

- Select a right spring and insert it into the spring cabinet.
- Put the spring and the cabinet into the spring base.
- Insert the screw thread pole from the top hole of the flat to the center of the spring, and use the right screw to fix it on to the right hang hole.
- Install the gasket and the Adjust screw at the bottom of the screw thread pole, spin the Adjust screw deasil to adjust the stress of the spring and make the boom balance.

6.6.3 Balancing Springs Changing

- Unlock the clutch and put the boom at the vertical position, and do not let the boom fall.
- Anticlockwise spin the Adjust screw and unlade cabinet.
- Put the boom at the horizontal position, unlade the linkhole screw and take out the screw thread pole.
- Loosen the fix screws for spring base and take out sleeve, change the right spring and put it into the spring base.
- Insert the screw thread pole and hitch it in the link hole.
- Put the boom at the vertical position and do not let it fall.
- Install the gasket and the Adjust screw at the bottom of the screw thread pole, deasil spin the Adjust screw to adjust the stress of the spring and make the bar balance.

6.6.4 Adjustments:

Adjust the spring by clockwise or anticlockwise spin the Adjust screw for the best states.
- The bar can be pull to vertical position by spring at the uptrend area.
- The bar can keep motionless at the balance area.
- The bar can fall to horizontal position by its weight at the down trend area.
VII. ELECTRIC CONNECTION

VIII. INSTALLING INFRARED DETECTORS

Rear view:
- Transmitter
- Receiver
  - Installed under the arm

Front view:
- Receiver
- Transmitter
  - Installed under the arm

(Infrared Detector Installation)
IX. REMOTE CONTROL ENCODING

If the user wants to add extra remote control or remote emitter to the remote control system, please follow the below instruction for encoding the new device.

Read the code: There is the code mark label on the back of original remote controller and the transformer of control panel, please refer the label before encoding.

**How to encode**: Open the remote control cover, take out the battery. You can see the code pad on the PCB, the direction is from right to left, the first code on the right. Short the middle pad and the above pad stands for “1”, short the middle pad and the bottom pad stands for “0”, empty stands for “X”. (same encoding as remote photocell set) The follow code is: 10XX0X1X

**Caution**: When welding the pad, remember to take out the battery.

- **Control Panel Connections:**

![Control Panel Connections Diagram]
X. TROUBLESHOOTING

a. Control the machine: Put the machine power on, use the remote control to control the machine. If you find the bar does not work normally, check if the Vehicles detector is working. Otherwise, check if the boom TYPE SELECT switch is on the right position.

b. Automatic rise for resistance if the bar meet roadblock when falling, it will rise automatically for safety.

c. If the infrared ray sending by the photo electric cell is obstruct by something, the bar will rise automatically.

d. R&G light: The green light will turn on when the bar at the vertical position, otherwise the red light turn on.

e. Vehicles detector: If the vehicles detector is installed correctly, the bar will automatic rise when vehicles move on the loop coils, and it will automatic lower after the vehicles leave.

f. The motor run but the boom doesn't move: Check and make sure the clutch has lock.

g. The boom shake terrible when moving at the end: Adjust the balance spring.

h. The bar can't move to horizontal and vertical position.
   ➢ Have not adjust the balance spring when changing long bar to shot bar.
   ➢ The sensor connector has not inserted in the circuit board.
   ➢ The sensor is broken; change it with the same type.

i. The distance of radio turn shorter

j. Check the battery voltage of the mini remote control is OK.

k. The machine does not move when operate the remote control
   ➢ Check the fuse is all right
   ➢ Check the radio codes are match.

l. The boom can not move normally after changed the circuit board.

m. Check if the boom TYPE SELECT switch is right