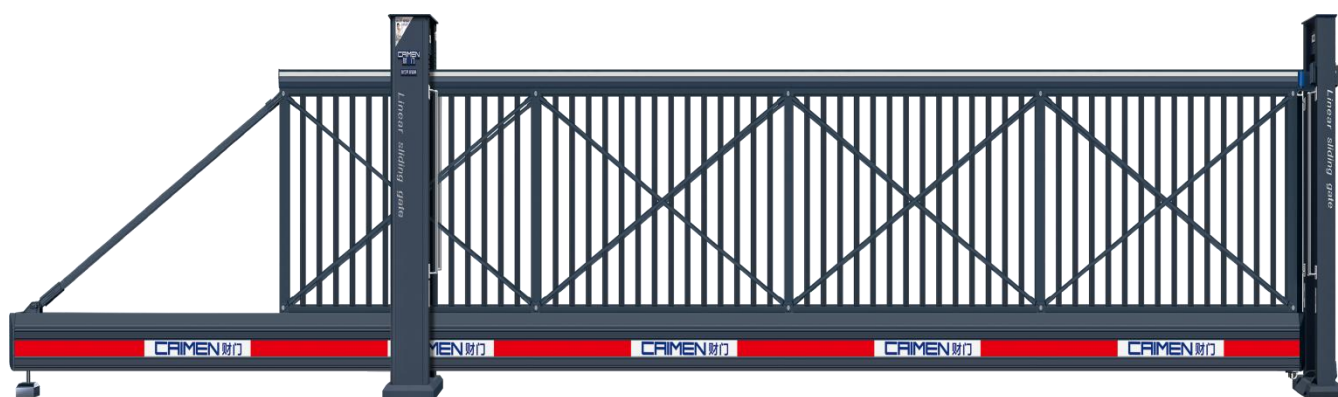


Cantilever Sliding Gate Installation Manual



Shenzhen Caimen Intelligent Technology Co., Ltd

Contents

Preface	2
Copyright Notice	3
1. Product Application Environment and Installation Sites	4
2. Product Structure	6
3. Product Working Principle, Parameters and Functions	7
4. Installation and Adjustment Instructions	11
5. Troubleshooting Methods	22
Inverter Fault Analysis and Troubleshooting	24
Product Warranty Card	27
Product Inspection Certificate	28

Preface

1. Before installation, please read this manual carefully and thoroughly.
2. Installation and operation must be performed strictly according to this manual to avoid personal injury or property damage caused by improper installation or operation.
3. All installation procedures must comply with this manual and national safety regulations.
4. The functions specified in this manual are carefully designed and tested; any use beyond these may cause damage or hazards.
5. The company shall not be responsible for any damage caused by improper use of this product.
6. Do not install this product in areas containing flammable or explosive materials.
7. Always disconnect the power supply before installation, inspection, or maintenance.
8. The product must be equipped with an independent switch and a 6A circuit breaker.
9. Ensure that the grounding system is properly connected.
10. The electrical safety system must protect the mechanical components from crushing or shearing hazards.
11. The company is not responsible for the safety or performance of non-original accessories (e.g., infrared sensors, loop detectors, radar sensors).
12. Only use genuine parts provided by the company for maintenance.
13. The company is not responsible for any malfunction caused by improper disassembly of sealed power components.
14. Keep children and unauthorized persons away during installation and testing.
15. Installers must instruct users on how to operate the gate manually in case of emergency.
16. Users should be informed not to repair or adjust the system without authorization; contact qualified personnel when needed.
17. After installation, please hand this manual to the user for future maintenance reference.

Copyright Notice

Copyright Notice:

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The company reserves the right to update or revise this manual at any time without prior notice. As a result, the contents may not fully reflect the specifications of your purchased product.

Shenzhen Caimen Intelligent Technology Co., Ltd. retains the final right of interpretation regarding this document.

Shenzhen Caimen Intelligent Technology Co., Ltd

1. Product Application Environment and Installation Sites

(1)Ground Leveling Requirements

- The cantilever sliding gate relies on a trackless suspension structure, so it has relatively low ground flatness requirements. However, the cabinet, gantry frame, and hanging wheels must be installed on the same level surface, with an allowed tolerance of ± 10 mm. The base area should have a pit of 800×800×800 mm (L×W×H) filled with concrete no less than C20 grade, and leveled using a spirit level.
- Cement ground: Ensure the surface is level; use self-leveling cement to fill any depressions.
- Tiled or stone ground: Make sure joints are even and flat to avoid height differences.
- Outdoor installation: Consider drainage slope, but the gate area itself must remain level.
- Not recommended materials: Soft flooring (e.g., wooden floors, carpets) must be reinforced, otherwise the gate's weight and vibration may cause damage.

(2)Wind Resistance Level

CAIMEN cantilever sliding gates use aerospace-grade aluminum profile 6063-T5 for the upper and lower beams. With optional embedded base reinforcements, the gate can withstand wind speeds of approximately level 8–12. The actual resistance depends on model design, material thickness, and structural reinforcement. For coastal or typhoon-prone areas, custom engineering solutions are recommended.

If a client emphasizes wind resistance, we can recommend: Enlarged bottom beam, Added embedded foundation parts, Dual-sided bracing rods, Higher-power motor, Case studies or videos of installations in coastal typhoon regions

(3)Application Scenarios

- Industrial & Factory Use

Factory Entrances: Designed to withstand strong winds and harsh weather (6–8 grade), with smart infrared anti-collision protection ensuring safe passage for vehicles and personnel.

Workshops/Warehouses: Frequently used for industrial sliding and lifting doors requiring tight sealing and frequent operation.

- Government & Public Institutions

Widely used in government offices, police compounds, and traffic management units. For example, CAIMEN gates with integrated pedestrian door access control and emergency escape function have been successfully used by the Xinjiang Traffic Police Headquarters.

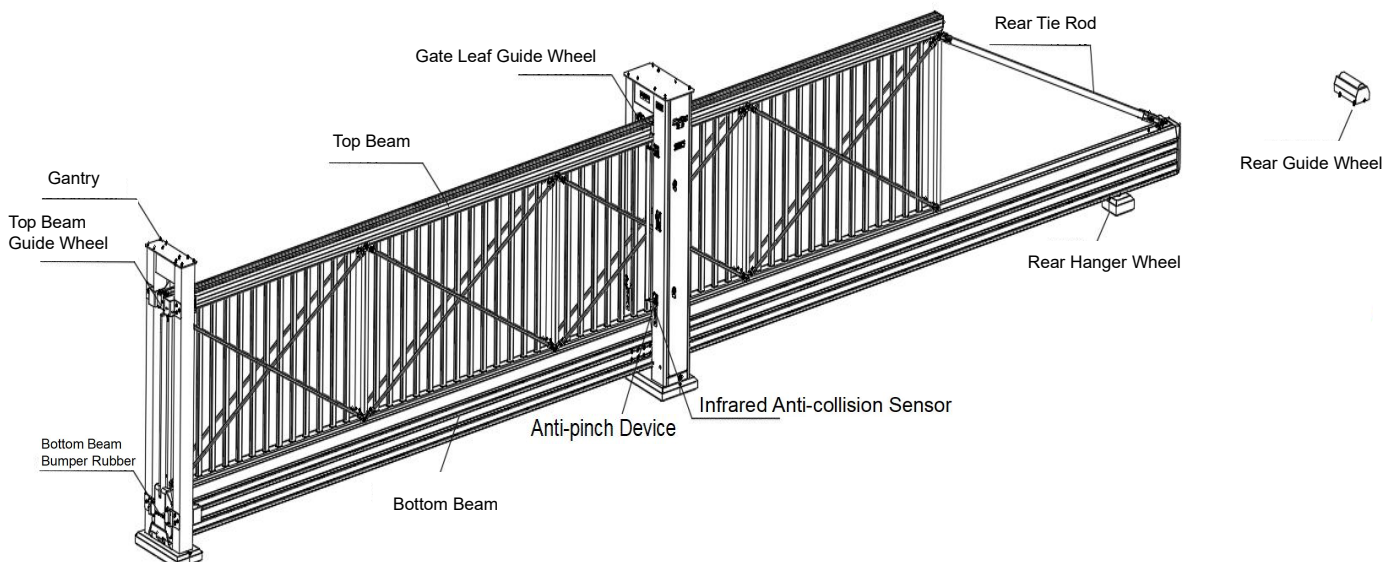
Hospitals and schools: Can integrate with license plate recognition or facial recognition systems to improve entry efficiency and safety.

- Customized Scenarios

Airports and hangars: CAIMEN can customize large-span gate structures using high-strength materials and fast-response control systems for specialized environments.

2. Product Structure

(1) Structural Layout Diagram



(2) Product structure introduction

The CAIMEN cantilever sliding gate mainly consists of the motor cabinet, gate leaf, gantry, and rear guide wheel.

Motor Cabinet: Includes motor, control system, receiver, hanging wheel assembly, infrared sensors, anti-pinch device, warning light (optional), and LED display.

Gate Leaf: Composed of top and bottom beams, dual-side bracing rods, middle column bases, and rear tension rods.

Gantry: Includes infrared sensors, anti-pinch bars, wing clamps, and base.

Accessories: Remote control, control panel, expansion bolts, manual, clutch (optional), and embedded parts.

3. Product Working Principle, Parameters and Functions

(1) Basic Operating Principle of the CAIMEN Cantilever Sliding Gate

The opening and closing of CAIMEN's cantilever sliding gate are based on a trackless suspension drive system. The gate body is driven by an internal gear-and-rack mechanism or a variable-frequency motor, allowing the gate leaf to move horizontally along a preset path without any ground track. When a signal is triggered by a remote control, sensor, or intelligent recognition system, the motor activates and the gate opens smoothly. During closing, infrared sensors monitor obstacles in real time—automatically reversing or pausing if resistance is detected. Together with airbag anti-pinch and anti-collision buffers, the system ensures smooth, safe, and silent operation. The intelligent control unit continuously coordinates power distribution and feedback, achieving efficient, contact-free motion.

(2) Intelligent Control Logic

- **Signal Input:** Opening commands are triggered via remote control, push button, sensors (magnetic or radar), or intelligent systems such as license plate recognition.
- **Motor Drive and Transmission**
 - Once activated, the motor drives the gate horizontally through:
 - Timing belt transmission: The motor drives a timing pulley that pulls the rack to move the gate.
 - Gear and rack transmission: The motor gear engages the rack track to push the gate panel.
 - Linear motor (for premium models): Non-contact electromagnetic drive with ultra-low noise and high precision.
- **Gate Motion Control**
 - Acceleration—constant speed—deceleration: The control system adjusts speed according to preset programs to ensure smooth start and stop.
 - Position detection: Encoders or limit switches accurately locate the opening and closing positions.
- **Safety Monitoring and Response**
 - During operation, infrared sensors continuously scan the gate's path and stop or reverse upon detecting obstacles.
 - In case of power failure, a backup battery or manual release clutch allows manual gate operation.

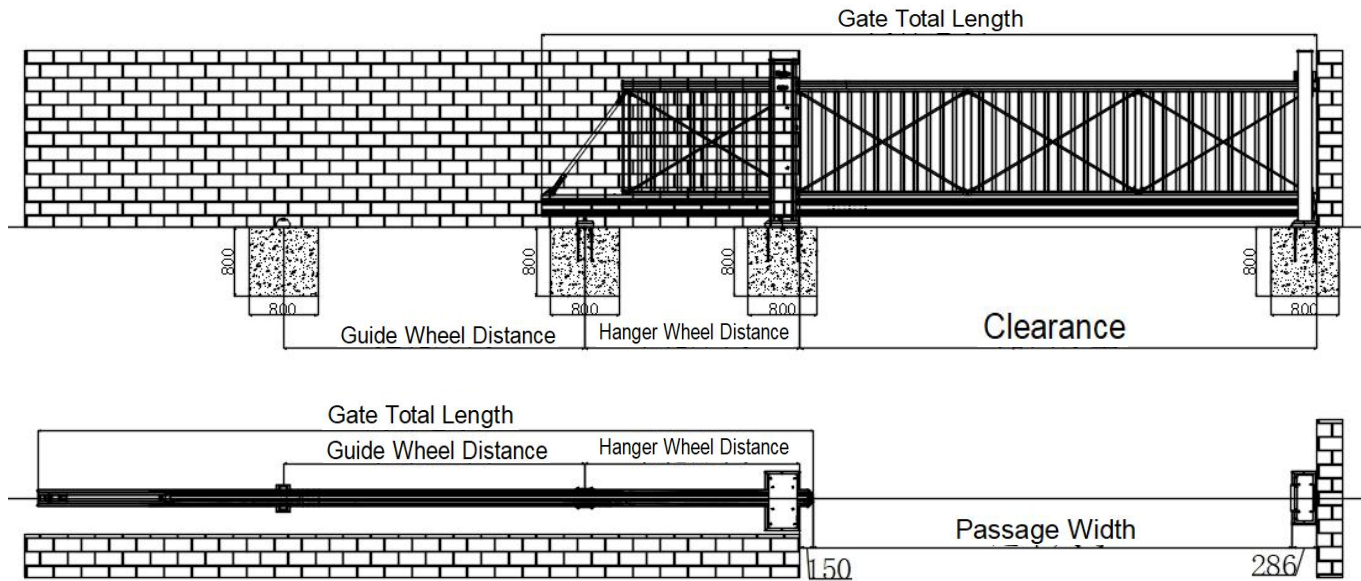
(3) Operating Parameters and Functional Description

- **Contact-type Anti-collision Device:** When an obstacle is detected by contact sensors, the gate automatically reverses or stops.
- **Electronic Anti-collision Device:** Equipped with infrared photoelectric switches for non-contact detection; the gate reverses or stops automatically to protect vehicles and pedestrians.
- **Anti-pinch Function:** Mechanical anti-pinch bars installed on both sides of the motor housing ensure higher safety and reliability than traditional airbag systems.
- **Anti-climb Alarm:** The gate includes an infrared anti-climb detection system that triggers a 10-second alarm when intrusion is detected, which can be reset via the control box or remote.
- **Emergency Stop Function:** The power supply can be cut off immediately by pressing the emergency stop button.
- **Gate Self-locking Force:** In the stopped state, the gate provides a self-locking force of no less than 300N, preventing manual movement.
- **Manual Clutch Device:** During power failure, the clutch can be released with a key to allow manual operation, with an operating force $\leq 200\text{N}$.
- **Gate Operation:** Opening and closing can be controlled via the control box or remote; the gate stops automatically when limit signals are detected.

(4) Motor parameters

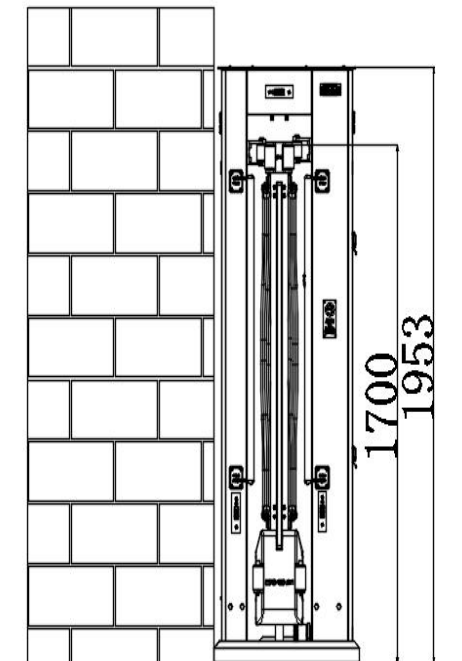
Motor parameters	Power supply (Vdc)	220/380
	Current (A)	1.9 / 3.2
	Power (W)	550
	Speed (r / min)	1410
	Protection grade (IP)	44
	Ambient temperature (°C)	- 35 --- +50

(5) Cantilever Gate Specification



Cantilever Gate Specification Table (unit: mm)

Clearance	Total gate length	Hanger wheel distance	Guide wheel distance	Passage width
3000	4500	1000	2000	2564
3500	5250	1250	2250	3064
4000	6000	1500	2500	3564
5000	7500	2000	3000	4564
5500	8250	2250	3250	5064
6000	9000	2500	3500	5564
6500	9750	2750	3750	6064
7000	10500	3000	4000	6564
7500	11250	3250	4250	7064



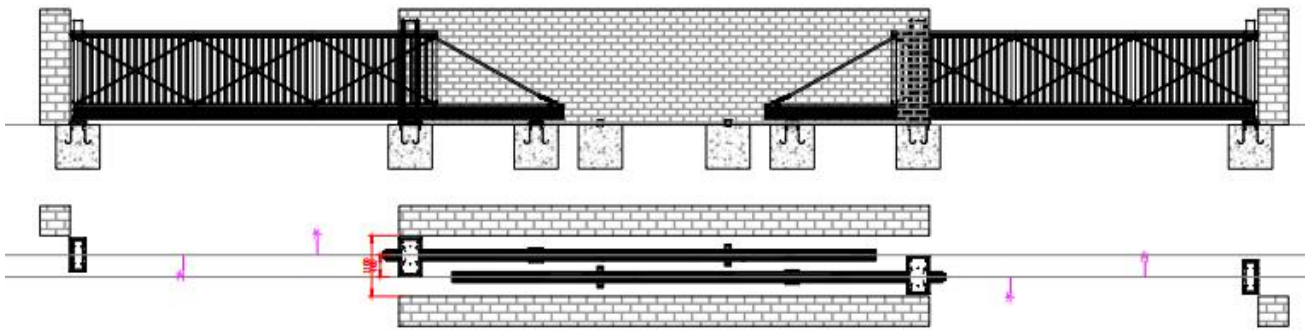
Cantilever Gate Ground Clearance Table		
Model	Name	Ground Clearance (mm)
CMXF-735	Smart Cantilever Gate 735	130
FDXF-2001	Telescopic Cantilever Gate 2001	133
CMXF-1930	Smart Cantilever Gate 1930	130
QX-01	Light Cantilever Gate 01	110

Cantilever Gate leaf height table (unit: mm)							
Gate leaf height	1600	1700	1800	1900	2000	2100	2200
Cabinet height	1853	1953	2053	2153	2253	2353	2453

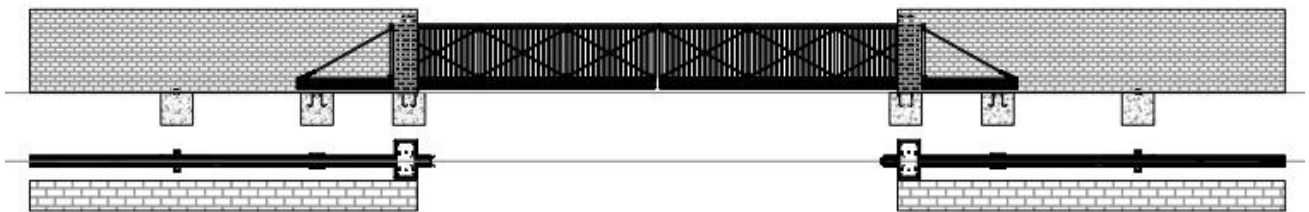
4. Installation and Adjustment Instructions

4.1 Gate Opening Modes

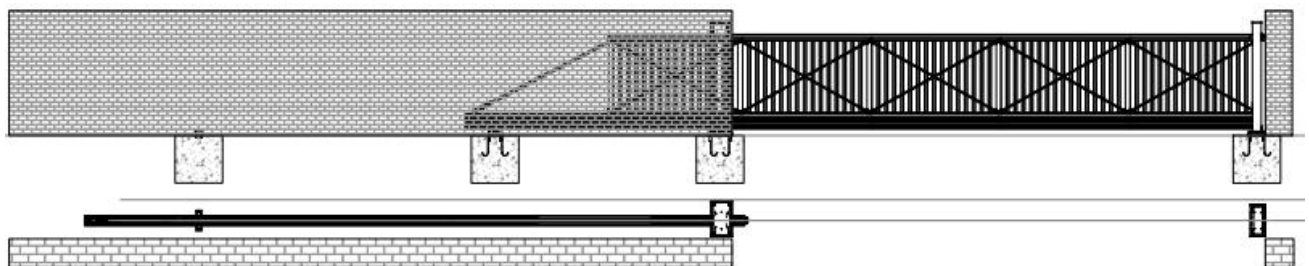
- (1) Opposite opening (The centers of the two gate leaf are offset by approximately 40 cm to prevent collision during operation.)



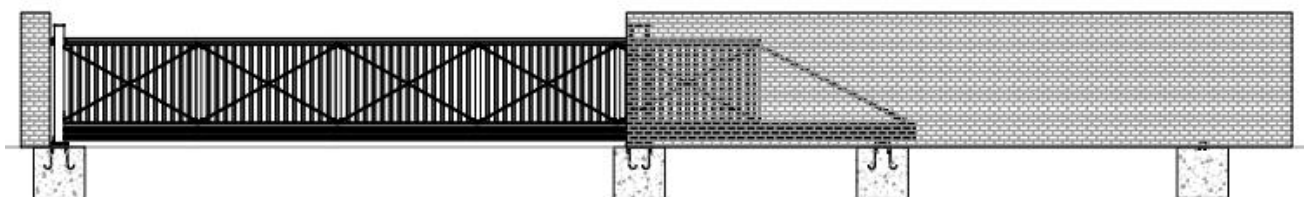
- (2) Double opening (The centers of the two gate leaf must be aligned on the same line to ensure synchronized movement.)



- (3) Left single opening



- (4) Right single opening



4.2 Tools Required Before Installation



卷尺
Tape measure



螺丝刀
Screwdriver



电钻
Electric drill



扳手
Wrench



磨机
Grinder



冲击钻
Impact drill



内六角扳手
Hex key



水平尺
Spirit level



锤子
Hammer



墨斗线
Chalk Line

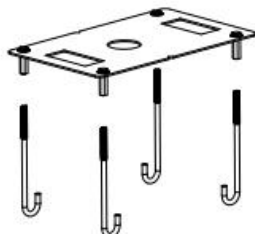


记号笔
Marker pen

4.3 Installation steps

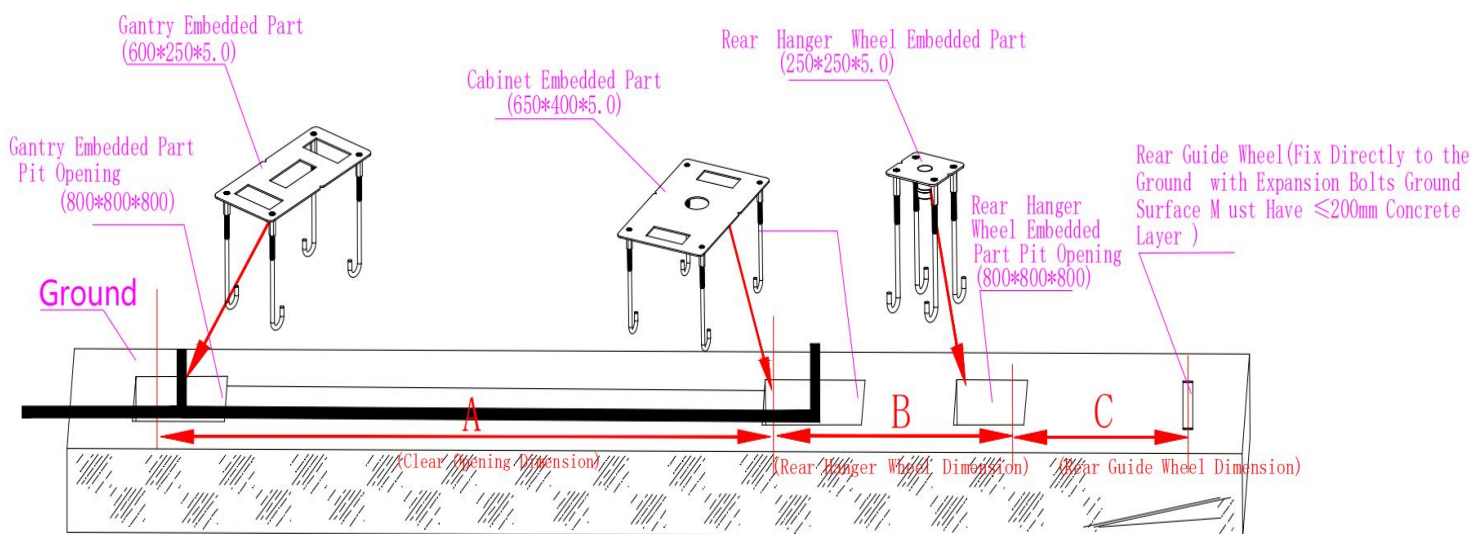
Step 1:

Insert the hook of the embedded part into the hex nut of the embedded part, as shown in the figure.



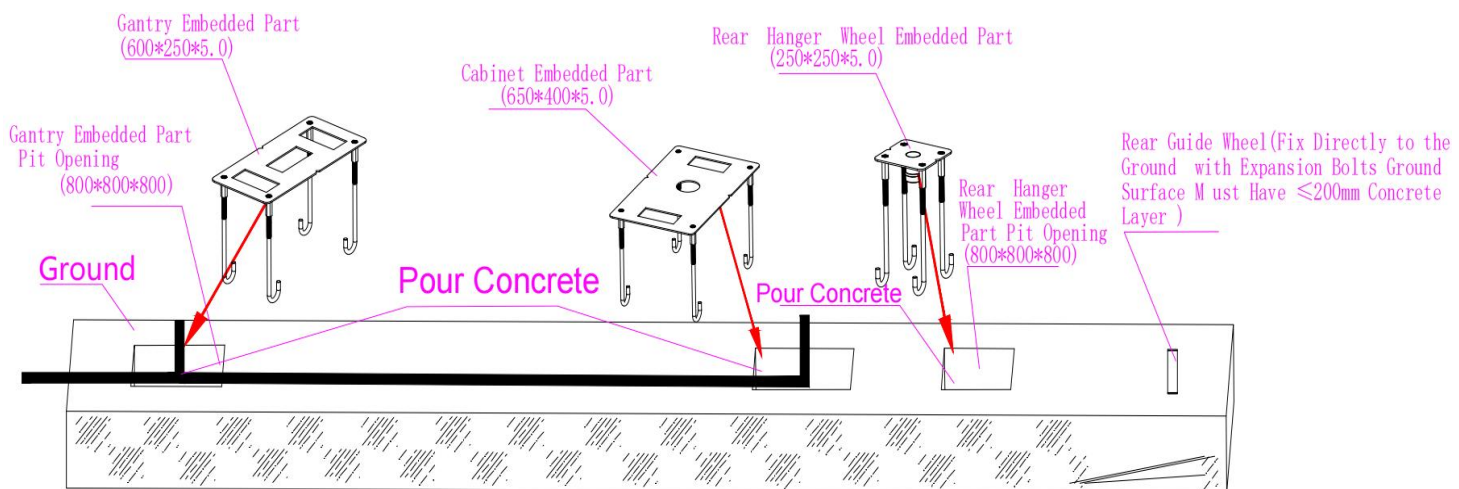
Step 2:

1. Stretch a chalk line along the corner of the wall to check whether the wall column and the ground are vertical and level, Use this chalk line as the reference baseline.
2. Measure 40cm (400mm) from the base line as the center point of the foundation pit and embedded parts. Use a chalk line to mark a solid line. Draw a solid line for the pit opening with a width of 80 cm from the center line, and a solid line for the 10x10x10 cm cable trench.
3. Dig an 80x80x80 cm foundation pit and cable trench along the marked 80 cm solid line. Before installing the embedded parts, measure the ground level and take the highest point as the reference level. Measure each embedded part, calculate, and draw the center line and vertical line. Confirm the installation position of the embedded parts.
4. According to the construction drawing, embed a diameter 60 pvc conduit between the left cabinet and the right cabinet. Pull a six core pore cable through the conduit to supply power for the infrared sensors and motor switches. The embedded wire should extend 1.5 m above the ground.



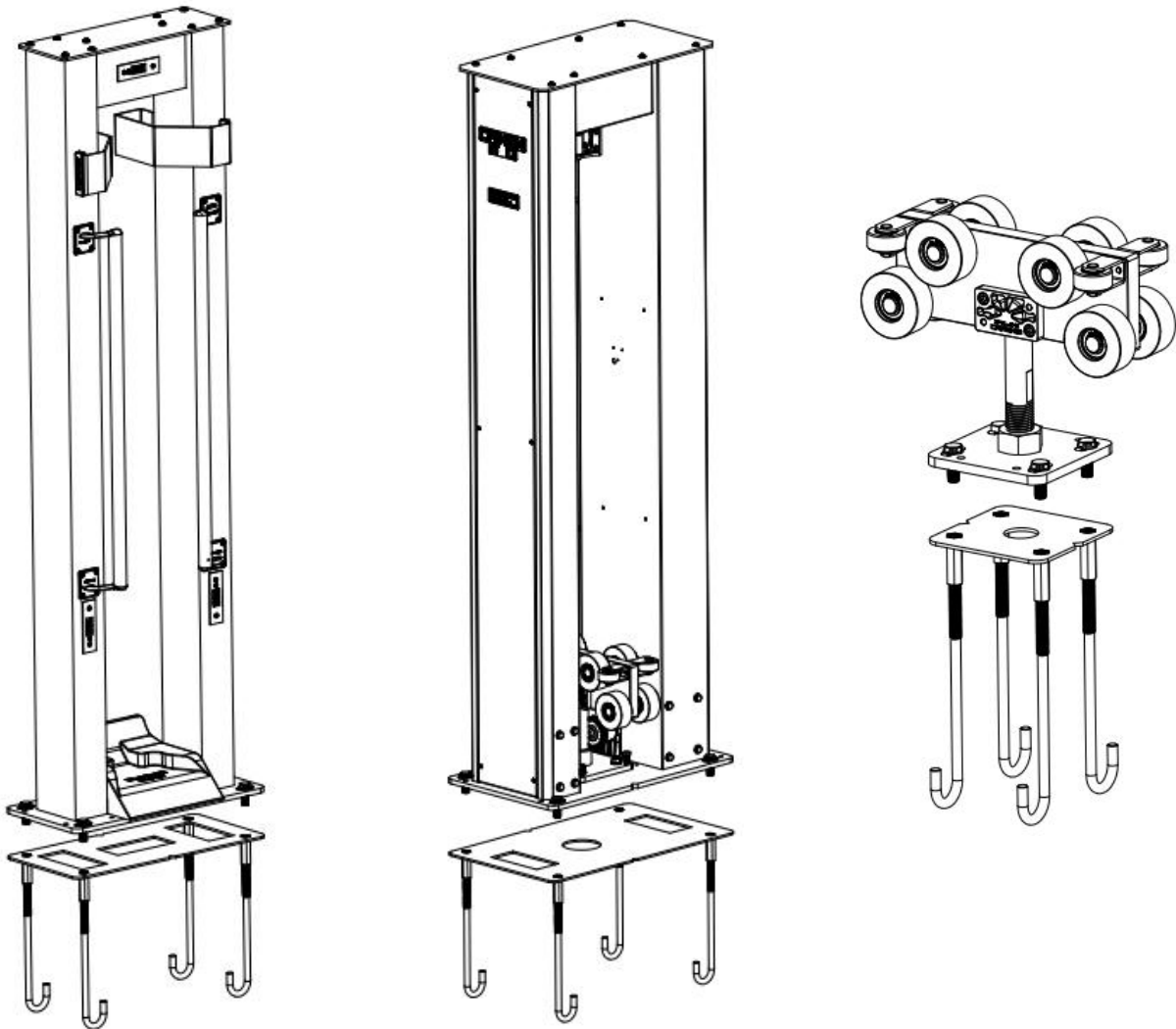
Step 3:

After embedding the conduit, pour concrete into the pit until it is flush with the ground surface, then place the embedded parts into the concrete. Use a level gauge to ensure that the embedded parts for the gantry, cabinet, and hanger wheels are on the same horizontal plane. After adjusting the embedded parts to level, wait for the concrete to cure. (The embedded parts must be aligned with the center and level, otherwise it will affect the service life and normal operation of the gate!)



Step 4:

1. Once the concrete has cured, begin installing the gantry, cabinet, and hanger wheels.
2. Remove the screws from the embedded parts, align the base holes of the gantry, cabinet, and hanger wheels with the holes of the embedded parts, and then tighten the screws securely.



Installation Requirements

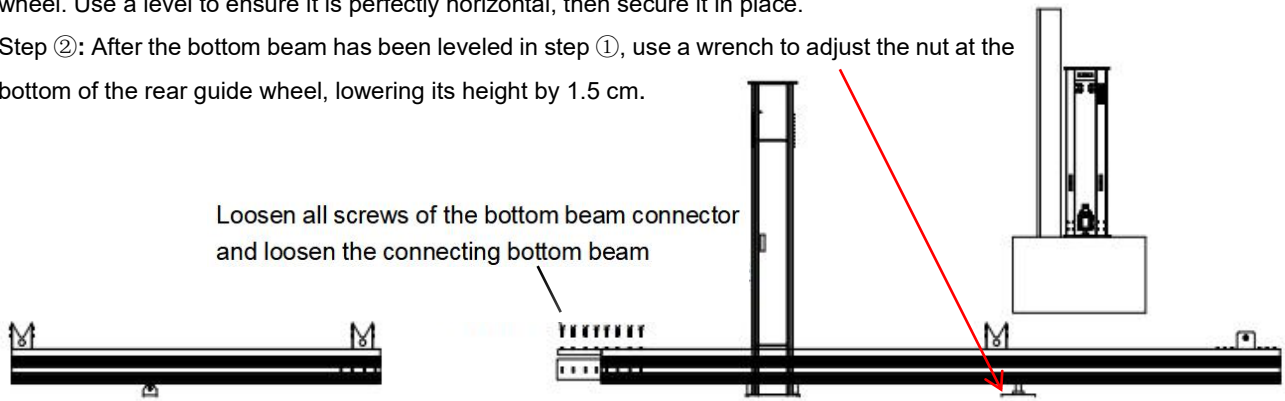
1. Ensure the cabinet is level and vertically aligned. Install the cabinet and rear hanger wheel first.
2. Connect the embedded cables with the reserved wires of the cabinet (at the circuit breaker terminal), and fix the embedded parts to the cabinet. (On chemical anchor bolts)
3. The motor height and the rear hanger wheel height should be adjusted based on the lever principle. Depending on the gate length, set the rear hanger wheel approximately 1.5 cm lower than the front cabinet support wheel.

Step 5:

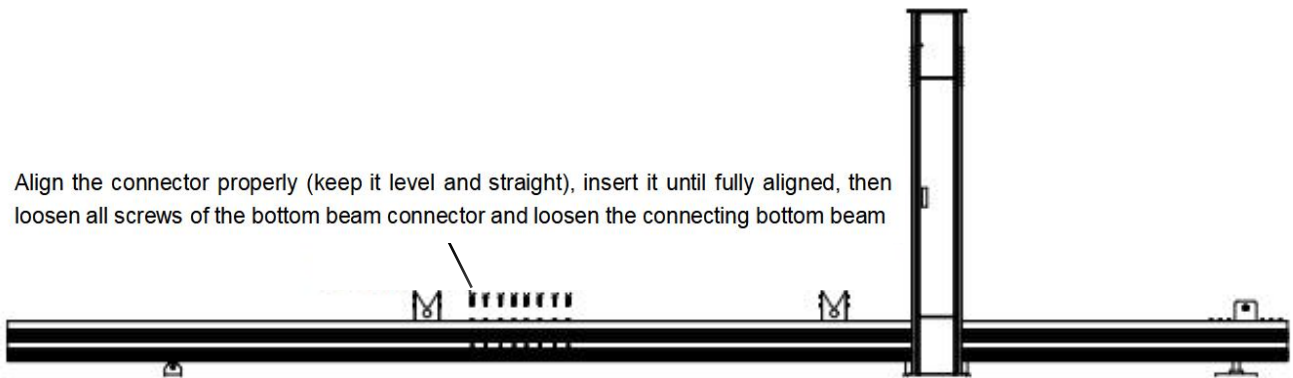
Step ①: As shown in the diagram, place the first section of the bottom beam onto the motor cabinet and the rear guide wheel. Use a level to ensure it is perfectly horizontal, then secure it in place.

Step ②: After the bottom beam has been leveled in step ①, use a wrench to adjust the nut at the bottom of the rear guide wheel, lowering its height by 1.5 cm.

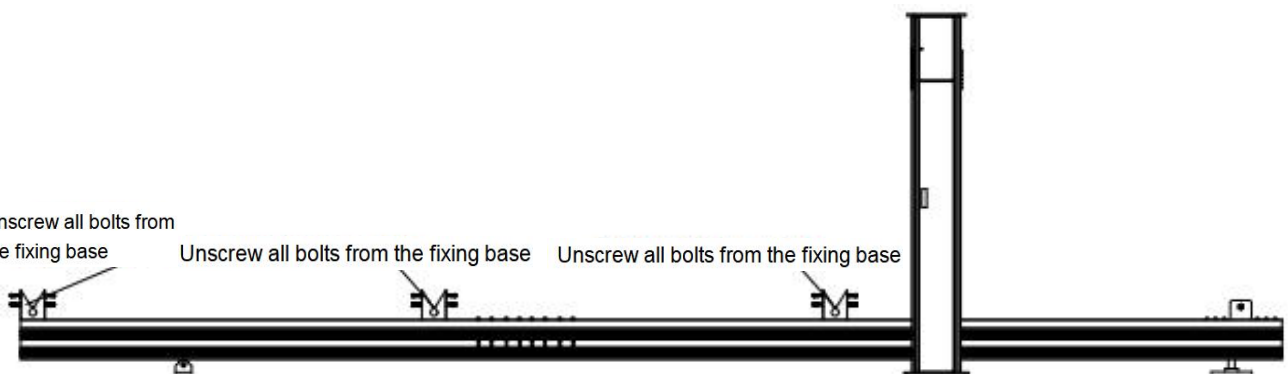
Loosen all screws of the bottom beam connector and loosen the connecting bottom beam



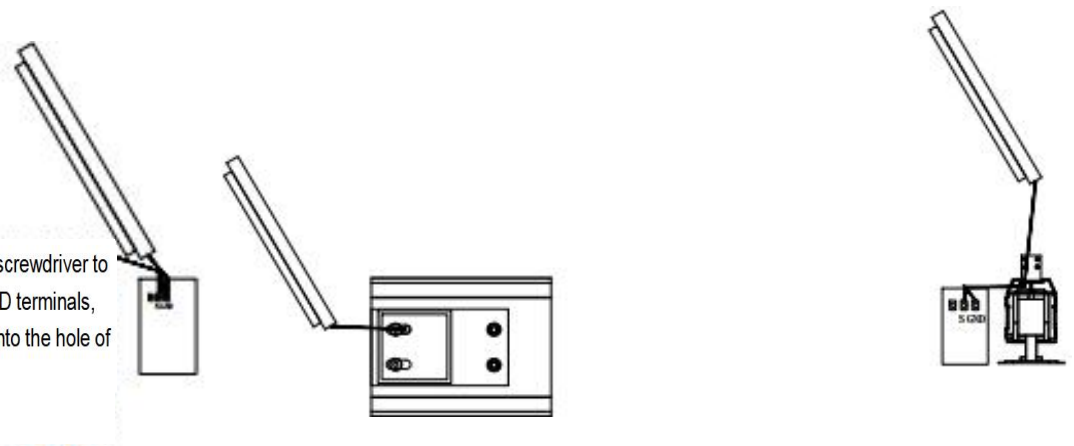
Align the connector properly (keep it level and straight), insert it until fully aligned, then loosen all screws of the bottom beam connector and loosen the connecting bottom beam



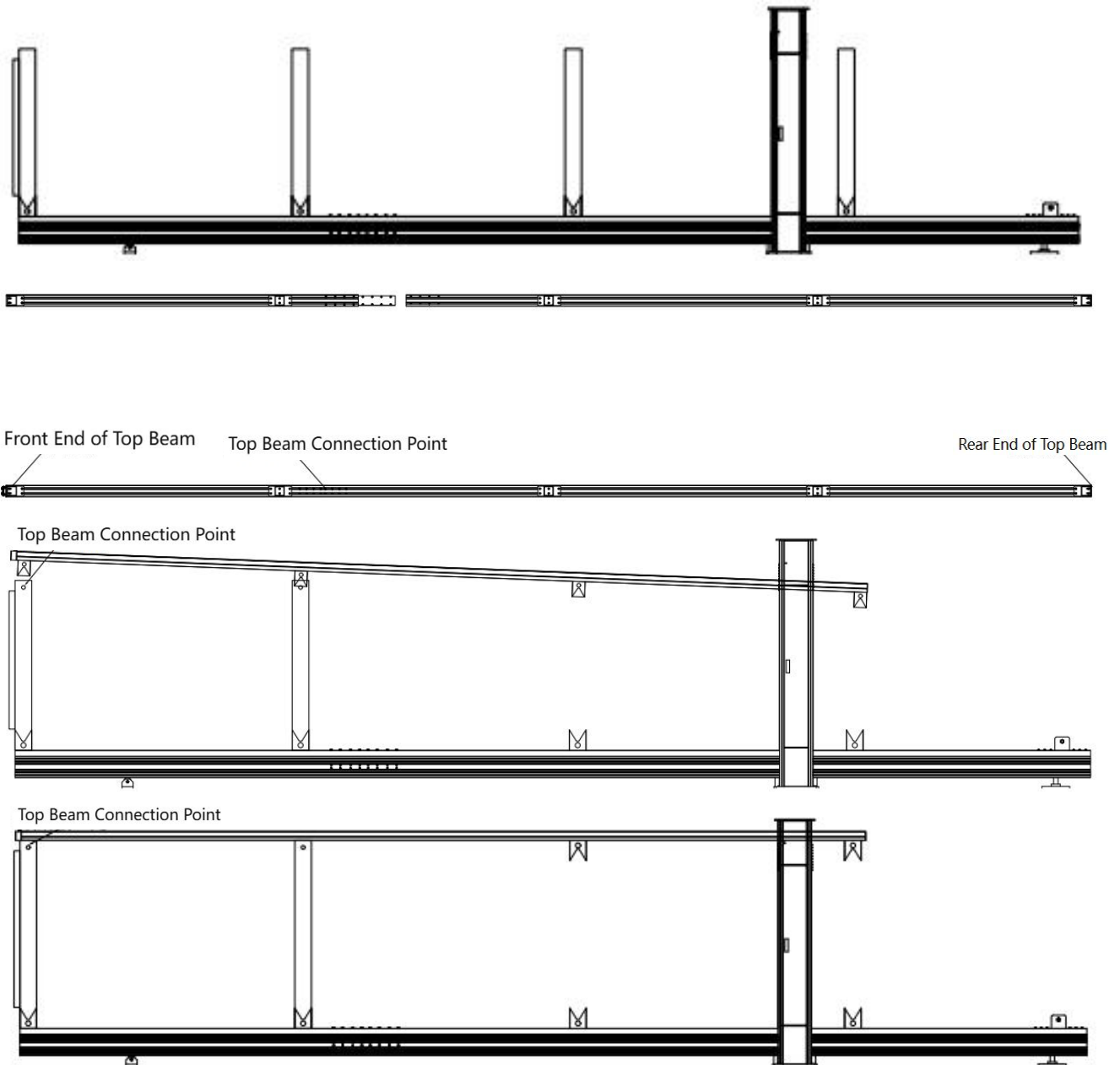
Unscrew all bolts from the fixing base



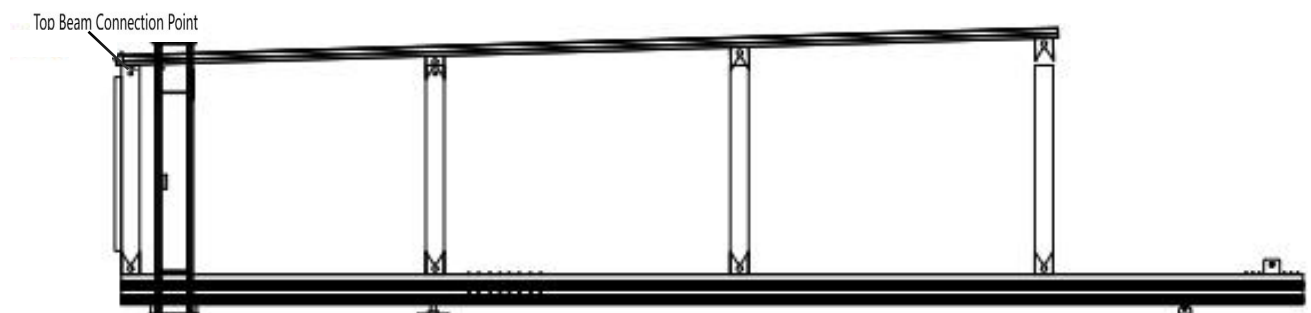
Remove the wiring terminal. Use a screwdriver to loosen the screws on the S and GND terminals, remove the wires, and guide them into the hole of the bottom beam fixing base.



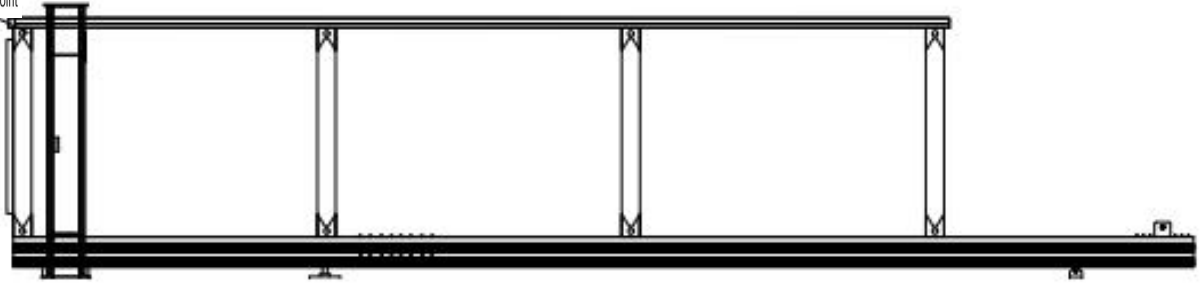
Step 6:



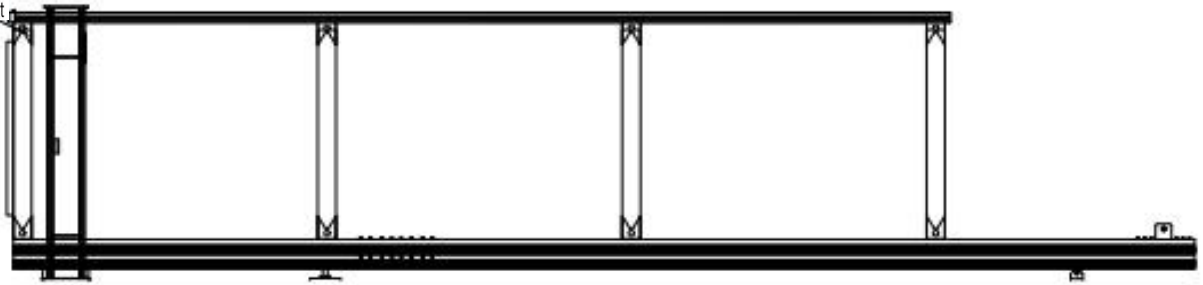
Step 7:



Top Beam Connection Point



Top Beam Connection Point

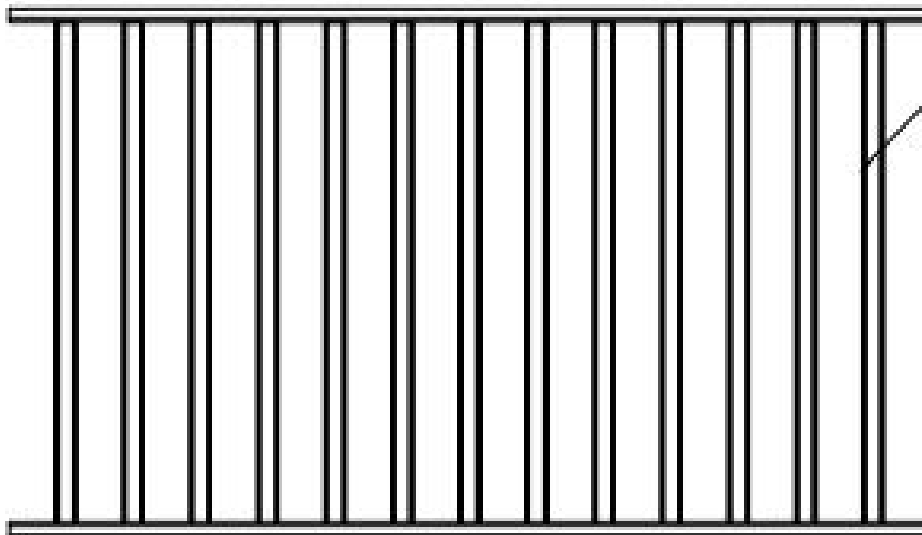


Horizontal Bar of Gate Leaf

Vertical Bar Hole of Gate Leaf

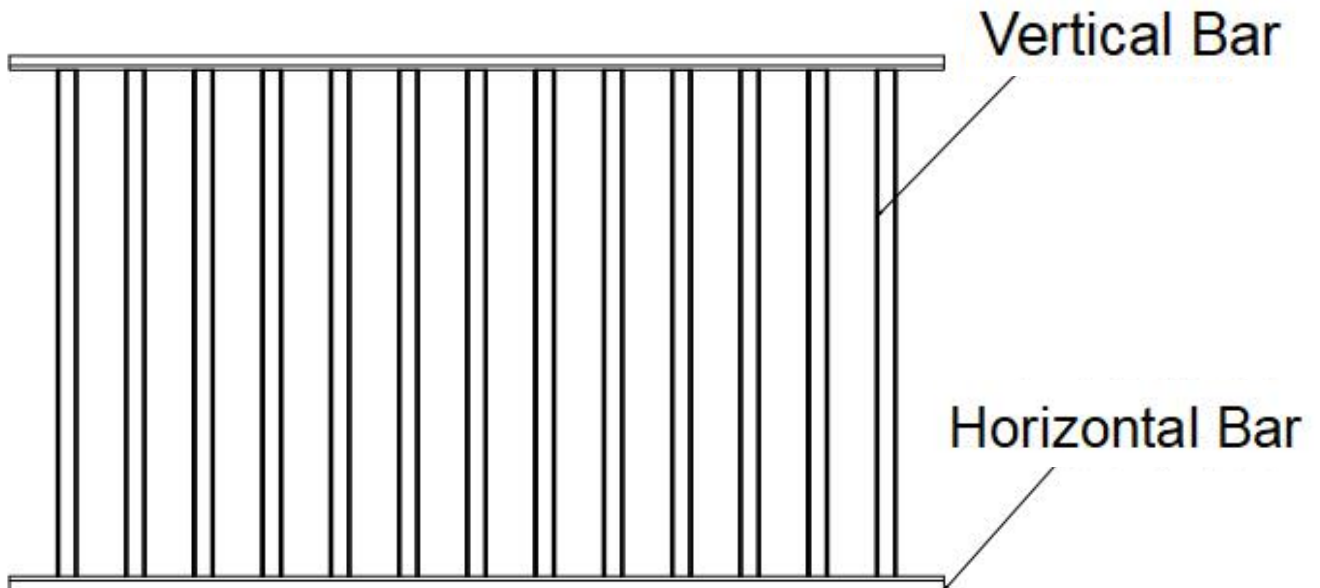
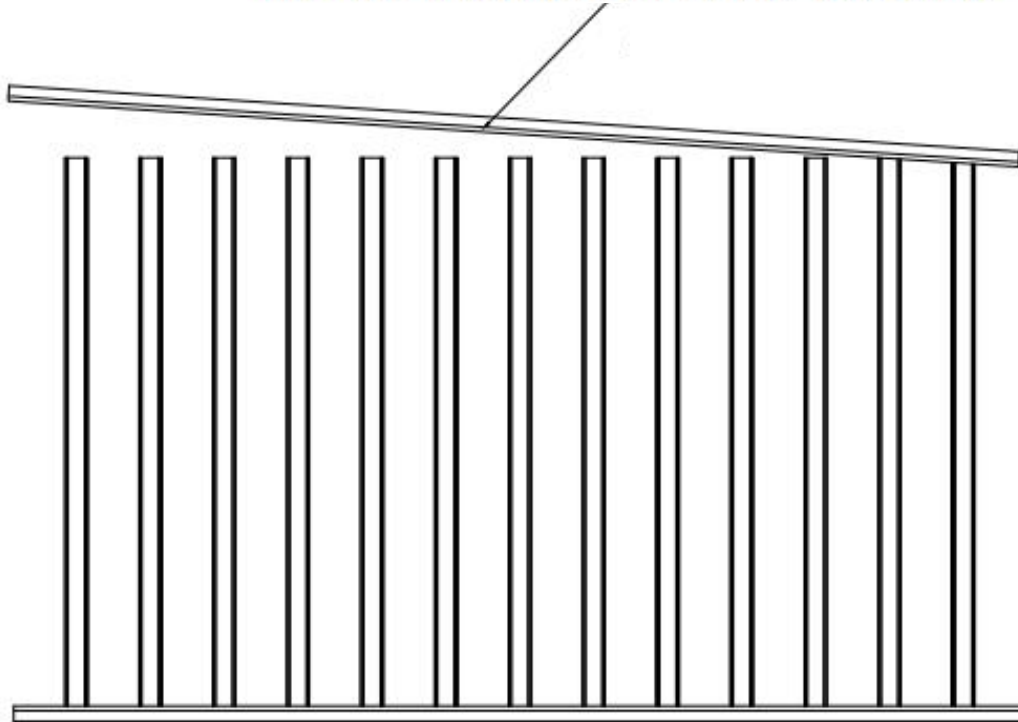


Vertical Bar of Gate Leaf



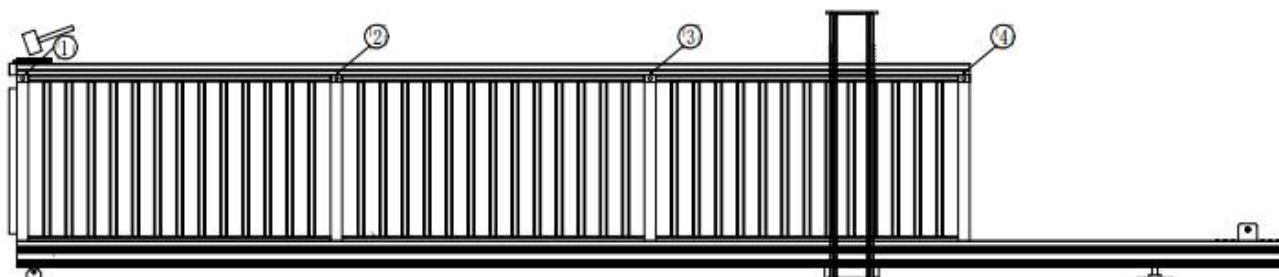
Horizontal Bar of Gate Leaf

Insert the hole of the horizontal bar diagonally into the vertical bar of the gate leaf



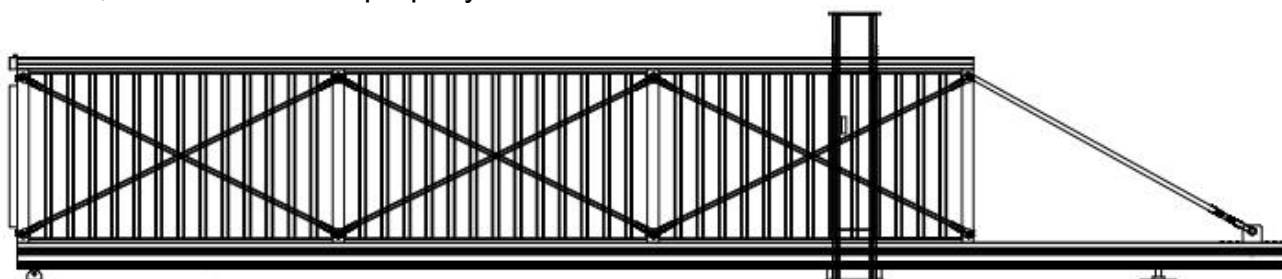
Step 8:

Place the assembled gate leaf into the fixed bases of the bottom beam and top beam. Then place a wooden block on top of the top beam and tap the wooden block with a hammer until the fixed bases of the top beam and the gate leaf are fully closed and aligned.



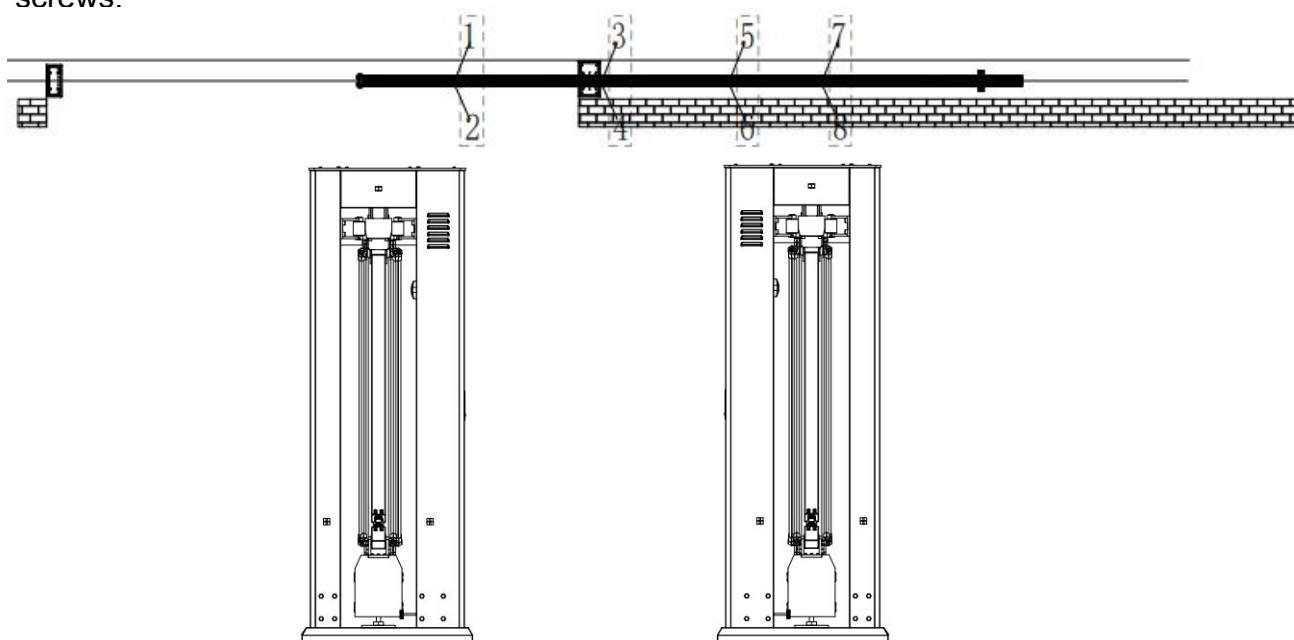
Tighten all screws on each middle post.

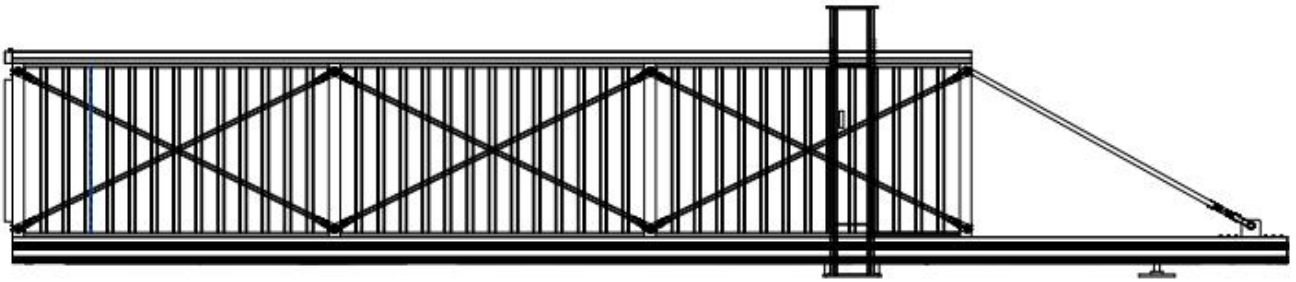
Repeat the above steps to insert each gate panel into the fixed bases of the top and bottom beams, and secure them properly.



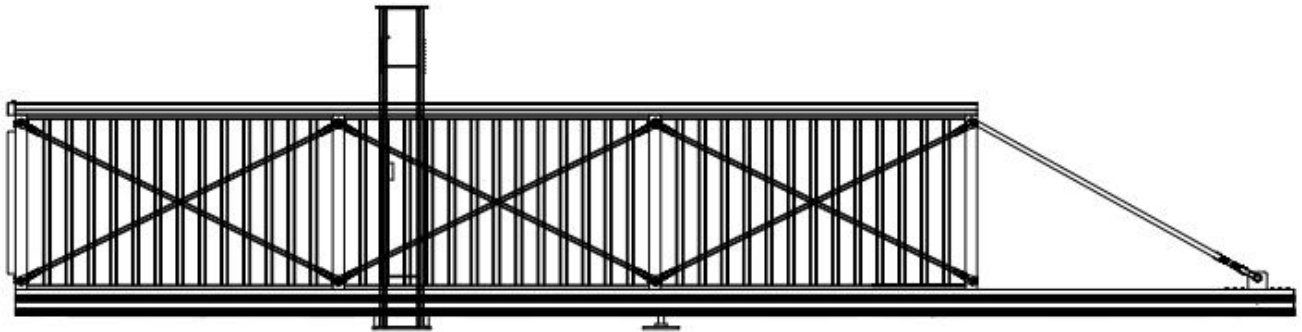
Step 9:

Adjust the tension rods according to the numbers indicated below when tightening the screws.

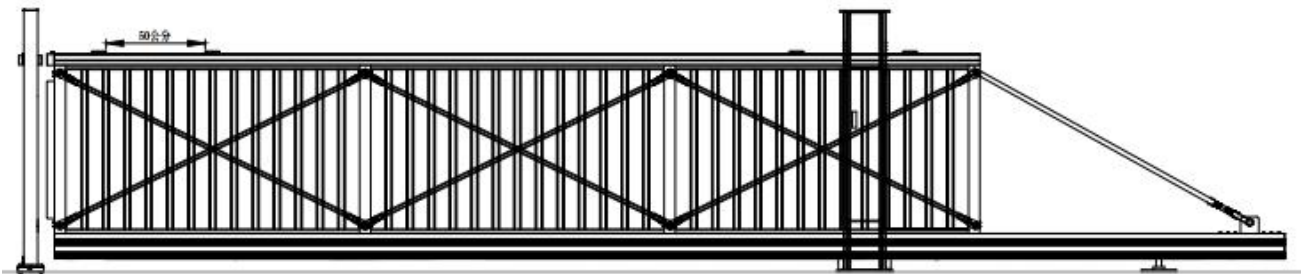




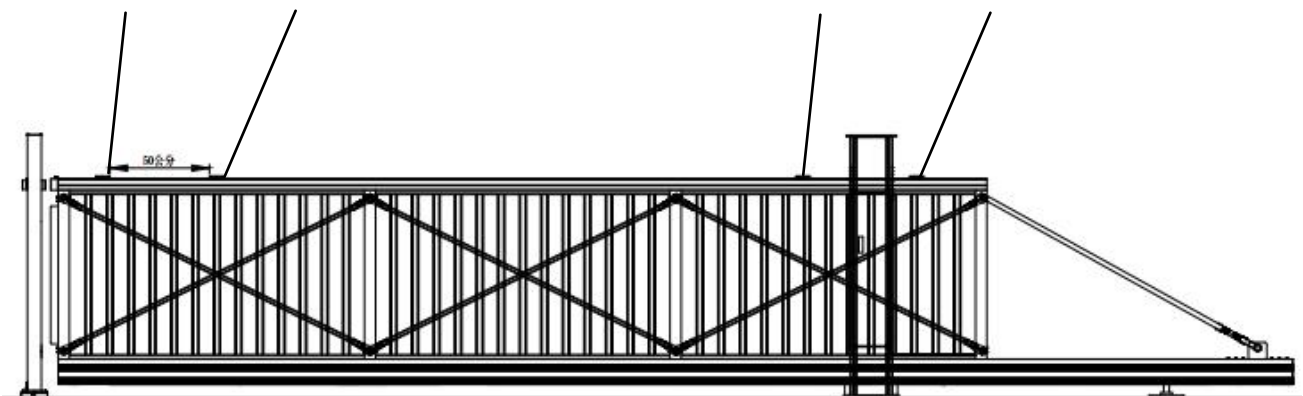
If the front end of the cantilever gate sags by 1–5 cm when opened, adjust the rear diagonal rod. If it sags by 5–10 cm, adjust the rear hanger wheel.



Manually open and close the gate several times to check for any abnormal noises. If no noise occurs, proceed to test the gate's operation electrically to ensure it runs smoothly.



Opening Limit Magnet Opening Limit Magnet Opening Limit Magnet Opening Limit Magnet



5. Troubleshooting Methods

Fault phenomenon	Possible Cause	Solution
Power indicator not lit	1. Power not connected 2. Fuse blown 3. Power switch off 4. Circuit disconnected 5. Indicator bulb (fuse base) burned 6. Limit switch not reset 7. Emergency stop not reset	1. Connect power 2. Replace fuse 3. Turn on power switch 4. Check circuit 5. Replace indicator 6. Reset limit switch 7. Reset emergency stop
Power light on but no button response	1. Limit switch damaged 2. Limit switch not triggered 3. Button switch damaged 4. Infrared transmitter faulty	1. Check limit switch 2. Replace limit switch 3. Replace button 4. Adjust infrared transmitter position
Power light on but motor not running	1. Motor cable short circuit 2. Motor clutch not engaged 3. Capacitor damaged 4. Overload 5. Thermal protector activated 6. Fuse blown	1. Check motor cables 2. Engage the clutch 3. Replace capacitor 4. Check for obstructions 5. Restart after 20 mins 6. Replace fuse
Unable to set open/close limit	1. The limit switch is too far from the magnet 2. Magnet not aligned 3. Limit switch damaged 4. Limit switch wire broken 5. Ground sensor misaligned 6. Ground sensor damaged	1. Adjust the limit switch height 2. Reposition magnet 3. Replace limit switch 4. Check wiring 5. Adjust ground sensor 6. Replace ground sensor
Remote control no response	1. Remote battery low 2. Remote control damaged 3. Receiver module damaged	1. Replace battery 2. Replace remote 3. Replace receiver
Abnormal noise during operation	1. The installation level is not level 2. There is something stuck in the gate	1. Adjust the level of the gate post 2. Clear the foreign objects

The drive wheel slips during operation	1. The nose wheel and the road are too slippery 2. Overload	1. Install anti-skid device on the nose wheel 2. Reduce the load
Infrared sensor not working	1. Infrared transmitter damaged 2. Infrared receiver damaged 3. The infrared beam angle is incorrect	1. Replace the infrared transmitter head 2. Replace the infrared receiver head 3. Adjust the infrared beam angle
Display not working	1. Display cable loose 2. Display damaged	1. Reconnect cable 2. Replace display
Gate reverses immediately after starting	1. Obstacle in front of the gate 2. Infrared blocked	1. Clear the obstacles Adjust infrared alignment

Inverter Fault Analysis and Troubleshooting

Fault Code	Fault Name	Possible Cause	Troubleshooting
Er00	Overcurrent during acceleration operation	1. Acceleration time is too short 2. Load inertia is too large 3. V/F curve is not suitable 4. Grid voltage is too low 5. Inverter power is too small 6. Restart the rotating motor	1. Extend the acceleration time 2. Reduce the load inertia 3. Adjust the V/F curve 4. Check the input power 5. Select a high-power inverter 6. Set to DC braking start
Er01	Overcurrent during deceleration operation	1. The deceleration time is too short. 2. There is a large inertia load. 3. The inverter power is too low.	1. Extend the deceleration time 2. Reduce the load inertia 3. Select a frequency converter with a high power rating
Er02	Overcurrent during uniform speed operation	1. Output short circuit 2. Load sudden change 3. Inverter parameter setting is incorrect	1. Check the output circuit. 2. Check the load. 3. Check the inverter parameters.
Er03	Overvoltage during acceleration	1. Abnormal input voltage 2. Restart the rotating motor	1. Check the input power. 2. Set to DC braking start.
Er04	Overvoltage during deceleration operation	1. The deceleration time is too short. 2. There is a large inertia load. 3. The input voltage is abnormal.	1. Extend the deceleration time 2. Use a larger capacity braking unit and braking resistor. 3. Check the input power supply.
Er05	Overvoltage during uniform speed operation	1. Abnormal input voltage 2. Sudden load change	1. Check the input power 2. Reduce sudden load

			changes
Er06	Overvoltage during shutdown	1. Abnormal input voltage	1. Check the input voltage
Er07	Running undervoltage	1. Abnormal input voltage	1. Check the input voltage
Er08	Input power phase loss	1. Input power phase missing or abnormal	1. Check the input power
Er09	Hardware failure	1. Inverter hardware failure 2. External interference 3. Parameter setting error 4. Ambient temperature is too high 5. Output short circuit 6. Control board failure	1. Check the wiring 2. Eliminate external interference 3. Reset parameters 4. Improve ventilation conditions 5. Check the output line 6. Replace the control board

Inverter Fault Analysis and Troubleshooting

Fault Code	Fault Name	Possible Cause	Troubleshooting
Er10	Radiator overheating	1. The ambient temperature is too high. 2. Cooling fan damaged. 3. The air duct is blocked.	1. Lower the ambient temperature 2. Replace the cooling fan. 3. Clean the air duct and improve ventilation.
Er11	Inverter overcurrent	1. Acceleration time is too short or V/F curve is not suitable 2. Overload operation 3. Excessive load	1. Reduce acceleration/deceleration time or adjust V/F curve. 2. Reduce the load. 3. Use a higher power-rated inverter
Er12	Motor overload	1. Torque boost too low or improper V/F curve 2. The grid voltage is too low. 3. The motor rated current is incorrectly	1. Increase the torque boost appropriately and adjust the V/F curve 2. Check the grid voltage. 3. Correctly set the motor rated current.

		set. 4. The motor is stalled or the load changes suddenly.	4. Check the motor and transmission mechanism.
Er13	External device failure	External fault input terminal closed or disconnected Clear the external fault signal	
Er14	Serial port communication failure	1. Improper baud rate setting 2. Serial port communication error 3. No signal or wrong wiring from host controller	1. Set the baud rate appropriately. 2. Check the communication cable and replace it. 3. Check whether the host computer is working and whether the wiring is correct.
Er15	reserve	-	
Er16	Current detection error	1. The current detection device is damaged or the circuit is faulty. 2. Output phase is missing.	1. Seek service from manufacturers or agents 2. Seek service from manufacturers or agents
Er17	Communication failure between keyboard and control panel	1. The cable connecting the keyboard and the control board is faulty 2. The terminal connection is loose	1. Seek service 2. Check and reconnect
Er18	OU failure	-	
Er19	reserve	-	

Product Warranty Card

Product Model : _____
Customer Name : _____
Contact Number : _____
Delivery Address : _____
Purchase Date : _____

Warranty Terms

- I. The warranty period for this product is one year, calculated from the date of purchase, free warranty service is provided during the warranty period.
- II. The warranty does not cover the following situations:
 1. Quality problems are caused by not following the product manual for installation, use etc.
 2. Damage is caused by an unstable power supply, an exceeding of the product ' s specified voltage, or failure to meet national safety standards.
 3. Damage caused by natural disasters or other force majeure factors.
 4. Damage is caused by the user ' s arbitrary disassembly, repair, or modification.
 5. Beyond the warranty period.
 6. Please present this card or invoice for after-sales service when claiming warranty service.
- III. For warranty service, please present this card or the purchase invoice to facilitate after-sales support.

The interpretation right of this card ' s terms belongs to Shenzhen Caimen Intelligent Technology Co.,Ltd.

Product Warranty Record

Repair date	Repair contents	Under warranty	Maintenance

Shenzhen Caimen Intelligent Technology Co.,Ltd

Product Inspection Certificate

Dear user:

Thank you for choosing Caimen Intelligent Technology brand and for your support and trust in our company. We adhere to the customer-first service principle and will listen to your valuable opinions at any time.

Product Model : _____

Product Specifications : _____

Product Number : _____

Fixed Direction : Left fixed ☐

Right fixed ☐

Packer: _____

Inspector: _____



*A Trusted Smart Electric Gates &
Parking System Solutions Supplier*

Shenzhen Caimen Intelligent Technology Co.,Ltd.

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