CAIMEN

Licence Plate Recognition

User Manual

Shenzhen Caimen Intelligent Technology Co., Ltd

Contents

Copyright Notice

Preface

1. Please read the instructions carefully before installation.
2. Please strictly follow the instructions during installation and operation to avoid personal injury or property loss caused by incorrect installation and use.
3. All operations during installation must comply with the instructions and relevant national safety regulations.
4. The application functions specified in the product manual are carefully designed and manufactured. Any application beyond the specified functions may cause damage or other dangers.
5. The Company shall not be liable for any damage caused by improper use of this product.
6. Do not install this product in the place where there are inflammable and explosive materials.
7. When installing, inspecting or repairing this product, the power supply must be cut off first.
8. This product must be equipped with an independent switch device and a 6A circuit breaker for protection.
9. Check whether the grounding system of the product is normal.
10. The safety devices of the electrical system must protect the safe operation of the moving mechanical system and prevent it from being squeezed or cut.
11. If the product uses a safety protection device other than the company's (such as: infrared protector, ground sense, radar, etc.), the company is not responsible for the safety and normal operation of the product.
12. Please use the spare parts provided by our company during maintenance
13. The Company is not responsible for any problems in the use of the closed power parts if they are disassembled at will without following the correct steps.
14. Do not allow children or non-staff to enter the installation area during the installation and commissioning of the product.
15. The installer must inform the user of the method of manual operation in case of an accident.
16. Inform the user not to repair or adjust the system without authorization, please contact the relevant personnel when necessary.
17. After installation and debugging, please give this instruction manual to the user for reference in future maintenance.

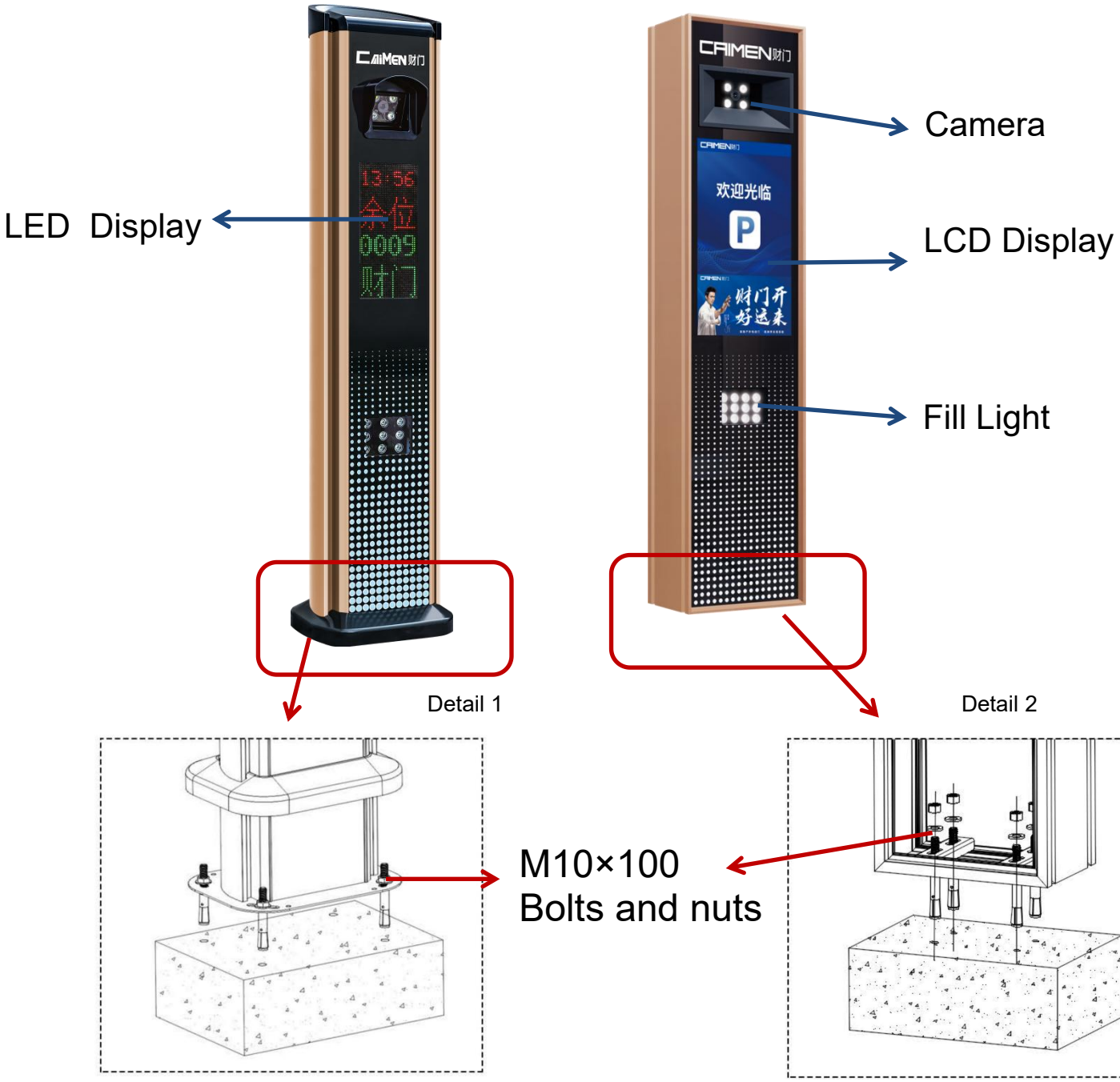
Safety Warnings

- This product is a highly technical and specialized device. In the event of a malfunction, please contact our after-sales service department or an authorized service provider immediately. Do not attempt to disassemble the unit yourself, as improper handling may damage internal components or affect your legal rights.
- This product operates with hazardous voltage. Please ensure that the system's protective grounding is inspected regularly to prevent potential personal injury.
- Refer to the user manual for correct usage of the electrical interfaces. Improper use may damage this product or other connected devices.
- This product is not explosion-proof. Do not use it in environments containing flammable or explosive materials.

1. Product Overview

This all-in-one license plate recognition terminal integrates advanced image capture and license plate recognition technologies. It is designed for vehicle access control in parking lots, residential communities, and other entry/exit points. The system automatically identifies license plates and controls barrier gates, enabling intelligent vehicle management.

2. Product Components



3. Product Features

(1) **Hardware Materials and Craftsmanship**
Constructed with 25mm aluminum alloy and finished with imported AkzoNobel electrostatic powder coating, the device offers excellent resistance to aging and corrosion. The display surface is made of tempered glass with an internal brown film and external white silk-screen printing, ensuring both durability and clear visibility.

(2) **Installation and Adaptability**
Supports vertical installation. The compact structural design allows for easy setup. Some models feature an embedded camera for enhanced integration and adaptability to complex environments such as strong sunlight and heavy rain.

(3) **Intelligent Recognition and Interaction**
Equipped with AI-based video license plate recognition technology for precise reading. Integrated with high-brightness display components (LED or LCD screens), the system supports multiple display modes and links with various payment methods (WeChat Pay, Alipay, contactless payment, etc.) to enable smart access and payment experiences.

(4) **Energy Efficiency and Eco-Friendly Design**
The fill light is paired with a photosensitive switch for automatic on or off control, ensuring effective illumination while reducing energy consumption.

(5) **System Compatibility**
Fully compatible with cloud-based parking systems and can be integrated with barrier gates and management platforms. Some models also support advertising extensions, enabling smart parking operations and value-added services.

4. Product Specifications

ALPR Camera

Indexes	
Name	Entrance&Exit ALPR Camera
Model No	EMV86-V4011CMY
Cpu	Specialized license plate recognition chip
Sensor	1/2.7″ CMOS Image Sensor
Minimum illumination	0.1Lux
Lens	6mm fixed focus lens
Built-in light	4 high-power LED white lights
Performance Indexes	
Plate recognition accuracy	≥99%
Plate types	Malaysia licence plate
Triggering mode	Video trigger, coil trigger
Image output	1296P(2304*1296), 1080P(1920*1080), 960P(1280*960),
	720P(1280*720), D1(704*576)
Picture output	1440P (2560*1440) , 1296P(2304*1296), 1080P(1920*1080)
	900P(1600*900), 720P(1280*720), 540P(960*540), D1(704*396)
Video compression format	H.264, H.265
Interface parameters	
Network interface	10/100, RJ45
IO	4 input & 3 output 3.5mm connecting terminals
Serial interface	2 x RS485
Audio interface	1 input & 1 output
SD card	Support SD2.0 standard Micro SD(TF) card with a maximum capacity of 32G
Power supply	DC12V
Power consumption	≤7.5W
Working temperature	-25℃~+70℃
Protection grade	IP65
Size (mm)	150(W)*75(H)
Weight	0.1kg

Product Series	Product Specifications
CP001	▪ Dimensions: 376 × 291 × 1436 mm (L*W*H) ▪ License Plate Recognition Accuracy: >98% (all-weather performance) ▪ Display: Dual-column vertical high-brightness LED display, designed for outdoor and industrial environments ▪ Camera: 5MP PTZ camera with 6–12mm lens ▪ Storage Capacity: Up to 30,000 records ▪ Voice Prompt: Supports intelligent, scenario-based customizable voice prompts ▪ Access Modes: License plate recognition and QR code scanning for vehicles without plates ▪ Communication Interface: TCP/IP ▪ Power Input: 220V ▪ Operating Voltage: 12V ▪ Operating Temperature: -25°C to +75°C ▪ Storage and Transport Temperature: -30°C to +75°C ▪ Operating Humidity: <90% RH, non-condensing (under normal conditions) ▪ Storage & Transport Humidity: <95% RH, non-condensing (under normal conditions) ▪ Protection Rating: IPX54 ▪ Illuminator Beam Angle: 30° ▪ Illuminator Power: 10W
CP002	▪ Dimensions: 317 × 165.5 × 1388.5 mm (L*W*H) ▪ License Plate Recognition Accuracy: >98% (all-weather performance) ▪ Display: Dual-column vertical high-brightness LED display, designed for outdoor and industrial environments ▪ Camera: 5MP PTZ camera with 6–12mm lens ▪ Storage Capacity: Up to 30,000 records ▪ Voice Prompt: Supports intelligent, scenario-based customizable voice prompts ▪ Access Modes: License plate recognition and QR code scanning for vehicles without plates ▪ Communication Interface: TCP/IP ▪ Power Input: 220V ▪ Operating Voltage: 12V ▪ Operating Temperature: -25°C to +75°C ▪ Storage & Transport Temperature: -30°C to +75°C ▪ Operating Humidity: <90% RH, non-condensing (under normal

	conditions) ▪ Storage & Transport Humidity: <95% RH, non-condensing (under normal conditions) ▪ Protection Rating: IPX54 ▪ Illuminator Beam Angle: 30° ▪ Illuminator Power: 10W
CP003	▪ Dimensions: 338 × 210 × 1460 mm (L*W*H) ▪ License Plate Recognition Accuracy: >98% (all-weather performance) ▪ Storage Capacity: Up to 50,000 records ▪ Communication Interface: 485/ TCP ▪ Display: 22-inch high definition LCD screen (customizable content) ▪ Camera: 5MP PTZ camera ▪ Illuminator Beam Angle: 30° ▪ Illuminator Power: 10W ▪ Power Input: 220V ▪ Camera Input Voltage: 12V ▪ Operating Temperature: -25°C to +75°C ▪ Operating Humidity: <90% RH, non-condensing (under normal conditions) ▪ Storage and Transport Humidity: <95% RH, non-condensing (under normal conditions) ▪ WMTBF (Weighted Mean Time Between Failures): 30,000 hours ▪ Protection Rating: IPX54
CP004	▪ Dimensions: 338 × 210 × 1460 mm (L*W*H) ▪ License Plate Recognition Accuracy: >98% (all-weather performance) ▪ Storage Capacity: Up to 50,000 records ▪ Communication Interface: 485 / TCP ▪ Display: 4-line × 4-character high-brightness LED display, designed for outdoor and industrial environments ▪ Text Display Format: Four-line text display ▪ Camera: 5MP PTZ camera ▪ Camera Input Voltage: 12V ▪ Power Input: 220V ▪ Operating Temperature: -25°C to +75°C ▪ Storage and Transport Temperature: -30°C to +75°C ▪ Operating Humidity: <90% RH, non-condensing (under normal conditions) ▪ Storage & Transport Humidity: <95% RH, non-condensing (under normal conditions) ▪ WMTBF (Weighted Mean Time Between Failures): 30,000 hours ▪ Protection Rating: IPX54 ▪ Illuminator Beam Angle: 30° ▪ Illuminator Power: 10W

CP005	▪ Dimensions: 234 × 200 × 1350 mm (L*W*H) ▪ License Plate Recognition Accuracy: >98% (all-weather performance) ▪ Display: Single-column vertical high-brightness LED display, designed for outdoor and industrial environments ▪ Camera: 5MP PTZ camera with 6–12mm lens ▪ Storage Capacity: Up to 30,000 records ▪ Communication Interface: TCP/IP ▪ Power Input: 220V ▪ Operating Voltage: 12V ▪ Operating Temperature: -25°C to +75°C ▪ Storage and Transport Temperature: -30°C to +75°C ▪ Operating Humidity: <90% RH, non-condensing (under normal conditions) ▪ Storage and Transport Humidity: <95% RH, non-condensing (under normal conditions) ▪ Protection Rating: IPX54

5. Installation Tools

6. Product Installation

(1) Installation of the foundation base

The following is a schematic diagram of the conduit layout for the foundation base.

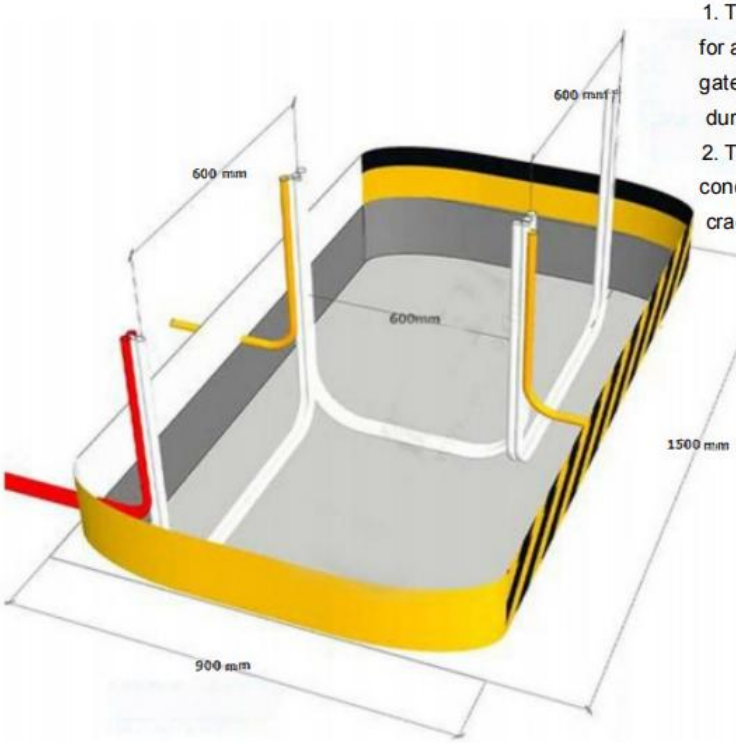
Warning:

- The foundation base must be pre-embedded (20 cm deep for advertising barrier gates, 15 cm for straight-arm barrier gates), otherwise, the barrier gate may cause the base to crack during operation.
- The foundation base must be constructed with poured concrete. Do not use construction waste, as it may also lead to cracking during gate operation.

Note:

- Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for power cables and network cables (shown as red conduits in the diagram).
- Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for loop detector cables (shown as yellow conduits in the diagram).
- Pre-embed six U-shaped conduits for power and communication cables between devices (shown as white conduits in the diagram).

Pipe layout diagram



Warning:

1. The foundation base must be pre-embedded (20 cm deep for advertising barrier gates, 15 cm for straight-arm barrier gates), otherwise, the barrier gate may cause the base to crack during operation.
2. The foundation base must be constructed with poured concrete. Do not use construction waste, as it may also lead to cracking during gate operation.

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2.Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for loop detector cables (shown as yellow conduits in the diagram).
3.Pre-embed six U-shaped conduits for power and communication cables between devices (shown as white conduits in the diagram).

Wiring Diagram

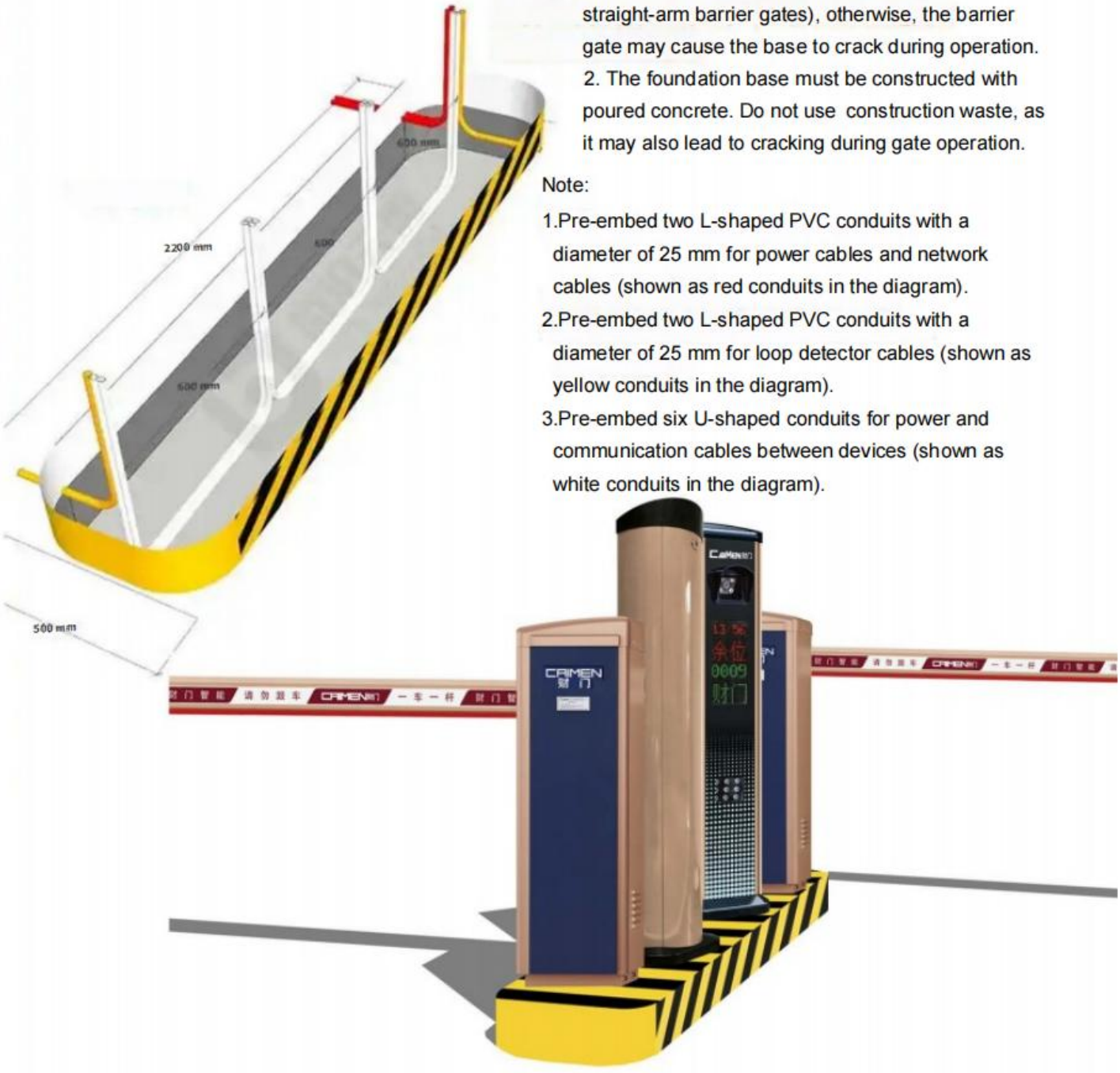
Entry and Exit on Both Sides(Wide Foundation Base)

Warning:

1. The foundation base must be pre-embedded (20 cm deep for advertising barrier gates, 15 cm for straight-arm barrier gates), otherwise, the barrier gate may cause the base to crack during operation.
2. The foundation base must be constructed with poured concrete. Do not use construction waste, as it may also lead to cracking during gate operation.

Note:

1.Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for power cables and network cables (shown as red conduits in the diagram).
2.Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for loop detector cables (shown as yellow conduits in the diagram).
3.Pre-embed six U-shaped conduits for power and communication cables between devices (shown as white conduits in the diagram).

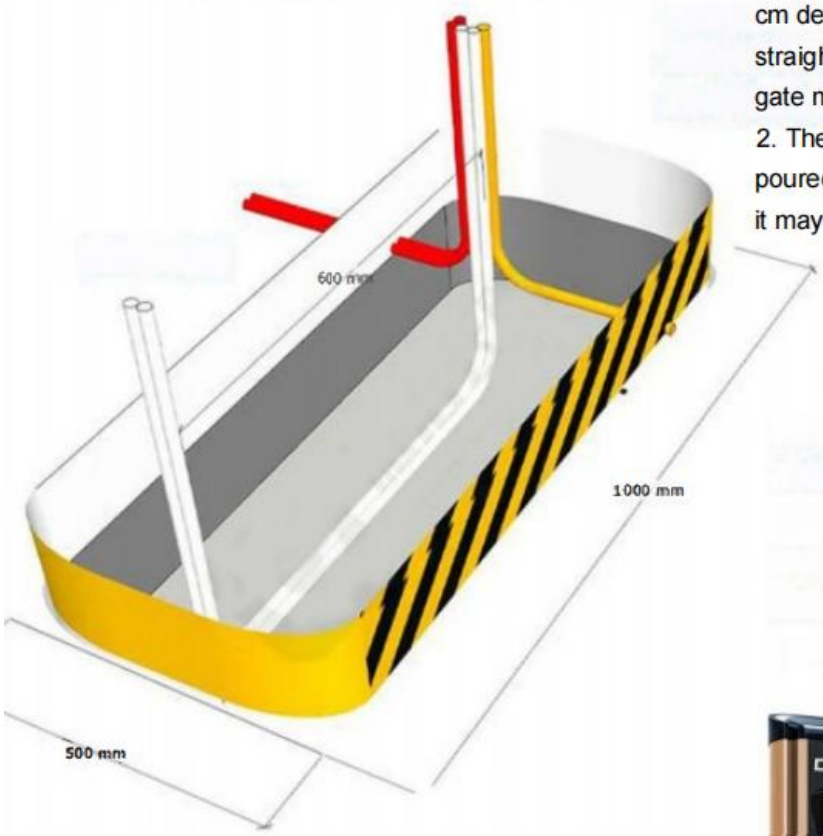


Wiring Diagram

Entry and Exit on Both Sides(Narrow Foundation Base)

Warning:

1. The foundation base must be pre-embedded (20 cm deep for advertising barrier gates, 15 cm for straight-arm barrier gates), otherwise, the barrier gate may cause the base to crack during operation.
2. The foundation base must be constructed with poured concrete. Do not use construction waste, as it may also lead to cracking during gate operation.

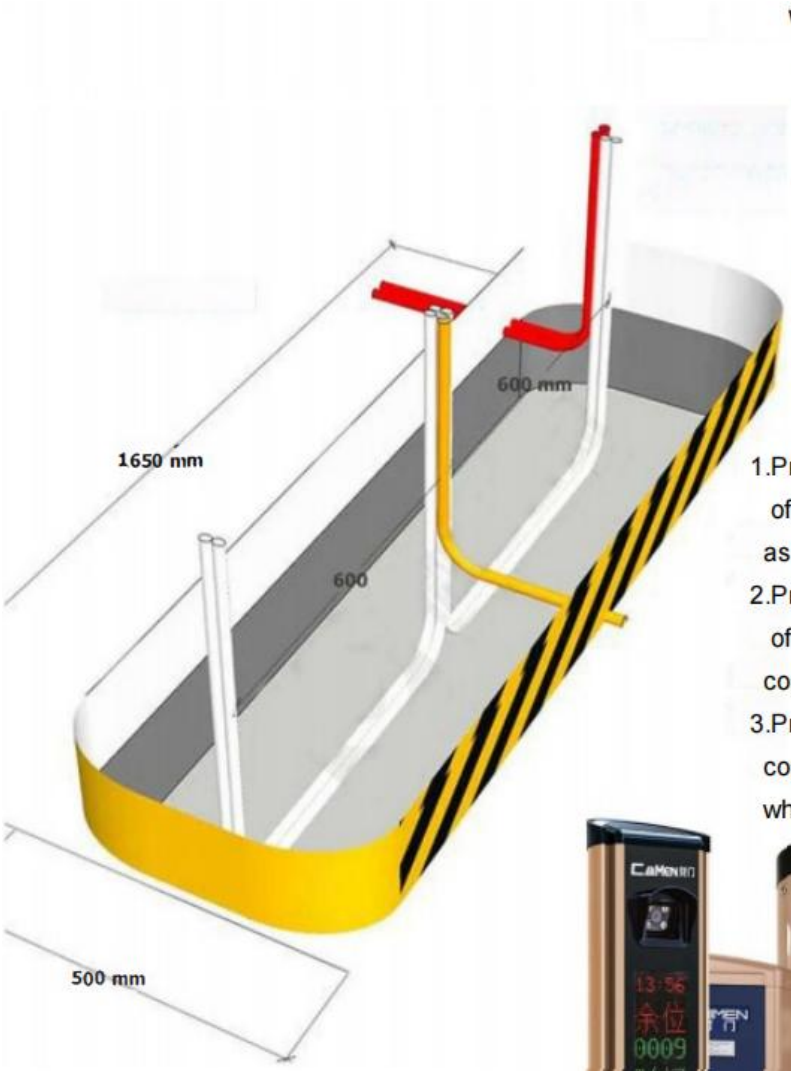


Note:

1.Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for power cables and network cables (shown as red conduits in the diagram).
2.Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for loop detector cables (shown as yellow conduits in the diagram).
3.Pre-embed six U-shaped conduits for power and communication cables between devices (shown as white conduits in the diagram).

Wiring Diagram

Single Lane Driveway

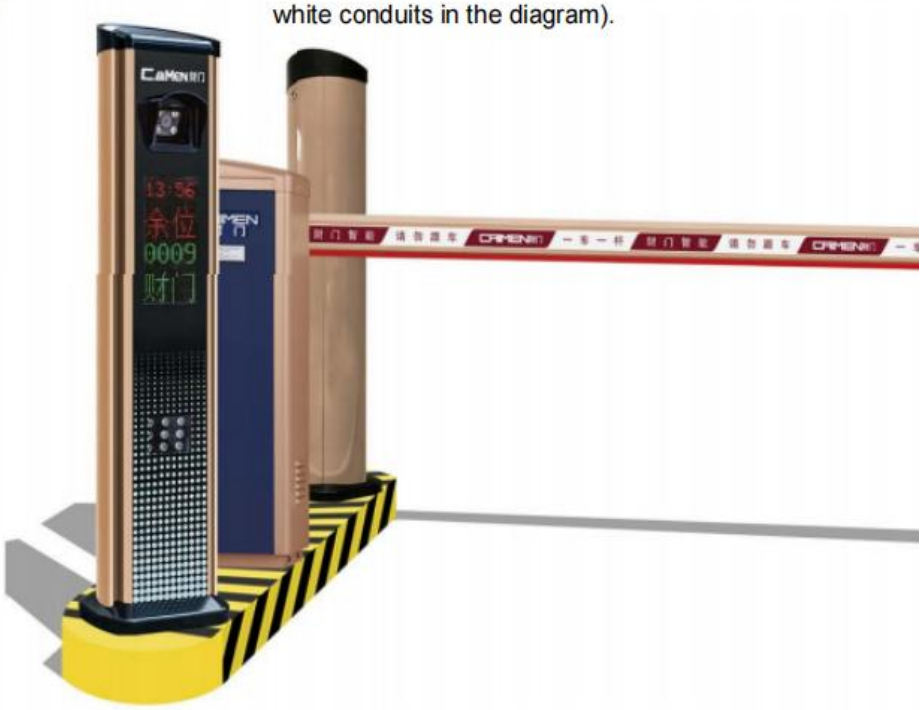


Warning:

1. The foundation base must be pre-embedded (20 cm deep for advertising barrier gates, 15 cm for straight-arm barrier gates), otherwise, the barrier gate may cause the base to crack during operation.
2. The foundation base must be constructed with poured concrete. Do not use construction waste, as it may also lead to cracking during gate operation.

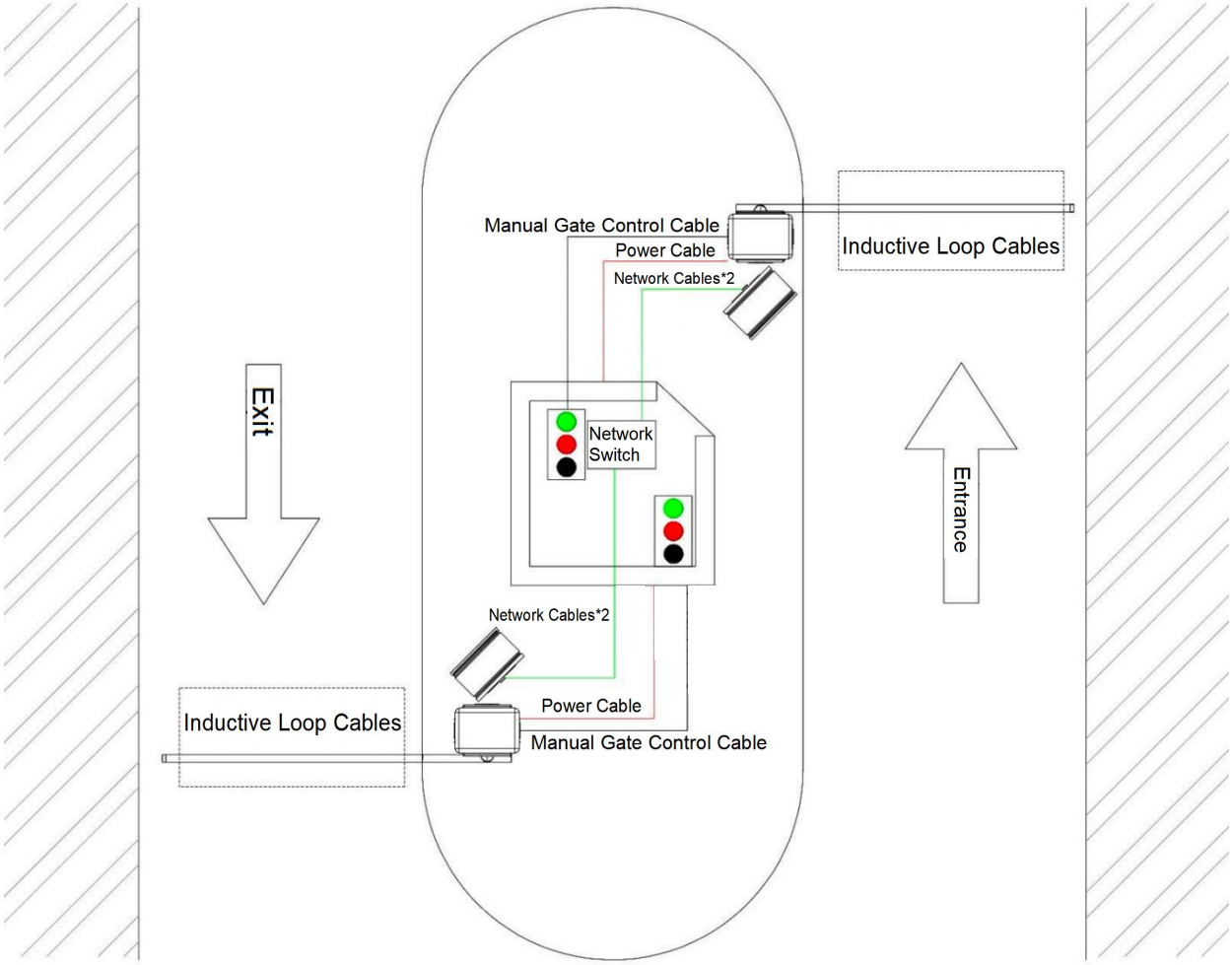
Note:

1.Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for power cables and network cables (shown as red conduits in the diagram).
2.Pre-embed two L-shaped PVC conduits with a diameter of 25 mm for loop detector cables (shown as yellow conduits in the diagram).
3.Pre-embed six U-shaped conduits for power and communication cables between devices (shown as white conduits in the diagram).



Wiring Diagram

Dual Lane Driveway



Wiring and Installation of the Foundation Base

① Connect the network cables to the switch and daisy-chain the CAIMEN license plate recognition terminal with the barrier gate.

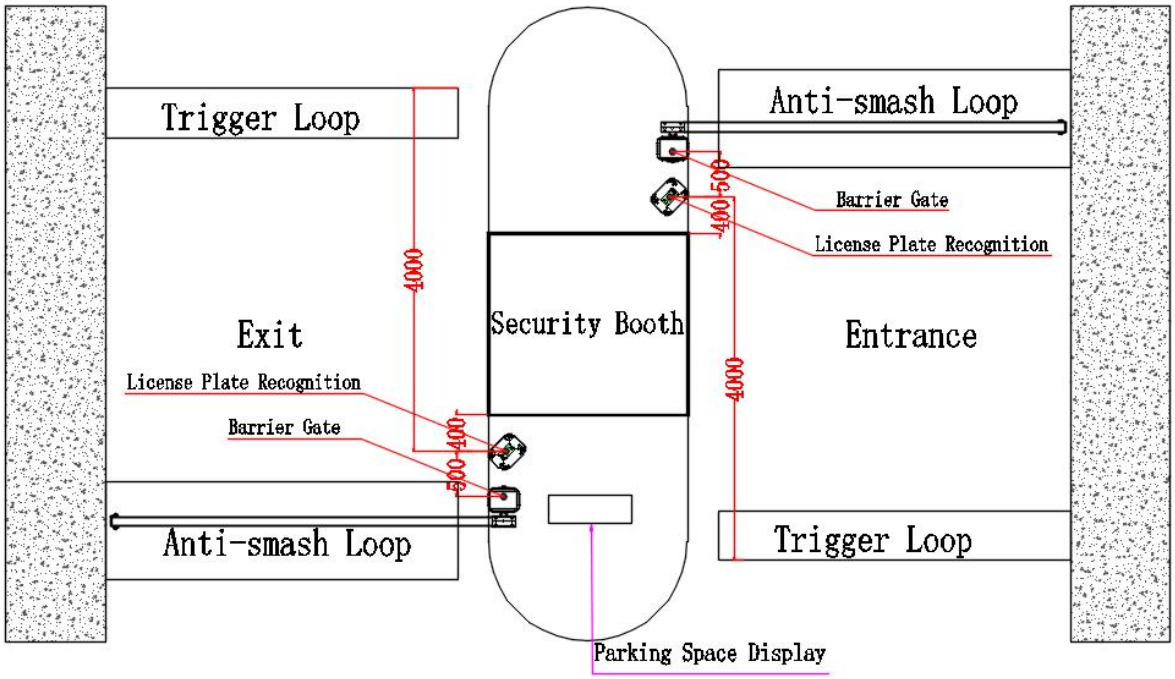
② Connect the power cables to the barrier gate and the license plate recognition terminal.

③ (Optional) Lay manual gate control cables from the barrier gate to the security booth.

Note: After installation, the intelligent license plate recognition system must be tested to ensure proper operation. During testing, simulate vehicle entry into the camera's field of view to verify recognition accuracy. Additionally, test system stability and performance under various environmental conditions to ensure reliable operation.

(2) Installation of the License Plate Recognition

① Preparation Before Installation

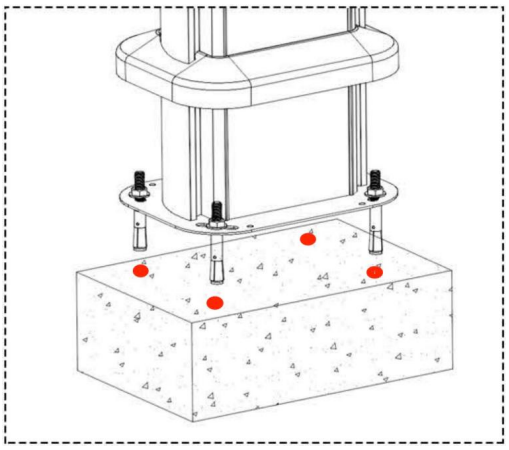


▪ **Entrance and Exit Planning:** Determine the vehicle driving direction, lane width, and turning radius to ensure the camera's field of view fully covers the license plate area.

▪ **Ground Surface Preparation:** Check ground stability. If the surface is asphalt or brick, break the surface and pour a concrete base to secure the equipment.

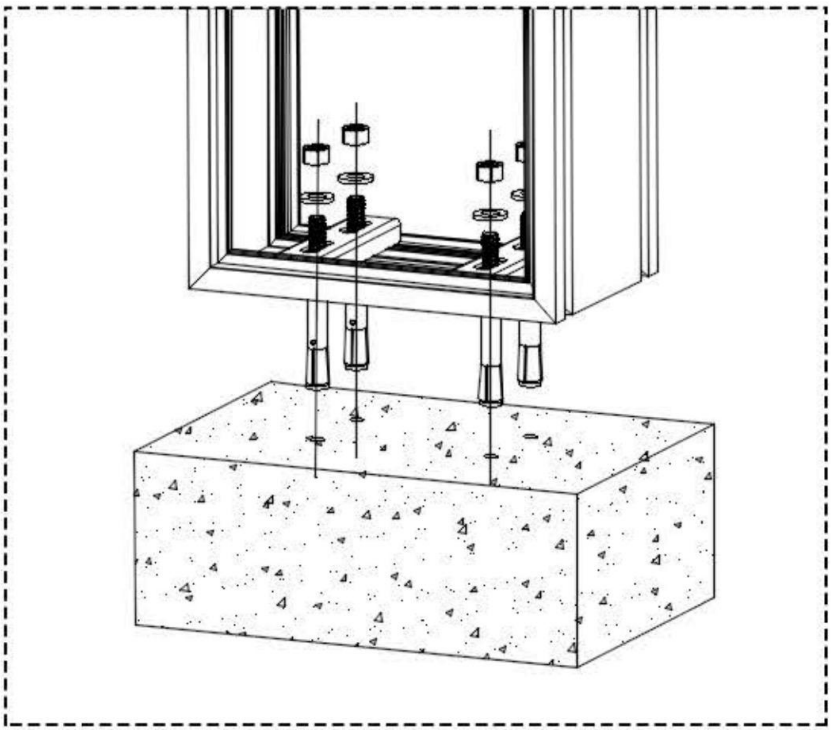
② Installation Steps

a. Mark drilling positions on the ground based on the installation diagram.



b. Use an M12 impact drill to drill holes at the marked positions. After drilling, insert expansion bolts into the holes and tighten them using a wrench until fully expanded. Then remove the bolt nuts.

c. Align the mounting base of the license plate recognition terminal with the bolts and secure it by tightening the nuts.



d. Remove the decorative cover of the license plate recognition terminal. Feed the conduit wires into the device.

③ Software Configuration and Parameter Optimization

a. Check the resolution, frame rate, exposure time, and white balance to ensure the license plate image is clear.

b. Define the recognition zone, adjust the camera angle to align with the plate (ensure it is parallel), and set the expected character length (e.g., 7 characters for standard plates). Simulate vehicle entry and exit to verify that the recognition accuracy meets or exceeds 98%.

c. Test the automatic barrier response: it should lift upon successful recognition and lower once the vehicle passes. Also test manual and remote control emergency functions.

d. Verify integration with the parking fee management system to ensure smooth data transmission and correct automated billing.

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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