

Installation Guide

License Plate Recognition Camera

Version: 1.2

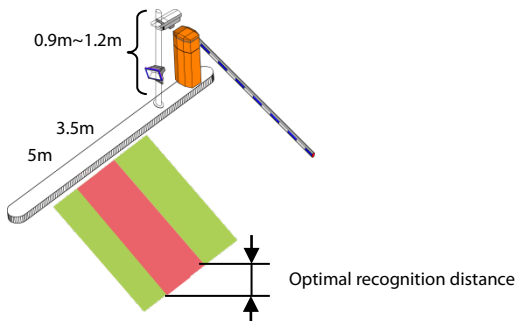
Date: May, 2018

1. Installing the device

It is important for the machine to quickly and accurately output license plate recognition results and capture high-quality license plate pictures. Adjust the angle and distance of the camera to ensure that complete and clear license plate pictures are captured.

● Installation location

It is recommended to install the camera on the safety island near the lane in front of the barrier gate host. Make sure that the camera is installed on the safety island and close to the barrier gate host. It should not affect the operation of barrier gate.



● Installation height

The camera should be installed at a height of 0.9m ~ 1.2m to ensure a valid recognition distance of more than 2m. The optimal recognition distance is 3.5m ~ 5m.

● Installation angle

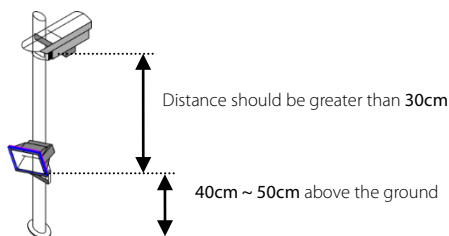
The recommended angle between the camera shooting direction and the road is in the range of 0-15 degree.

The recommended angle between the LED lighting direction and the road is in the range of 0-15 degree.

Note: 0-15 degree is only the recommended value, the specific debugging angle is based as per the test environment.

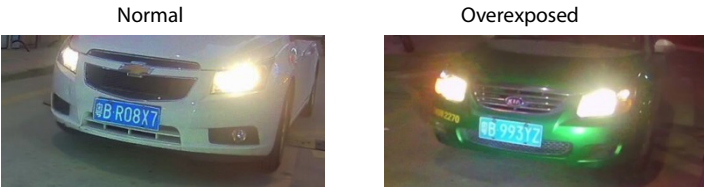
2. Installing an external fill light

Installing an external fill light can provide better image quality and improve the recognition rate at night. External fill light uses special white LED lights on parking lots, providing automatic switching through a photo resistor, with a waterproof rating of IP65.



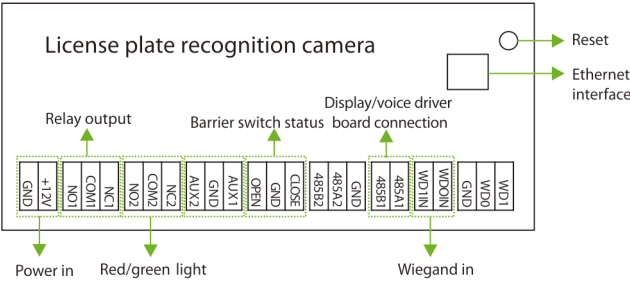
 Note:

- 1) If the external fill light is installed very close to the camera (less than 30cm), the light from the fill light will be directly reflected to the lens by the reflective coating on the license plate, causing overexposure of the license plate in the video image and thus affecting the final recognition result.
- 2) The external fill light shall be installed 40 cm ~ 50 cm above from the ground. You can adjust the angle of the fill light so that the illuminated area between the ground and the license plate is little exposed, and the license plate appears clearer. Avoid direct light on the license plate to prevent overexposure.



3. Connecting the wiring terminal

• Wiring terminal diagram



• Port description:

Pin	Description
Reset	Reboots the device under the constant power supply.
Ethernet Interface	Standard Ethernet RJ45 socket, 10M/100M adaptive
+12V GND	12V DC Power input. Pay attention to the positive and negative electrodes.
NC1 COM1 NO1	Relay output for connecting to the barrier gate.

NC2 COM2 NO2	Connection indicator light (Red and Green).
AUX1 GND AUX2	Auxiliary input
CLOSE GND OPEN	Barrier Switch status
GND 485A2 485B2	Reserved port for RS485 transparent transmission function
485A1 485B1	Display/voice driver board connection
WD1IN WD0IN	Wiegand in
WD0 WD1 GND	Wiegand out

3. Adjusting the vehicle imaging angle

Enter the IP address of the camera (default IP address: **192.168.1.88**; default User Name and Password: **admin**) in the address bar of the browser. View the vehicle imaging angle in real time on the **Liveview** page to adjust the installation angle. **Side angle:** $\leq 50^{\circ}$; **depression angle:** $\leq 70^{\circ}$.

Correct installation



Incorrect installation

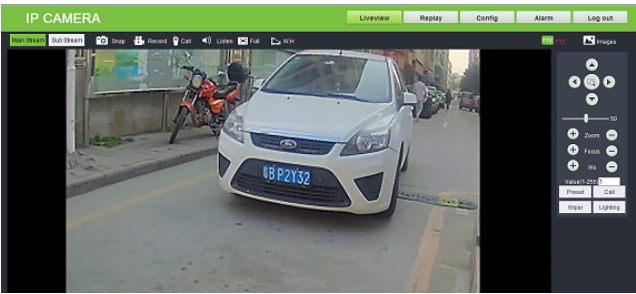


 **Note:** As shown in the correct installation figure, the camera should be in parallel to the lane as much as possible. In case of incorrect camera installation, the license plates can still be recognized, but the recognition rate is affected.

4. Adjusting the image size and focus

You can view the license plate image size in real time on the **Liveview** page and click **[PTZ]** to adjust the image size by modifying the zoom and focus.

Recommended width: The width of the license plate in the video should range from 60 pixels to 350 pixels.



Too small



Too large



 **Note:** Adjust the zoom first and then the focus. Too large license plate image will affect the recognition rate.

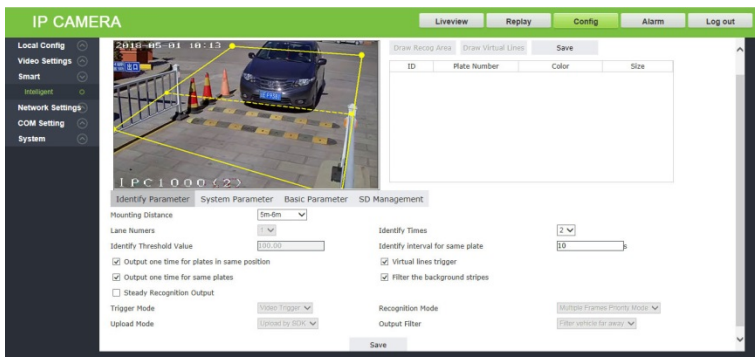
5. Setting the recognition area and virtual line

Click **[Config]** → **[Smart]** → **[Intelligent]** to set the recognizable area and virtual line.

Video stream recognition: More recognized frames indicate higher recognition rate.

Recognition area: You can set the recognition area to avoid interference during recognition.

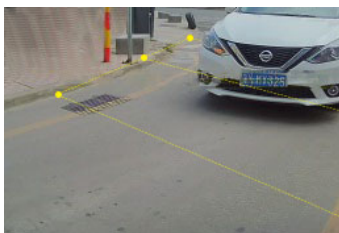
Virtual line: The virtual dotted line triggers the recognition. When the license plate on the vehicle touches the virtual line, it will be recognized. The virtual line should be drawn inside the recognition area without complex background (such as deceleration strips or handrail).



Correct drawing



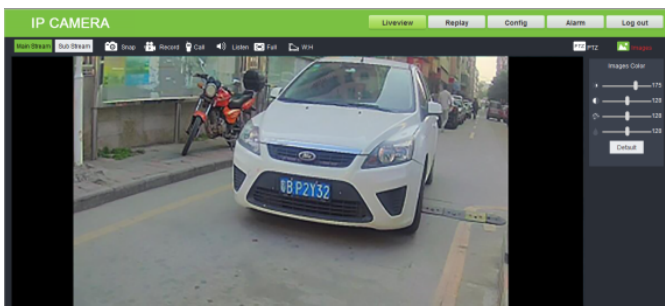
Incorrect drawing



 **Note:** The best recognizable area is at the lower part of the video image with the width of the license plate of about 90 to 150 pixels, while the vehicle is running from top to the bottom with a long distance (the virtual line is usually drawn here).

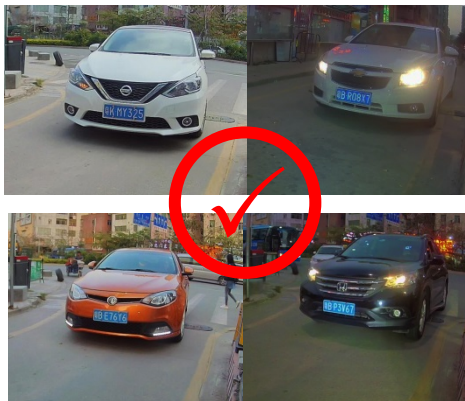
6. Adjusting the brightness of the internal fill light

To adjust the brightness of the internal fill light, click **[Images]** on the **Liveview** page, or click **[Config]** → **[Video Settings]** → **[Video Parameter]**. However, the brightness should not be set too high as it can cause over-exposure. The default value is **128**.



7. Installation cases

- Correct installation:



- Incorrect installation:



8. FAQs

Q: What should we do when the camera is not getting connected.

A: Check the label on the camera, the default IP address must be changed to avoid conflicts; or check whether the host IP address of the management PC is in the same network segment as the camera and whether IP addresses conflict with each other if they are in the same network segment; or restore the factory settings of the camera.

Q: The login page is not properly displayed after a user logs in to the device.

A: Ensure that Microsoft Internet Explorer version is 6.0 or later.

Q: No video is played after a user logs into the real-time video page.

A: No control is installed. The real-time video can be played only after a control is downloaded and installed.

Q: Two cameras are installed; a user can access the first camera successfully but cannot access the second one.

A: The default IP address is set to 192.168.1.88 for all cameras to facilitate operation. However, their MAC addresses are different. The operating system caches the IP address and MAC address of the previous network camera. As a result, the second network camera with the same IP address may not be accessed.