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1. Product Introduction

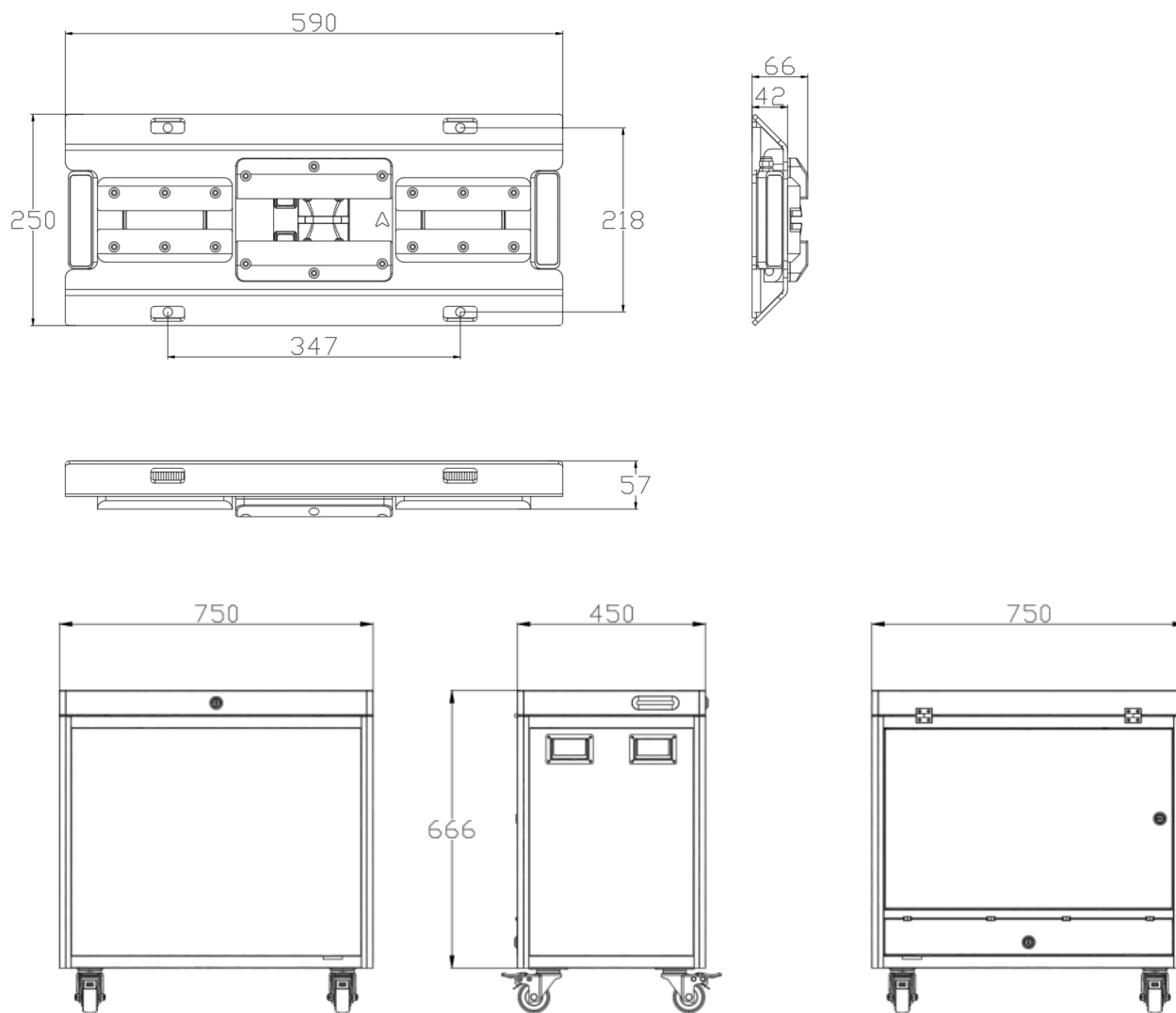
1.1. Introduction

dual mode under vehicle scanning system, which use area scan technology and line scan technology simultaneously to effectively scan and inspect the undercarriage of vehicles to search and analyze images for suspicious objects or contraband such as drugs and weapons. The system is ideal for government, military, transportation and corporation facilities requiring security checkpoints for vehicles such as vans, tractor trailers, buses and passenger vehicles.

1.2. Item List



1.3. Dimension Drawing

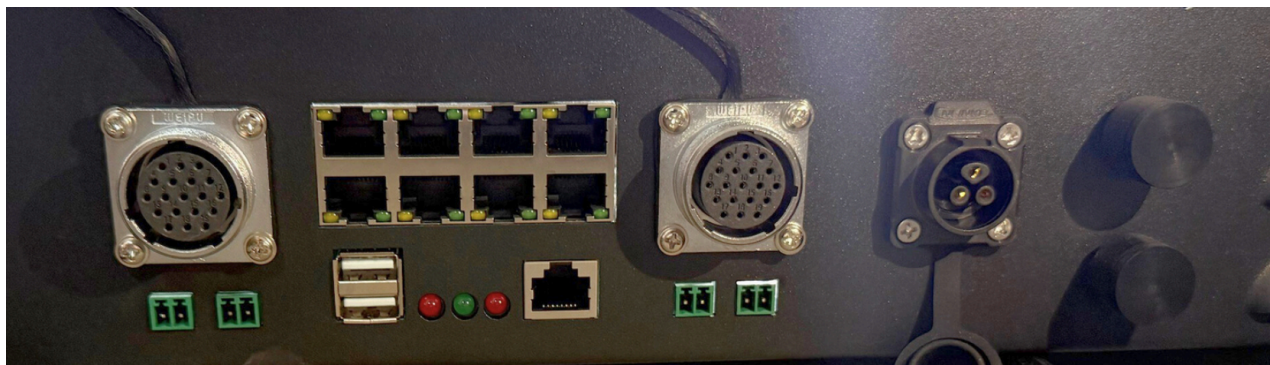


1.4. Product Specification

Name	Parameter
Resolution of the sensor	4096P
Image resolution	$\geq 10000 \times 4096$
Capture rate	$> 99.9\%$
Speed limit	Area : forward:0 ~ 45km/h, backward:0 ~ 15km/h Linear: forward:0 ~ 20km/h, backward:0 ~ 20km/h
Intelligent analytic	It can automatically detect the different in the bottom image of the vehicle in and out
View angle	$\geq 180^\circ$

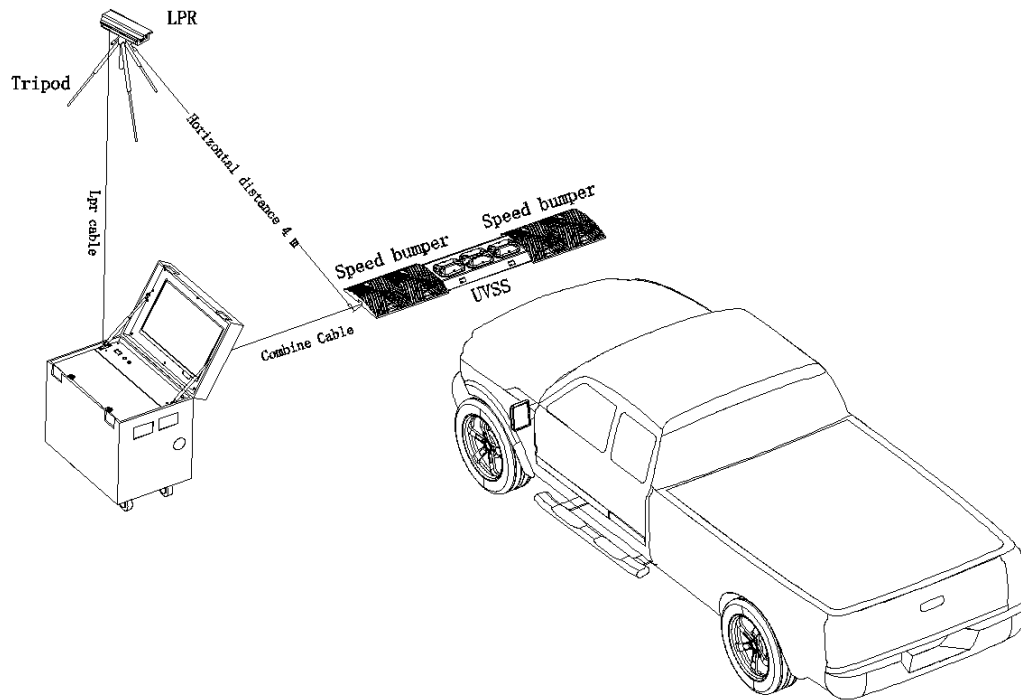
Height limit	80 ~ 2000mm
Width limit	≤4500mm
Length limit	unlimited
Imaging time	<1s
System extension	Support license plate recognition
Data port	RJ45
Protection level	IP68
Input voltage	100-240VAC,50-60Hz
Working temperature	-40° ~ +70°
Dimension	590mmx300mmx69mm
Weight	22kg

1.5. Control Panel Layout



LPR Camera should connect to one of the POE RJ45 port.

1.6. Layout of Portable UVSS System



- 1) Open the Mobile Server Cart Cover; take out LPR Camera, Tripod, Combine Cable, Keyboard, Mouse, UVSS Camera and Speed Bumper.
- 2) Put UVSS Scanner in the middle of lane and put Speed Bumper at both sides of UVSS Scanner. Connect Combine Cable between UVSS Scanner and Mobile Server Cart, and make sure Combine Cable go beneath Speed Bumper.
- 3) Mount LPR Camera on Tripod and rise the LPR Camera to about 1.2 meter high, LPR Camera should be around 4 meters in front of UVSS Scanner along the road side. LPR Camera connects to Mobile Server Cart by Net Cable, and the LPR Camera should point to 0.5 meter above UVSS Scanner.
- 4) Power on.

2. Setup Steps

2.1. Setup License Plate Recognition Camera

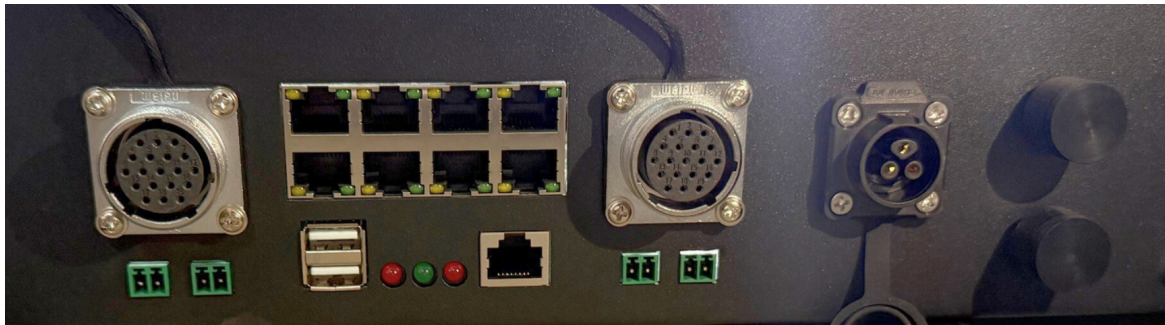
- 1) Take out tripod from mobile server cart, set it up along road side.



- 2) Mount License Plate Recognition on tripod.



- 3) Use Ethernet cable connect LPR camera to mobile server cart, connect to one POE port.

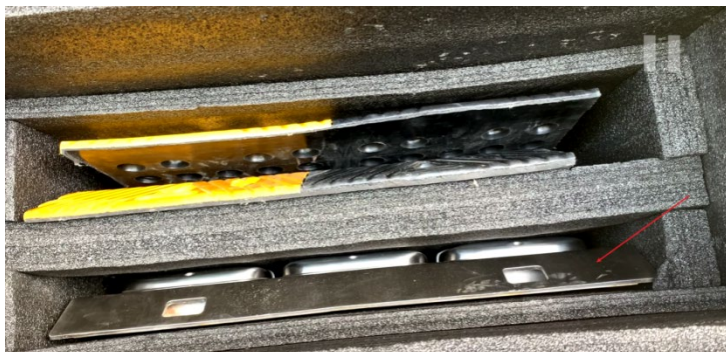


2.2. Setup Under Vehicle Scanner

- 1) Take out Under Vehicle Scanner from the mobile server cart, and then put it in the middle of entrance.

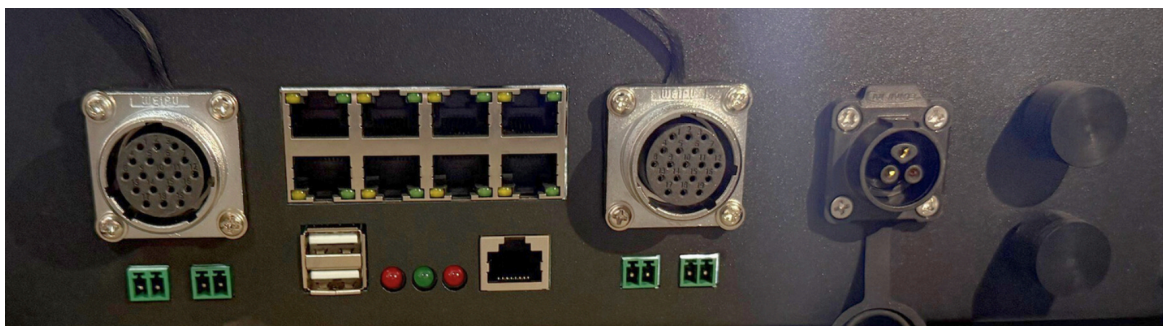
Attention:

Under Vehicle Scanner is very heavy, make sure wear glove before operation.

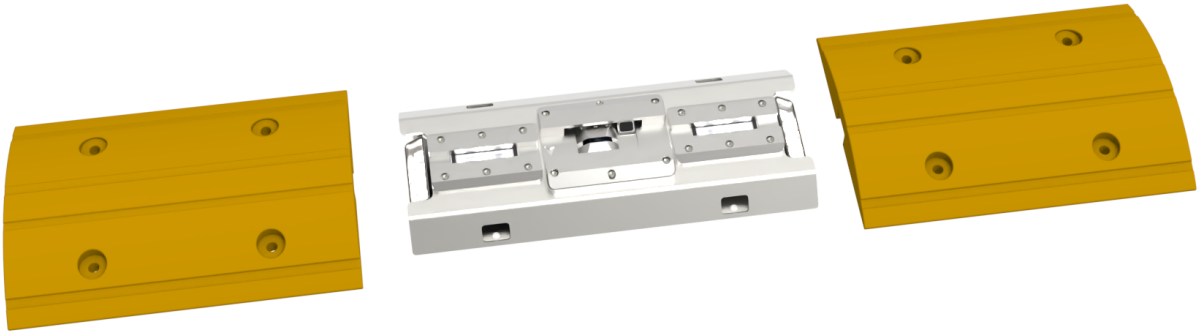




- 2) Take out Combine Cable from the mobile server cart, and then connect one side to the Under Vehicle Scanner, another side to mobile server cart.



- 3) Put two Speed Bumpers on both sides of Under Vehicle Scanner, align them together.



2.3. Power on Server

- 1) Push down Power Bottom, Server will boot up automatically.



- 2) Double-click the icon and enter the login interface.



3) Input password, start UVSS Guard.

Attention: Initial password if 123456

A login dialog box titled "Login" with a question mark icon and a close button. It contains three input fields: "Server IP:" with the value "127.0.0.1", "Username:" with the value "admin", and "Password:" which is empty. Below the fields are "OK" and "Cancel" buttons.The main interface of the "Under Vehicle Guard Unified System". It features a top menu bar with "Configuration" and "About". The interface is divided into several sections: a "Monitored Region" section on the left (2) containing "Running Information" (3) and "Real-time Records" (4); a large central "Current Scan" area (5) displaying "UVSS" (6) with various status fields (Date, Gate, Plate, Driver, Check State, Comparable); a bottom control bar with sliders for Brightness, Contrast, Sharpness, Saturation, White-Balance (set to 7), Scale, and FOD Level, along with a "Reset" button; and a bottom right section (8) containing "Matching Scan" (8), "License" (9) with a "Plate" field and "Apply" button, and "Video" (10) with a "Face" field and "Apply" button. A status bar at the bottom indicates "The Server is running sufficient disk space".

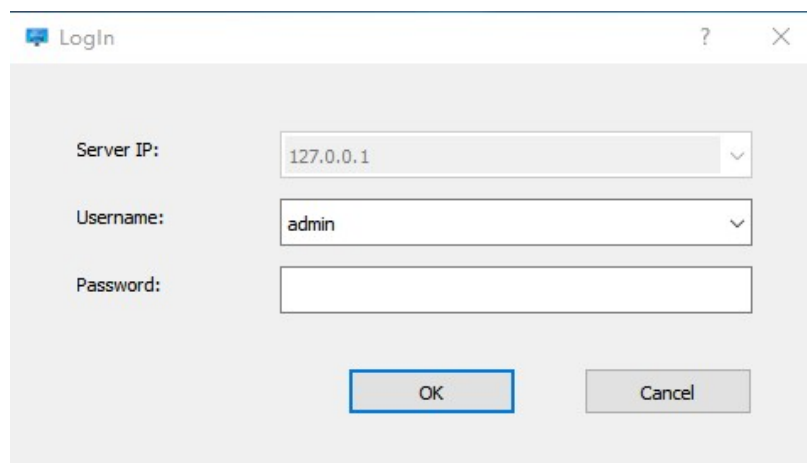
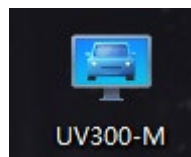
4) Done setup, can start to inspect vehicles now.

3. Software Operation

3.1. Software Interface

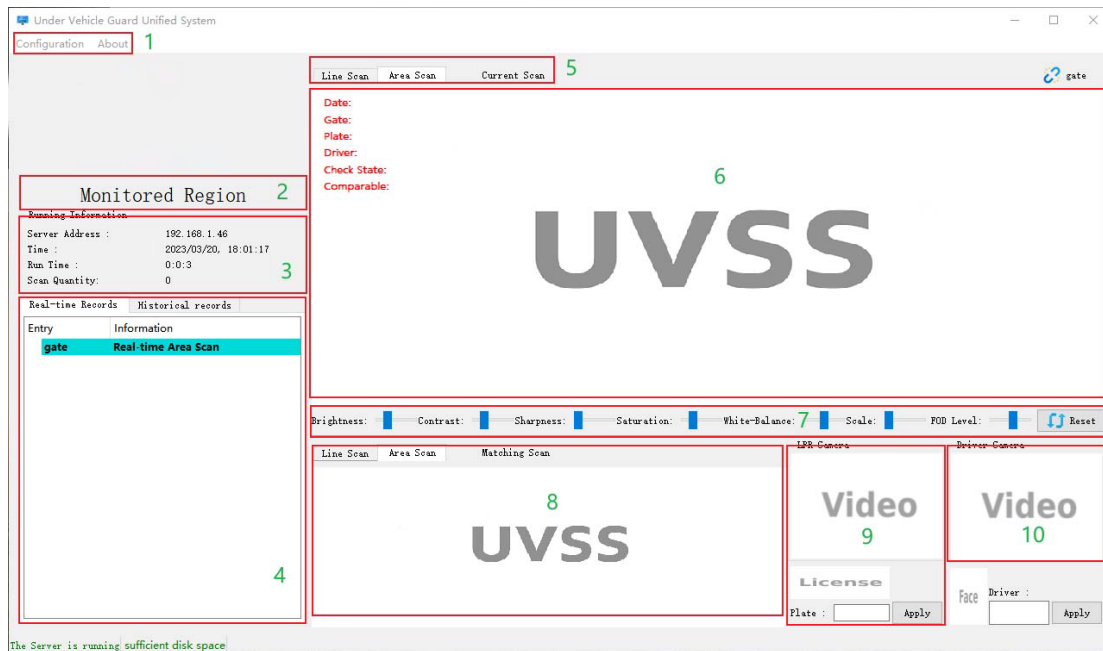
UVSS Guard Unified Version integrates the server and the client together into single software. This Unified version used for standard working scenario, which only use single computer for database and user interface in close range to the Under Vehicle Scanner, such as Portable UVSS system.

Open UVSS Guard Unified by double-clicking the icon and enter the login interface.

A screenshot of a Windows-style login window titled 'Login'. It has a light gray background and a white border. Inside, there are three labels on the left: 'Server IP:', 'Username:', and 'Password:'. To the right of each label is a text input field. The 'Server IP' field contains '127.0.0.1' and has a small downward arrow on its right. The 'Username' field contains 'admin' and also has a small downward arrow on its right. The 'Password' field is empty. At the bottom of the window, there are two buttons: 'OK' and 'Cancel'. The 'OK' button is highlighted with a blue border.

Login instructions:

- ◆ Server IP: The server IP address that is currently logged on.(Unified software no needs to input IP manually)
- ◆ Username: Input Username in Username bar or select a user in the drop-down box(default username is admin)
- ◆ Password: Input the correct login password (the initial password is 123456)



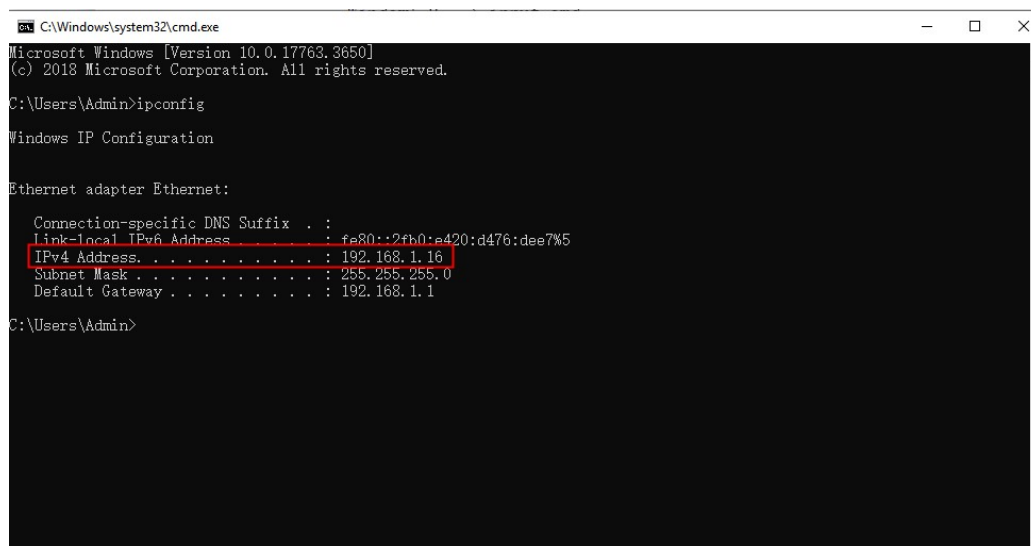
1. General configuration entry (Configuration button)
2. Name of Inspection Area
3. Running Information
 - Server Address: The IP address used by the server (namely the native IP address)
 - Scan Quantity: Number of inspected vehicles after login
4. Inspected vehicle list
5. Line scan mode/Area scan mode switch
6. Current inspection image display
7. ISP adjust area
8. Matching inspection image display
 - From compare database, this image with a certain similarity to the current under vehicle inspection image. If this image is now shown up, please verify that there are similar under vehicle inspection images in the compare database.
9. LPR Camera display area
10. Side Camera display area
11. Manual note input area

3.2. Server IP Setting

To use one computer as a server, follow these steps

Step 1: Check the local IP

- 1) Open a command window
Window+ R ->Type 'cmd'
- 2) Type 'ipconfig' in command shell
- 3) Find the IPv4 address of the local network



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.17763.3650]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Admin>ipconfig

Windows IP Configuration

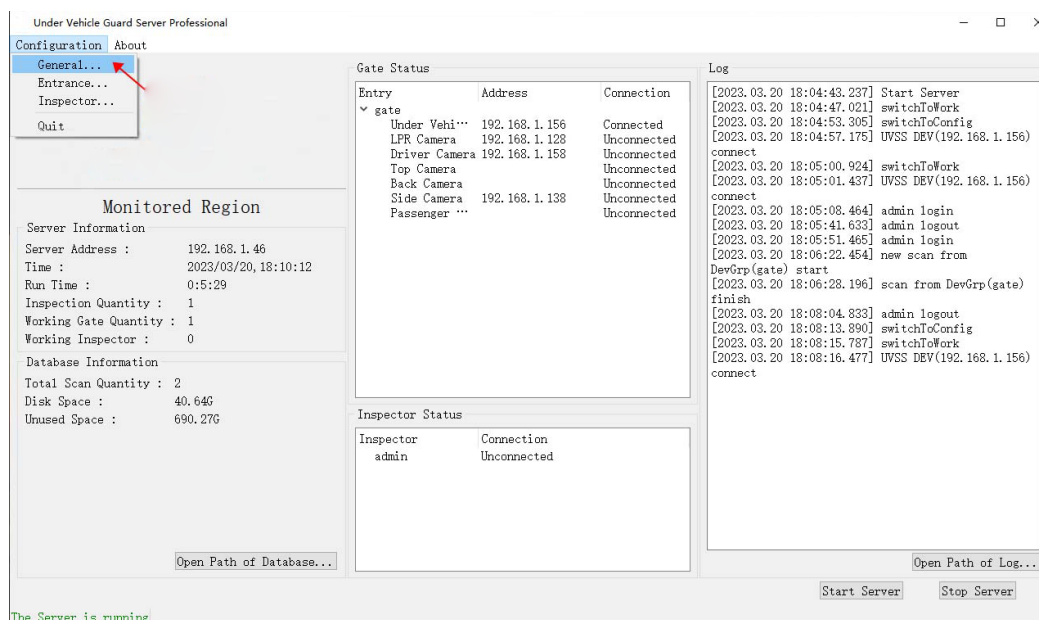
Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::2fb0:e420:d476:dee7%5
    IPv4 Address. . . . . : 192.168.1.16
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

C:\Users\Admin>
```

Step 2: Apply the native IP address

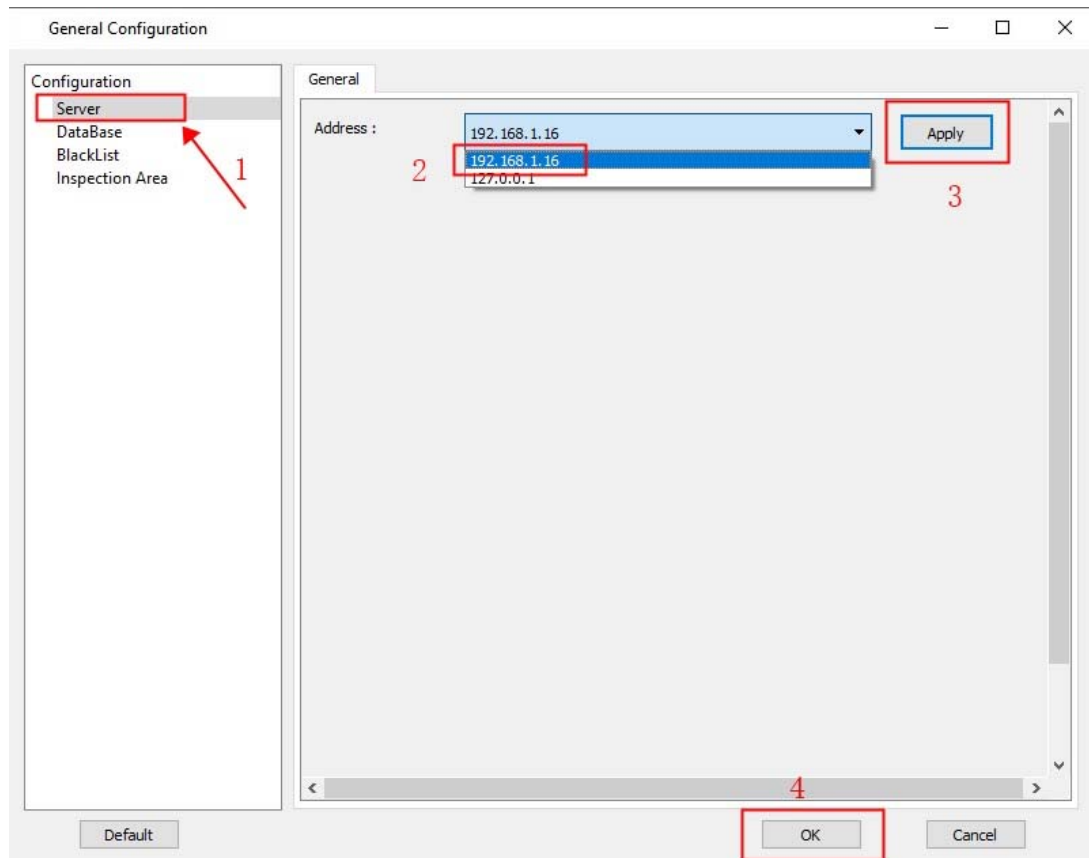
- 1) Open General Configuration window
Configuration -> General...



2) Select native IP

Click the drop-down button -> Select native IP -> Click 'Apply' -> Click 'OK'

The server IP configuration is done.



Attention: The open box IP address of the server is 192.168.1.188,if you select the wrong server IP, software will stop running.

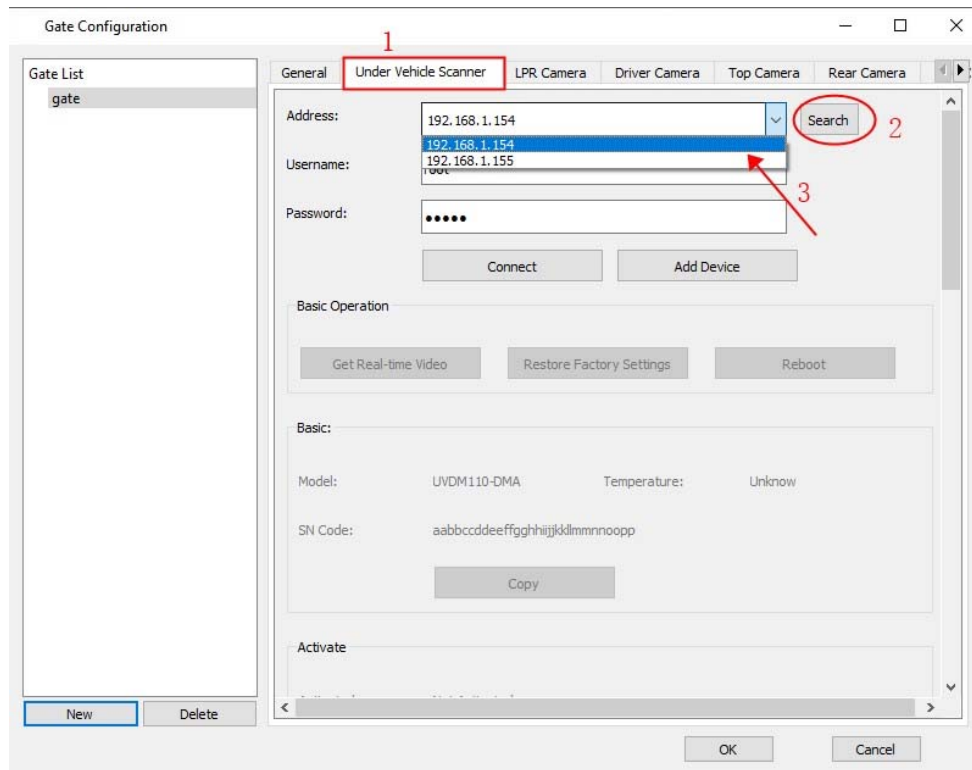
3.3. Under Vehicle Scanner Configuration

Step 1: Open Gate Configuration

1) Click 'Configuration' ->Select 'Entrance...'

Step 2: Select IP Address

1) Click 'Under Vehicle Scanner' -> Click 'Search' -> From the drop-down list, select device IP address



Attention: The default Address is 192.168.1.168

Step 3: Connect

1) Input Username

Attention: The factory default Username is 'root'

2) Input Password

Attention: The factory default Password is 'admin'

3) Click Connect

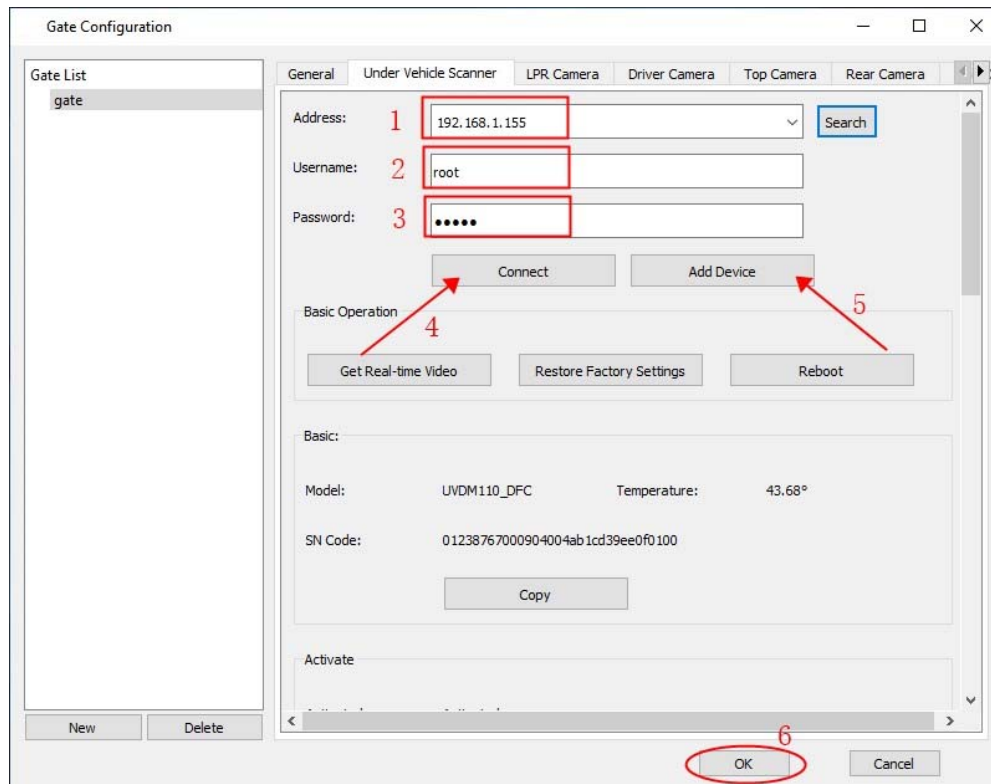
If prompt "Connect to UVSS Device, please wait to get information", the connection is successful, otherwise means connection is fail.

4) Click Add Device

Complete basic configuration.

After it is successfully connected, you can perform basic operations.

- ◆ Get Real-time Video: View real-time images.
- ◆ Restore Factory Settings: Return all the parameters to the factory state.
- ◆ Reboot: it will turn off and restart.



3.4. LPR Camera Configuration

Step 1: Open Gate Configuration

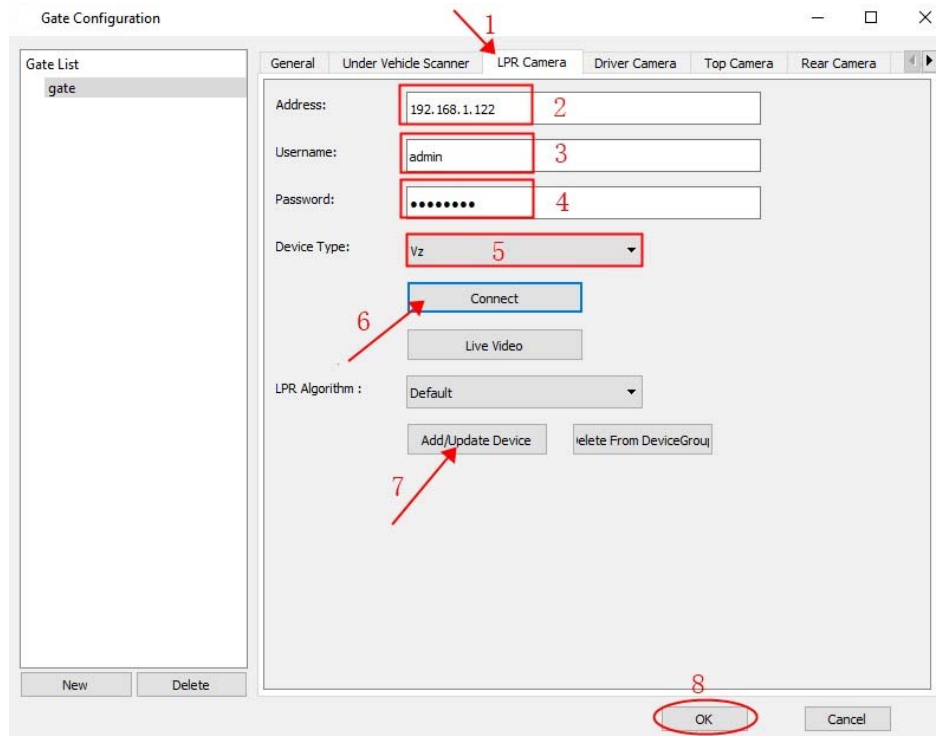
- 1) Click 'Configuration' -> Select 'Entrance...' -> Click 'LPR Camera'

Step 2: Connect LPR Camera

- 1) Input LPR camera Address
- 2) Input LPR camera Username
- 3) Input LPR camera Password
- 4) Select Device Type
 - Click the pull-down button to select the corresponding LPR manufacturer. If not sure about the LPR manufacturer, please choose Default, or contact FAE for support.
- 5) Click Connect
 - If prompt "Succeed to connect to LPR Camera! ", the connection is successful. Otherwise means connection failed.
- 6) Click Add/Update Device
 - Complete LPR camera basic configuration.

After LPR is successfully connected, you can perform basic operations on LPR.

- ◆ Live Video: View LPR camera real-time images.
- ◆ LPR Algorithm: Just Default.
- ◆ Delete From DeviceGroup: If need to delete the current camera, click this button to clear the LPR camera information.



3.5. Driver Camera Configuration

Step 1: Open Gate Configuration

- 1) Click 'Configuration' -> Select 'Entrance...' -> Click 'Driver Camera'

Step 2: Connect Camera

- 1) Input Camera Address
- 2) Input Camera Username
- 3) Input Camera Password
- 4) Select Device Type
 - Click the pull-down button to select the corresponding Camera manufacturer. If not sure about Camera manufacturer, please choose Default or contact FAE for support.
- 5) Click Connect

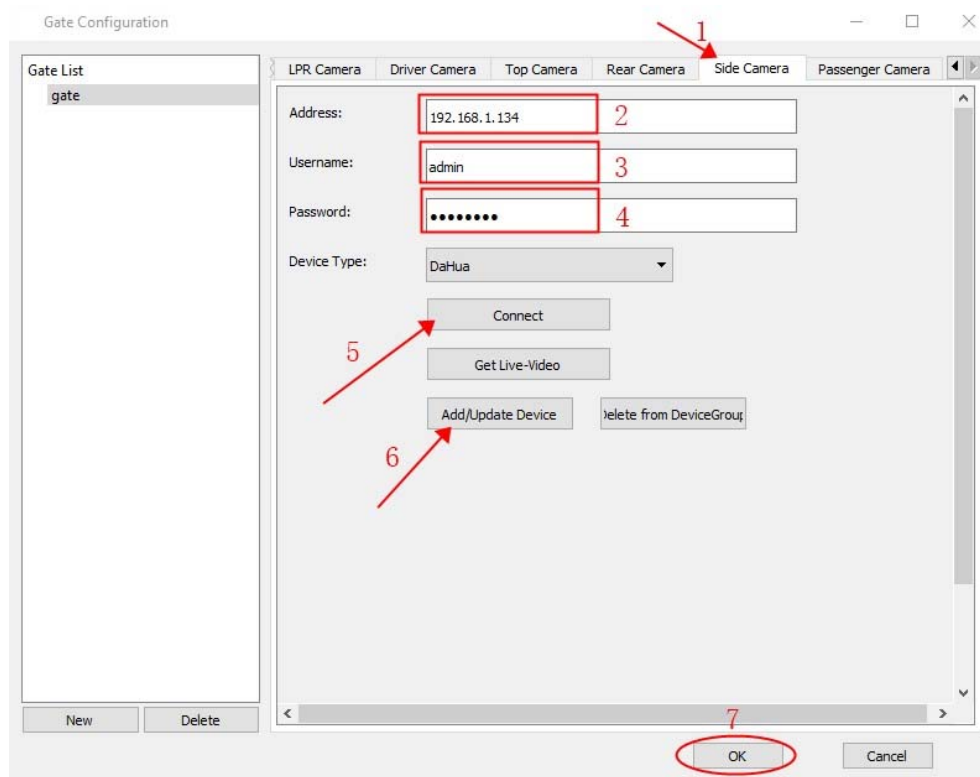
- If prompt "Succeed to connect to camera ! ",the connection is successful.Otherwise means connection failed.

6) Click Add/Update Device

Complete Camera basic configuration.

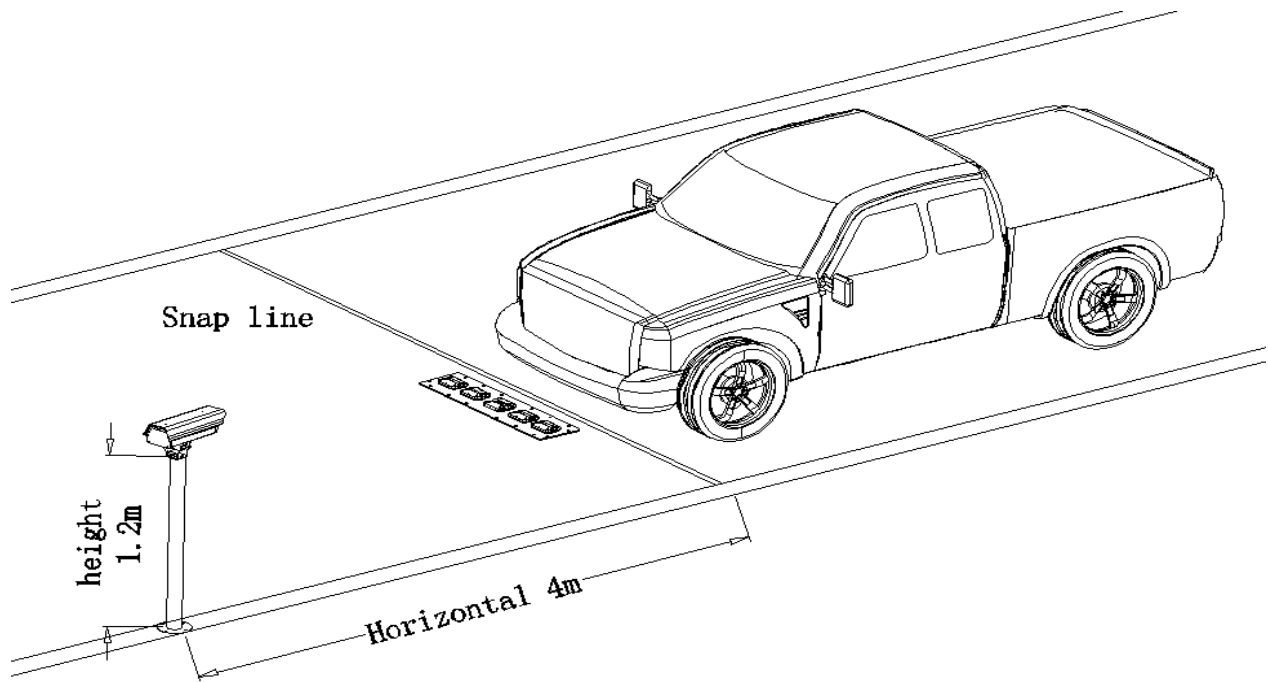
After Camera is successfully connected, you can perform basic operations on Camera.

- ◆ Get Live-Video: View LPR camera real-time images.
- ◆ Delete from DeviceGroup: If need to delete the current camera, click this button to clear the LPR camera information.



4. LPR Camera Setup

4.1. LPR Camera Configuration



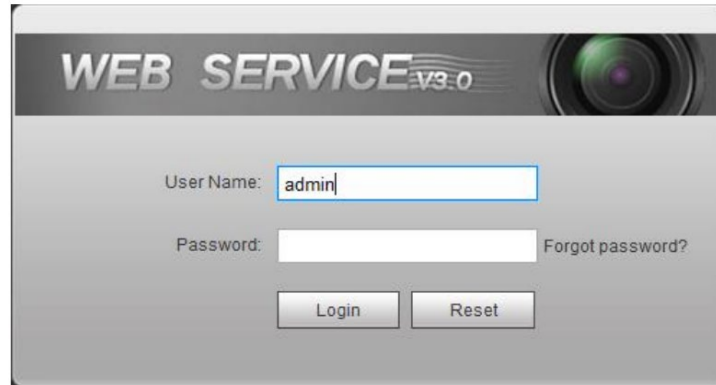
Schematic diagram of LPR erection

Attention:

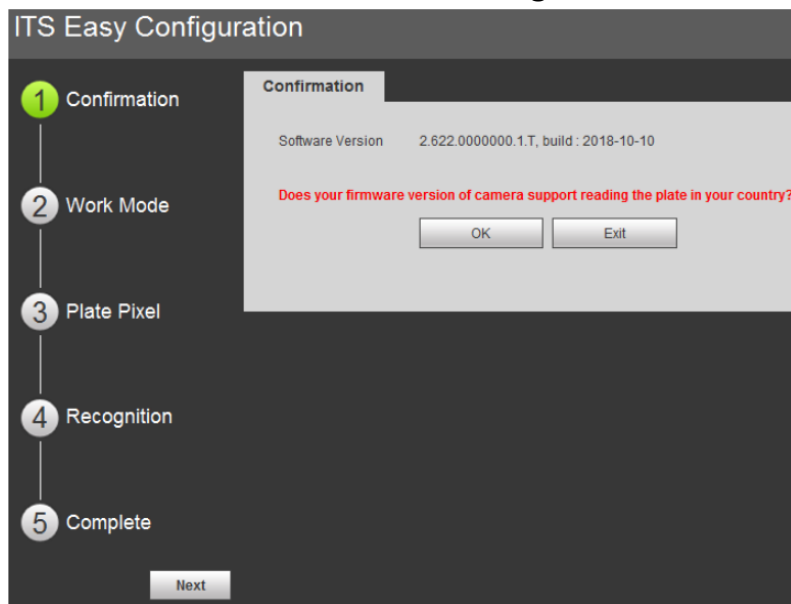
- a、 Camera mounting height 1.2 - 1.5 m, standard 1.2 m;
- b、 The first loop sensor in the direction of vehicle entry should be around 4 meters from the LPR camera.

4.2. LPR Setting

- 1) Open IE browser, enter the IP address of the LPR camera (default IP address is: 192.168.1.128), enter the user name and password (default user name: admin, default password: admin123), click Login;



2) Click 'Guide' to enter the 'ITS Easy configuration' interface, adjust the 'Work Mode' , 'Plate Pixel' , 'Recognition' ;



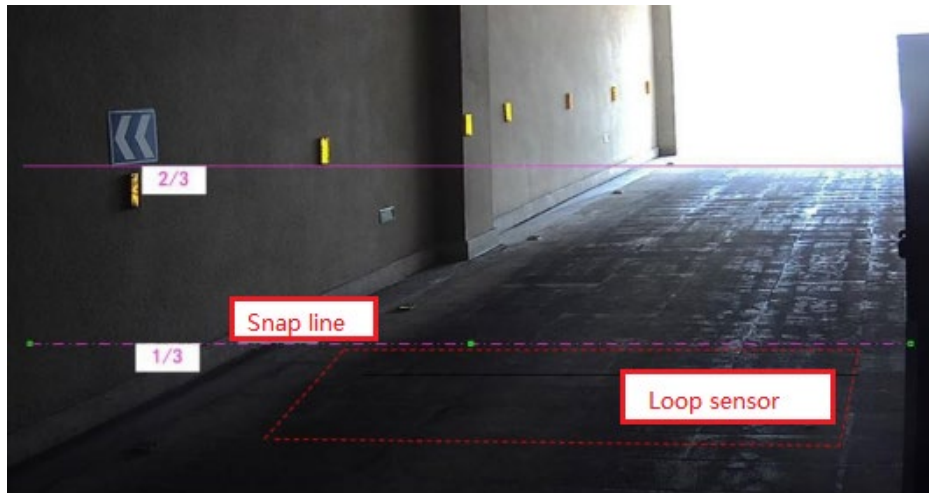
3) After setting up, return to the home page, click 'ANPR Receive' , click



and test that the captured license plate is correct.

4.3. LPR Scene Setup

Please adjust the scene as shown in the following figure:



LPR camera scene setup

- 1) The right side of the lane should be kept inside the camera view, the camera should point to the left;
- 2) The snap line (capture line) is about 1/3 of the lower part of the image;
- 3) Make sure the license plate is horizontal in the camera view;
- 4) Open the image captured by the LPR camera, make sure the horizontal pixel count of the license plate number is between 140-160, as shown in the following figure:



5. Maintenance

5.1. Routine Maintenance

7.1.1 Lens Cover

Needs to clean the lens cover in fixed interval, as contamination of lens potentially will cause scanner malfunction. Please use lens cloth to clean the lens cover, water can be used together with lens cloth.

7.1.2 LED Glass

Needs to wash the LED glass while LED light been blocked by stain on glass, any tools except the lens cloth can be used to clean the glass.

5.2. Replacement Parts

7.2.1 Lens Cover

It's recommend to replace lens cover in 6 month interval.

6. Frequently Asked Questions (Q&A)

Question 1. What should I do if the LED light always on?

Please check if there are any objects within 1 meter range of the scanner module, if so, please remove it;

Please check whether there is a foreign object sticking on the glass of the trigger of the scanner module, and if so, please clean it with a brush or cloth;

Question 2. How to do the open box testing for the under vehicle scanning system?

According to this manual to connect the under vehicle scanner, LPR and open the server software, use a large board to simulate the vehicle go through the top of the scanner (the board should kept about 15cm height over the scanner), LED light will turn on and off automatically during this process and scanned image will appear on the software, together with the real-time video of the LPR camera.

Question 3. What should I do if the undercarriage image not captured clearly?

Please clean the lens cover with lens cloth;

Question 4. What should I do if the license plate is not recognized?

Please log in to the LPR web page, set parameters according to the scene;

Question 5. What should I do if the under vehicle camera does not show the picture?

Please check connection of the combine cable, check the LED light can turn on and off correctly, and check the scanner IP is set correctly;