# LPR Camera User Manual

# Contents

# Vehicle License Plate Recognition Camera

# User Manual - for customer

**Product overview**

Exit & Entrance camera， through the embedded system architecture ,which can achieve the vehicle License Plate recognition and capture function ,Meanwhile with blac k& white list , large angle recognition ,special LP recognition, coil mode filter non-motor vehicles , car color recognition function etc. It wildly used on different kinds of parking lot application.

## 1.1 Product features

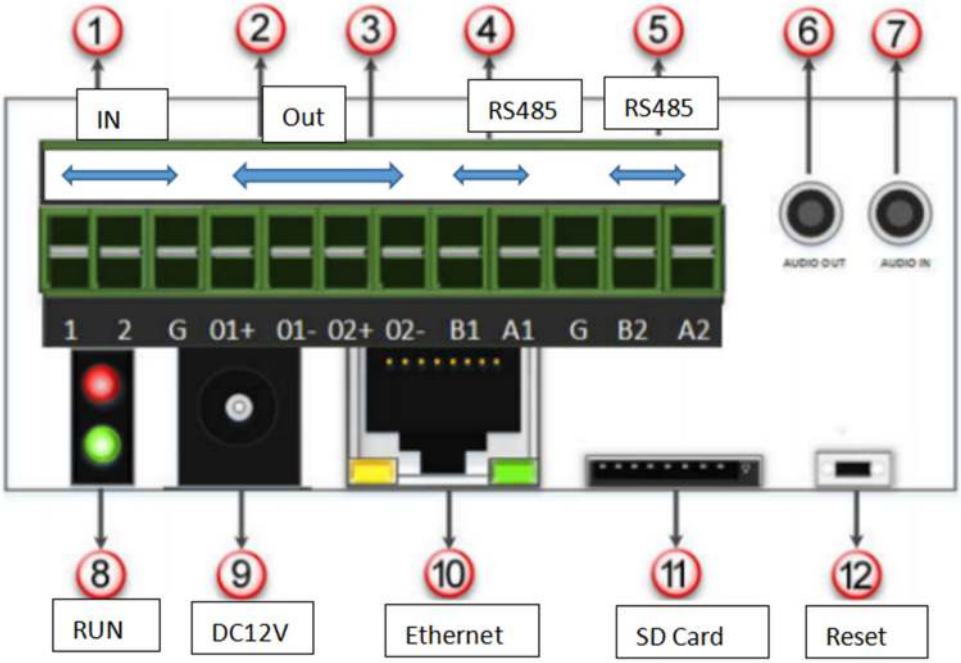
- Built-in vehicle license plate recognition algorithm ;
- Support Black & White list ( Hereinafter referred to as B/W list ) management;
- Built in LED light, can be used for fill-in light at night recognition;
- The algorithm can automatic adjust camera image brightness per to environment light, to ensure the image capture quality whole day;
- The algorithm can automatic adjust camera image brightness per to the vehicle LP brightness ,to ensure LP recognition rate in smooth and backlight environment;
- Support Video ,coil and coil &video hybrid trigger capture mode;
- Prime lens, can support from 2.8 to 10 meters recognition, automatic adjustment algorithm resolution;
- Support remote access and control;
- Support voice broadcast and two-way voice intercom
- Support real-time or offline SD card storage, when network recovery, can automatically upload capture data;
- Supports variety of SDK docking methods, it is more convenient for camera integration and development ;
- Multi-IOs design, control the gate to open, close, normally open, normally closed, receive triggering and anti-crash ground signal, receive multi-channel gate state signal;
- Maximum support for 70° large angle LP recognition;
- Fully support for special LP recognition;
- Supports coil mode non-motor vehicle filtration;
- Faster Recognition of ANPR Cameras (front end) instead of LPR Enginee .

### 1.2 Product Parameter

| Hardware | |
|---|---|
| **Name** | HD all-in-one exit/entrance ANPR/LPR Camera |
| **Processor** | Hisilicon, specialized license plate recognition chip |
| **Sensor type** | 1/3" Progressive Scan CMOS |
| **Lowest** | 0.01Lux |
| **Electronic** | 1/25 to 1/30,000 seconds |
| **Lens** | CS interface, fixed iris, 6mm prime lens |
| **Performance** | |
| **Recognition rate** | ≥99% |
| **Recognizable license plates** | Each Country with Independent License Plate Algorithms |
| **Triggering mode** | Video triggering, coil trigger, vehicle capturing rate≥99.999% |
| **Image output** | 1080P（1920×1080），960P（1280x960），720P（1280x720），D1（704x576），CIF（352x288） |
| **Picture output** | 2 mega-pixel JPEG |
| **Ultra-wide dynamics** | 120dB |
| **Video compression format** | H.264 High Profile , Main Profile, Baseline , MJPEG |
| **Electric and interface parameters** | |
| **Network** | 10/100M network adaptive, RJ45 adaptor |
| **IO interface** | 2-route input/2-route output 3.5mm connecting terminals |
| **Power supply** | AC 220V/DC 12V |
| **Power** | ≤7.5W |
| **Working** | -35℃~+70℃ |
| **Working** | ≤90% (no condensing) |
| **Protection** | IP67 |
| **Surging** | 4KV |
| **Size (mm)** | 355(L)*151(W)*233(H) |
| **Weight** | 2.69kg |

# Product installation

## 2.1 Camera Diagram



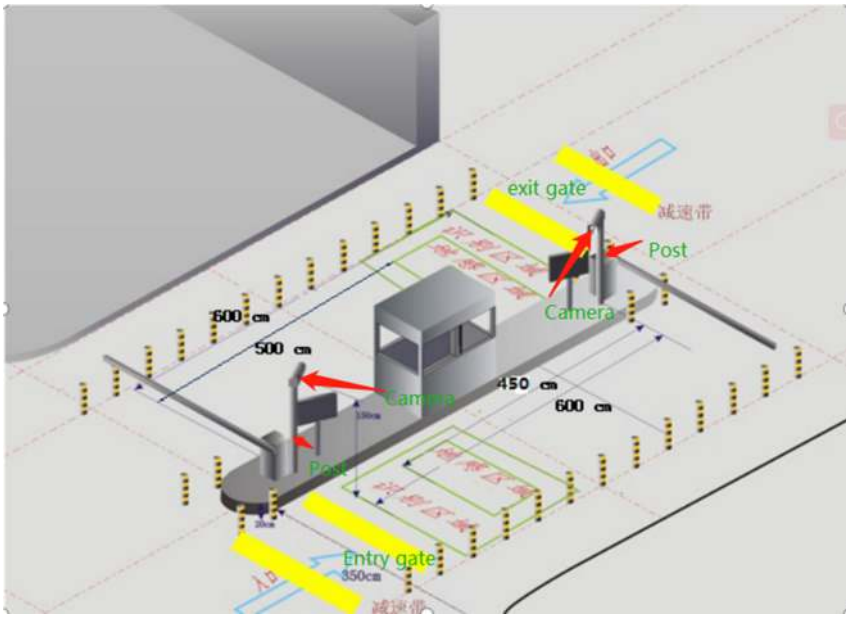

## 2.2 Camera Interface Specification

| Item | Content | Spec | Connectable external equipment(or function) |
|---|---|---|---|
| 1 | Vehicle inspector input | 1/2/G | 1/G Connect vehicle inspector<br>2/G reserved input |
| 2 | Open gate output | ALARM Out O1+/O1- | Connect with gate to open gate |
| 3 | Reserved output | ALARM OUT O2+/O2- | Connect with gate to close gate<br>(via call SDK interface to achieve related function) |
| 4 | RS485 | B1/A1 | Based on RS485 protocol LED control or other related equipment |

| | | | |
|---|---|---|---|
| 5 | RS485 | B2/A2 | Based on RS485 protocol LED control or other related equipment |
| 6 | Audio out | Audio out | Output broadcast channel |
| 7 | Audio in | Audio in | Input broadcast channel |
| 8 | RUN | RUN Light | power indicator |
| 9 | Power supply | DC 12V | Connect DC12V Power supply |
| 10 | Ethernet | ETHERNET | Wired Ethernet interface |
| 11 | Sd card | SD card | store vehicle picture |
| 12 | Reset | Reset | reset button |

## 2.3 Precautions for camera installation

Each exit&entry gate need to install a 1.5 meter post , this post is to install the special camera for license plate recognition，The camera lens points to the ground about 5 meters ahead of the driveway and focuses on the license plate.




Installation Diagram

1. The Camera installation height is 1.5M ; The pitch angle between Camera and ground is about 25 degree.
2. The Camera preferable recognition distance is 4.0～4.5 Meter
3. The adaptive license plate size range is 90～150 pixel
4. The Road width is 3.5 Meter

# Basic Operation Instruction

## 3.1 Configuration

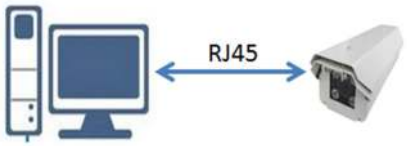
CPU：i3
Graphics Card：Unique , Storage abveo1G
Network：Support Gigabit (network card and switch)
Storage ： >4G
Hard Disc：>500G
Display resolution：Above 1024*768
OS : Win7

PS : A normally computer is enough

## 3.2 Camera Connection with Computer

Input the Camera IP Address ( Camera Factory setting IP is :192.168.55.100 ) at the PC program clvdc_setup_2.0.9.319.exe .

**1st Mode** ： PC connects with camera directly .




PS : In this mode , can't access video via Internet , this mode can be used for adjustment

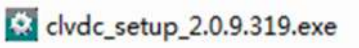
**2nd Mode** ： PC，Inter changer，Router and camera .


PS : In this mode , can access the video via Internet or LAN .

*PS：this specification based on win7，64 bit system；IE11browser，recommend 360 browser*

Remark ： Currently the through Internet access video is not available

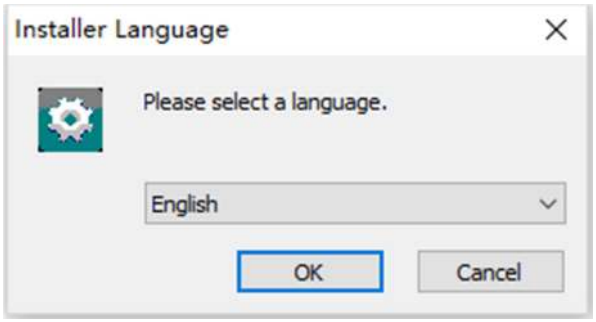
## 3.3 PC　Program Installation



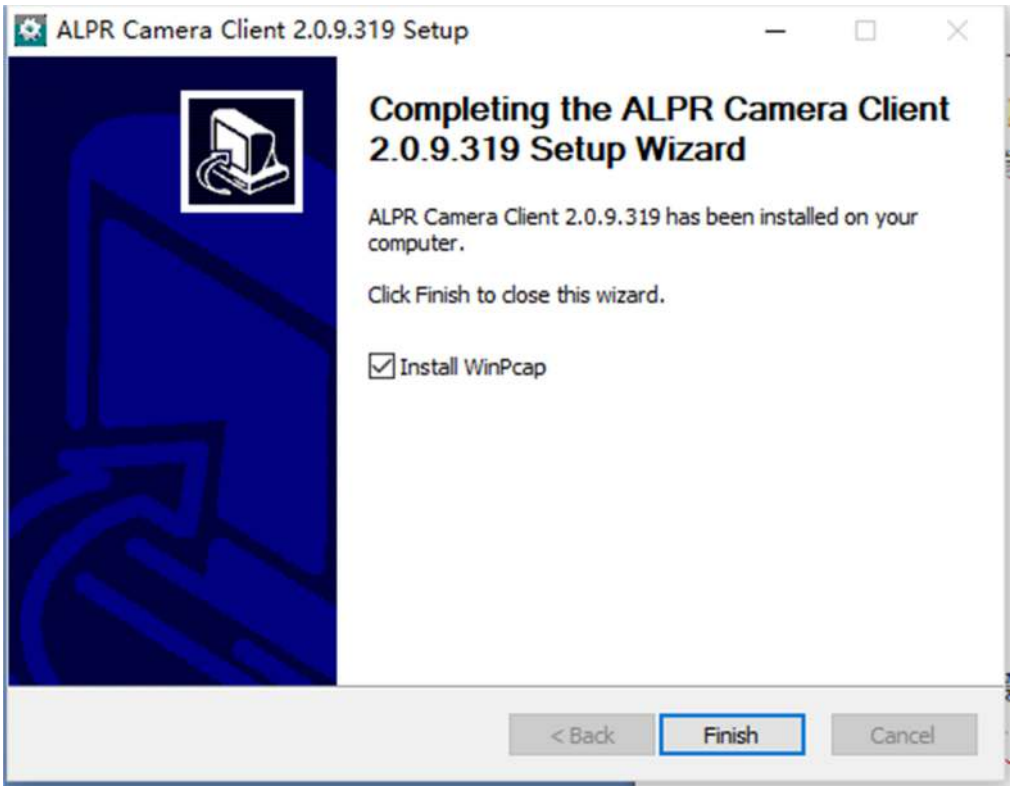
the program used for installation

The first time installation , need to choose the installation language，then proceed the program installation.

1）1st Step：Choose Language “ English”

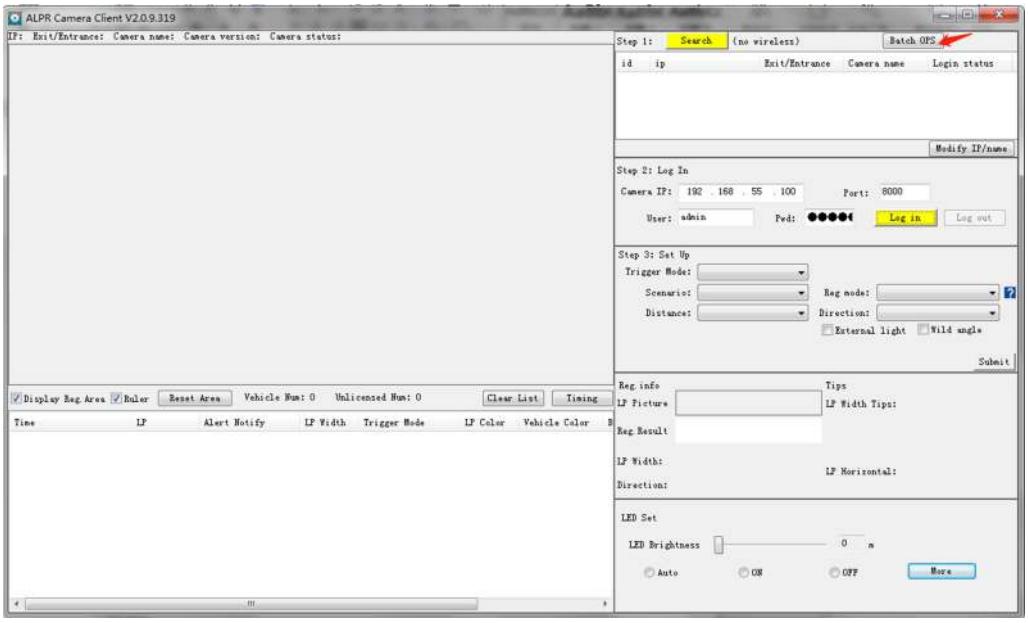


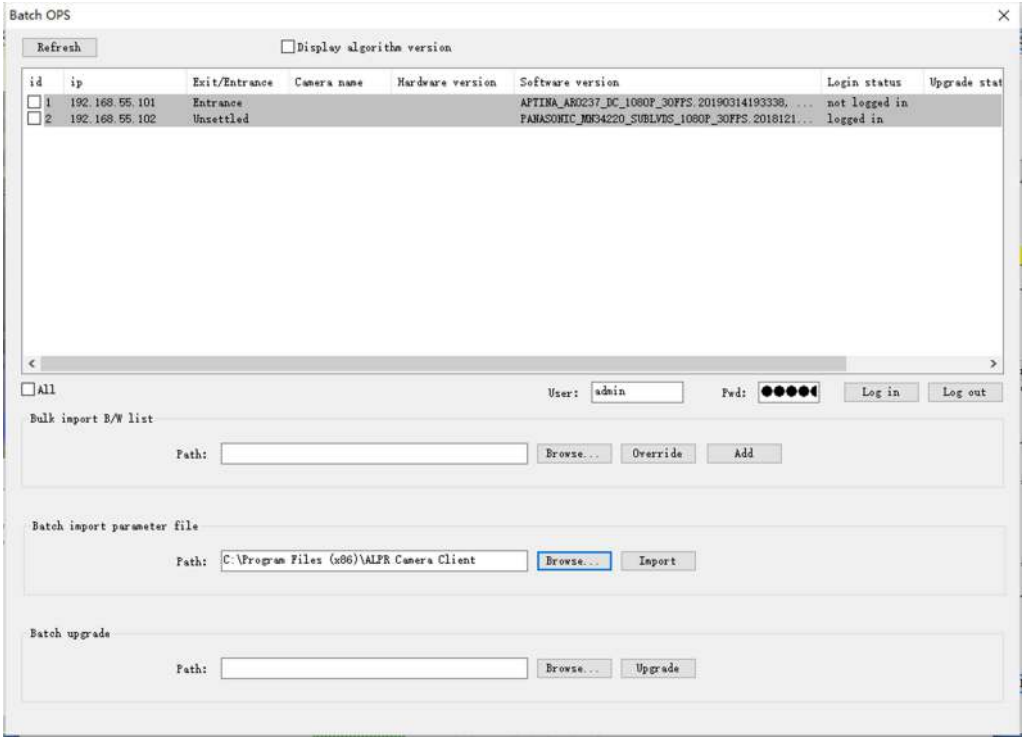

2） Final Step ： Install WinPcap ( if the PC already installed this , please ingore it) , if not , have to install it , if not install WinPcap，then the PC can search the Camera.



## 3.4 Batch Operation

Click “Batch OPS” to proceed batch upgrade, batch input black&white list, and input Parameter etc.




1) When goes into Batch OPS UI , it will automatically search the camera equipment , for Click “ Refresh” to manual search

2) Select the camera to do batch operation

3) For Selected camera , to do “Batch input black&white list”、“batch input parameter file”、“batch camera upgrade” operation .

## 3.5 Video Preview Interface Operation Instruction

The real-time video preview interface is shown below：


**Main interface video preview window**

**The preview window has 5 function areas：**

Main interface menu bar: buttons for each parameter setting page

1)Live video preview area

2) Install guiding-search connection： search connection、 basic parameters setting

3) Alarm information display area

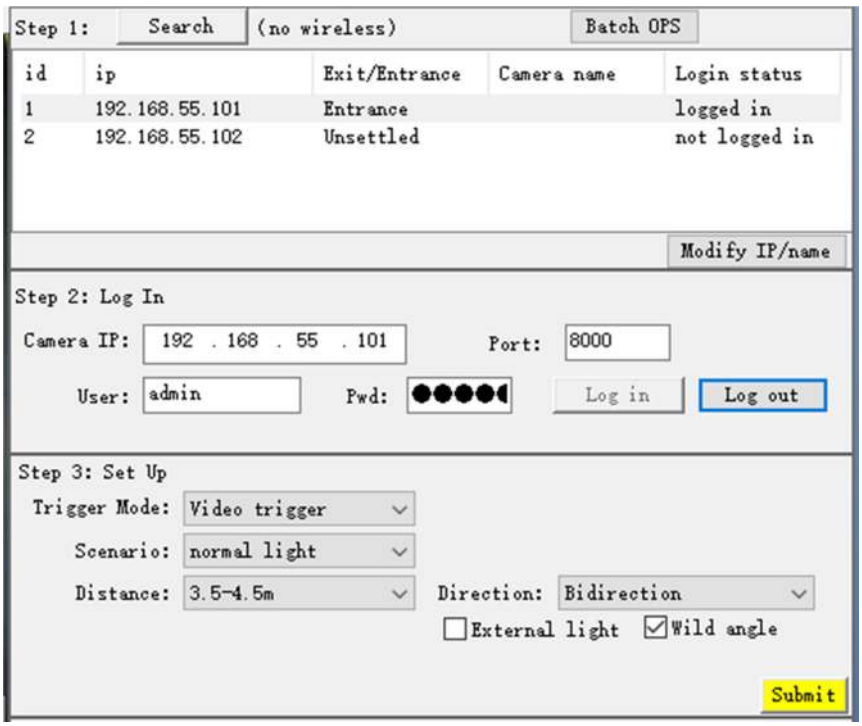
4) Recognition result display area

5) Camera setting : LED set

### 3.5.1 Live video preview area description


| Item | Content | Specification |
|---|---|---|
| 1 | Camera Version | Shows IP address、Exit/Entrance type、Camera Name、Camera version and Camera status |
| 2 | LP recognize area | The blue rectangle area is LP recognition area, can drag the four vertices of the rectangular frame with the mouse to change the recognition area, or you can drag the recognition area to change the position |
| 3 | Display Reg. Area | Display the current recognition result in the lower left corner of the live video |
| 4 | Capture | Force the current picture to be recognized once and give the result |
| 5 | Display Reg. Area, Ruler | **Display recognition area in preview window**: blue rectangular frame<br>**Show LP width ruler in the preview window**: compare the LP width in the video with a reasonable interval of 90-150 pixels |
| 6 | Vehicle Num | Count the numbers of licensed cars exit and entrance, can be cleared by pressing the clear button |
| 7 | Unlicensed Num | Count the numbers of unlicensed cars exit and entrance, can be cleared by pressing the clear button |
| 8 | Clear list | Clear all alarm information and traffic statistics in the alarm information column |
| 9 | Timing | Manual time adjustment with computer time |

### 3.5.2 Installation- Search Connection




**1st Step：Search**

1) Click "Search" , search all the cameras in the same LAN, then Mouse , then click the mouse to select the camera you want to log in.

2) Double Click the camera , can revise the IP address , Exit/Entrance type, Camera Name

**2nd Step : Camera login in or login out ）**

Via the 1st step select camera , click " Log in " , or manual input the IP address to login in .

**3rd Step：Parameter setting**

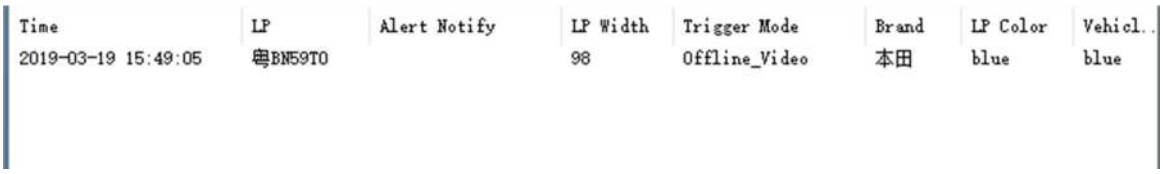
Per to the actual environment to setting the license plate recognition basic parameter

| Item | Content | Specification |
|---|---|---|
| 1 | Trigger Mode | Setting per to actual situation two types : IO Coil Trigger and Video Trigger .<br>**IO Coil Trigger**：this mode can connect ground sense coil 、geomagnetism external trigger device，via the external trigger device link camera to do capture and recognition.<br><br>**Video Trigger**：In this mode, license plate recognition and capture are all automatic video recognition by algorithm . License plate recognition and capture are completed in the set detection area.<br><br>**Hybrid mode**：in this mode, including both coil trigger and video trigger ， which can through external equipment link camera to do recognition and capture . Or when the external equipment is broken , it still can through video trigger to do recognition and capture. |
| 2 | Scenario selection | Via the actual Scenario to do selection. |
| 3 | Install Distance | 5x options for selection：<3.5M、3.5-4.5M、4.5-5M、5-6M、>6M , setting the proper distance per to the actual license plate position.<br>PS：When the distance revised , the camera will auto reboot. |
| 4 | Direction (car coming) | From Top to bottom: only recognize the direction of the front of the car, filter the rear<br>From bottom to top: only recognize the direction of the rear, filter the front<br>Bidirection：both recognize from front or rear direction |
| 5 | External light | Not available |
| 6 | Wild angle | Not Available |

## Above Item 2 Scenario mode selection Spec：

| Item | Content | Specification |
|---|---|---|
| 1 | Normal light | Suit for normal ground exit&entry scene |
| 2 | Basement light | Suit for backlight environment, license plate brightness of the dark basement scene |
| 3 | Normal front or back light | Suit for normal front or back light scene |
| 4 | Ultra front lighting | Suit for ultra environment front lighting over exposure Scene. |

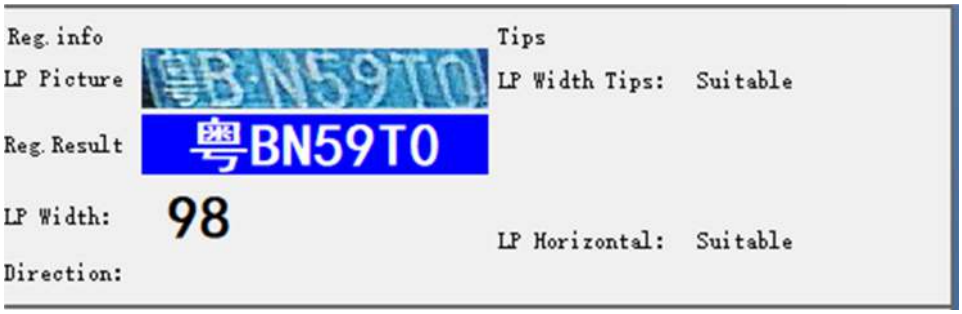
## 3.5.3 Alarm Information display area



| Time | LP | Alert Notify | LP Width | Trigger Mode | Brand | LP Color | Vehicl.. |
|---|---|---|---|---|---|---|---|
| 2019-03-19 15:49:05 | 粤BN59T0 | | 98 | Offline_Video | 本田 | blue | blue |

| Item | Content | Specification |
|---|---|---|
| 1 | Time | LP (License Plate) capture time |
| 2 | LP | Shows the LP number |
| 3 | LP width | Shows LP width， via the LP width to judge if the recognition distance conform to algorithm optimal distance . 90-150 is proper distance . <90 or >150 , will shows red . It means the recognition distance need to adjust. |
| 4 | Trigger mode | Shows trigger mode ： Real-time/Offline video, Real-time/Offline hard trigger, Real-time/Offline soft trigger.<br>Real-time means the camera and platform network are connected , offline means the camera and platform network is not connected . |
| 5 | Brand | Shows the vehicle brand |
| 6 | LP color | Show the LP color recognition result |
| 7 | Vehicle color | Shows the vehicle body color recognition result |
| 8 | Black&White list | Shows the LP is in white list or black list , or shows the license plate is in period of validity or not . When the LP is not in black&white list , it shows temporary vehicle . |
| 9 | Vehicle type | Shows the vehicle type recognition result ( eg :trucks ,bus, coach or car etc) |

### 3.5.4 Recognition result display area




1) **It shows** : LP picture, Reg.Result, LP width ,Direction, LP Width Tips and LP Horizontal Tips.

**2) Adjustment Tips - LP width Tips ：**

Suitable：LP size is suitable , no need to adjust the install distance or recognition area

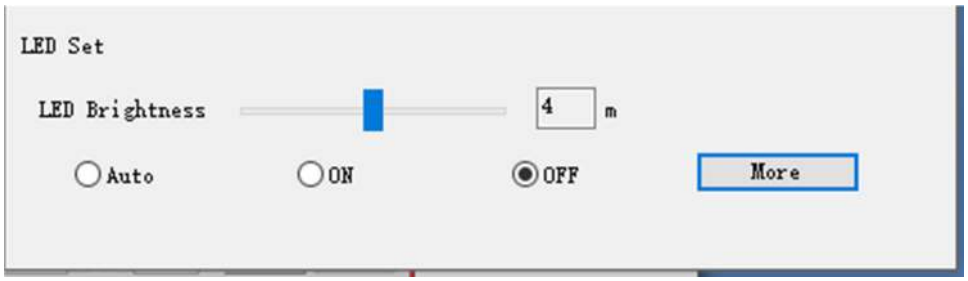
Too Big： if the Tips is too big , means need to reduce the install distance, or turn the upper edge of the recognition area upward.

Too Small：if the Tips is too small, means need to increase the install distance, or turn the upper edge of the recognition ares downward.

**3) Adjustment Tips - LP Horizontal angle：**

If the Tips shows the angel too big is suitable or too big , when the Tips is too big ,need to adjust the camera cardan joint , ensure the LP keep Horizontal .

### 3.5.5 Camera Setting : LED Set




1) LED Set ( Auto , ON or OFF ) , LED Brightness adjustment

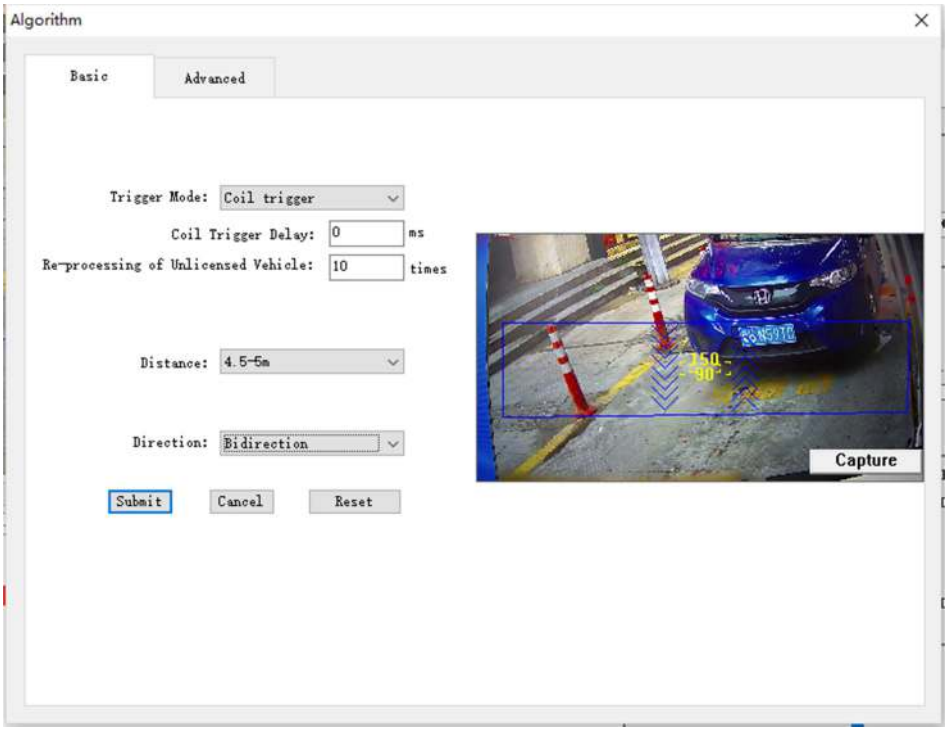
2) Click " More" to do more parameter setting.

## 3.6 Camera parameter setting

### 3.6.1 Algorithm parameter setting

The algorithm including basic and advanced setting , for some of the algorithm basic parameter can refer to 3.5.2 .

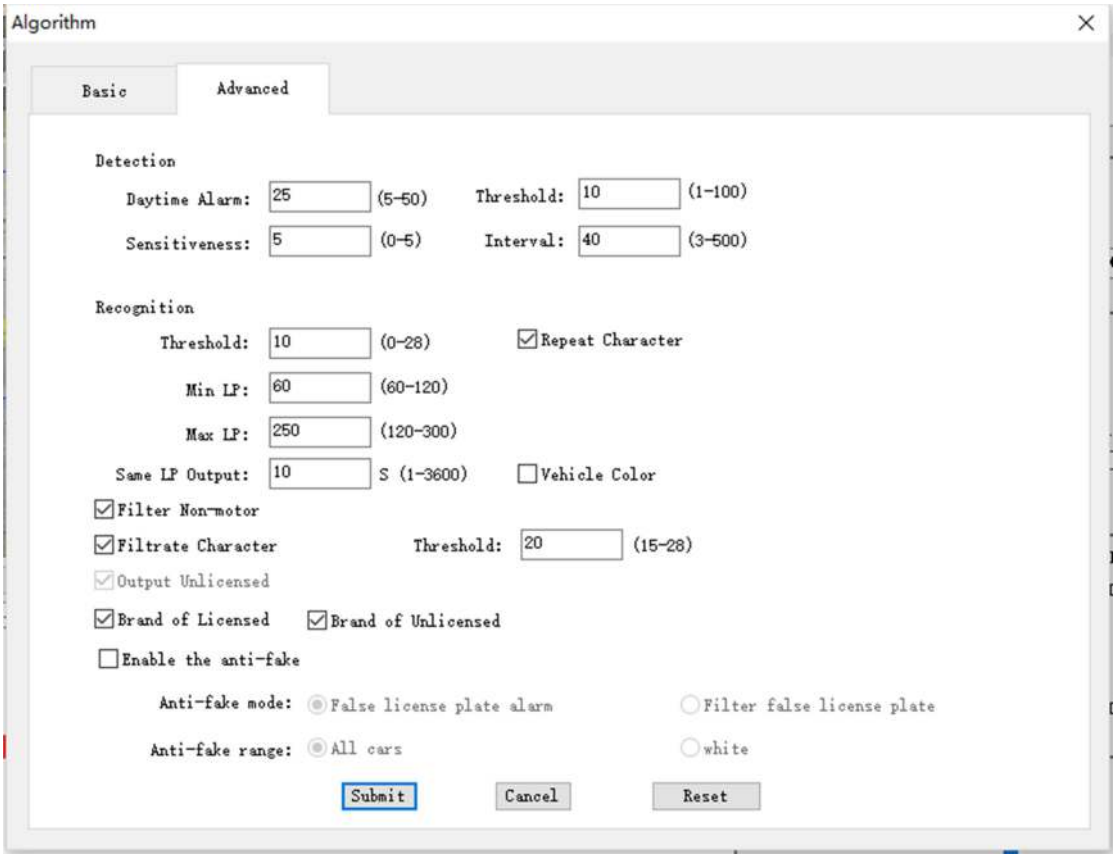
#### 3.6.1.1 Algorithm Basic parameter setting




| Item | Content | Specification |
|---|---|---|
| 1 | Coil Trigger delay | Trigger delay:0-2000ms，the camera detects the ground sensor coil signal at the set time interval, and the interference signal less than the set time interval will be filtered out. At the same time, the signal will not be processed by the camera until the set time interval is met, which can solve the problem of recognition when the license plate Angle is too large or the distance is too far<br>Note：this setting may cause the output to slow down. Please configure under the guidance of a technician. By default, the Settings do not need to be modified. |

| | | |
|---|---|---|
| 2 | Re-processing of Unlicensed Vehicle | When Algorithm recognize result is unlicensed plate, the algorithm re-recognize per to the setting times, when recognize LP info. , output this LP info. , and no further execution, or the final output of the unlicensed car after the full number of processing and stop . |
| 3 | Recognition area setting | The Blue rectangle area is LP recognition area , can can drag and drop the four vertex of the rectangular box with the mouse to change the recognition region, or you can drag and drop the mouse in the recognition region to change the position |
| 4 | Direction | From Top to bottom: only recognize the direction of the front of the car, filter the rear<br>From bottom to top: only recognize the direction of the rear, filter the front<br>Bidirection： both recognize from front or rear direction |

### 3.6.1.2 Algorithm Advanced parameter setting



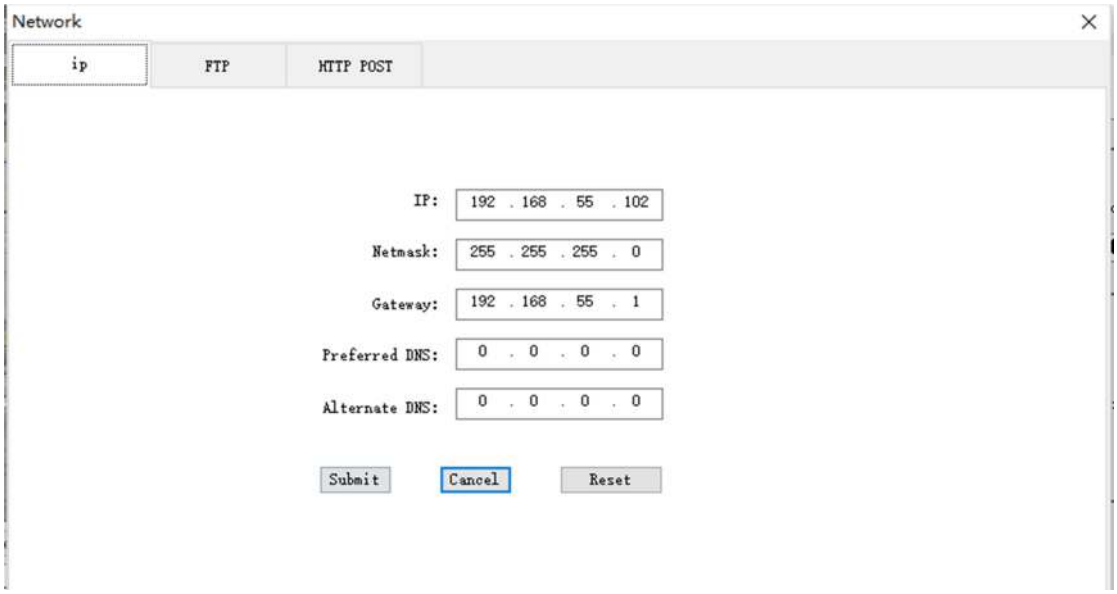
**1) LP Parameter setting**

| Item | Content | Specification |
|---|---|---|
| 1 | Threshold | License plate recognition score value, the larger the value set, the more stringent license plate recognition, can reduce the false recognition rate but increase the probability of vehicle leakage |
| 2 | Min LP | The Min pixel width of the recognized LP |
| 3 | Max LP | The Max pixel width of the recognized LP |
| 4 | Same LP Output | This parameter can be used to set the output interval of continuous recognition results for the same LP in seconds |
| 5 | Filtrate Character | If people clothing characters and non-motor vehicle characters are caught by mistake in the project, then can click this option to filter such interference |
| 5 | Repeat Character | In the project, if there are several consecutive same Numbers or letters in the license plate character, this option can be checked to optimize the recognition of such license plate |
| 9 | Vehicle color | Click this option to output vehicle color info, totally 10 colors : Black, Blue,Gray,Brown，Green，Purple，Red, White,Yellow, dark color at night. |
| 11 | Output Unlicensed | Click it can output the unlicensed car |
| 12 | Brand of Unlicensed | Click it , the main brand of the unlicensed car can be output in the alarm information bar, and the main brand, sub-brand and era can be overlaid in the snapshot picture |
| 13 | Brand of Licensed | Click it,can output the main brand of the unlicensed car in the alarm information bar, and overlay the main brand, sub-brand and year in the snapshot picture |
| 14 | Enable the anti-fake | When it opens , can detect the LP picture on phone or print LP is fake , to avoid fake LP open the gate to escape fees . |
| 15 | Anti-fake mode | 1) Fake LP alarm：Fake LP still has alarm info and pictures<br>2) Fake LP filter: Fake LP can’t show alarm and picture, but still can shows on Video preview |
| 16 | Anti-fake range | 1) All the car : Anti-fake to all the cars<br>2) White list : Only anti-fake to the cars in White list |

## 3.6.2 Network parameter setting

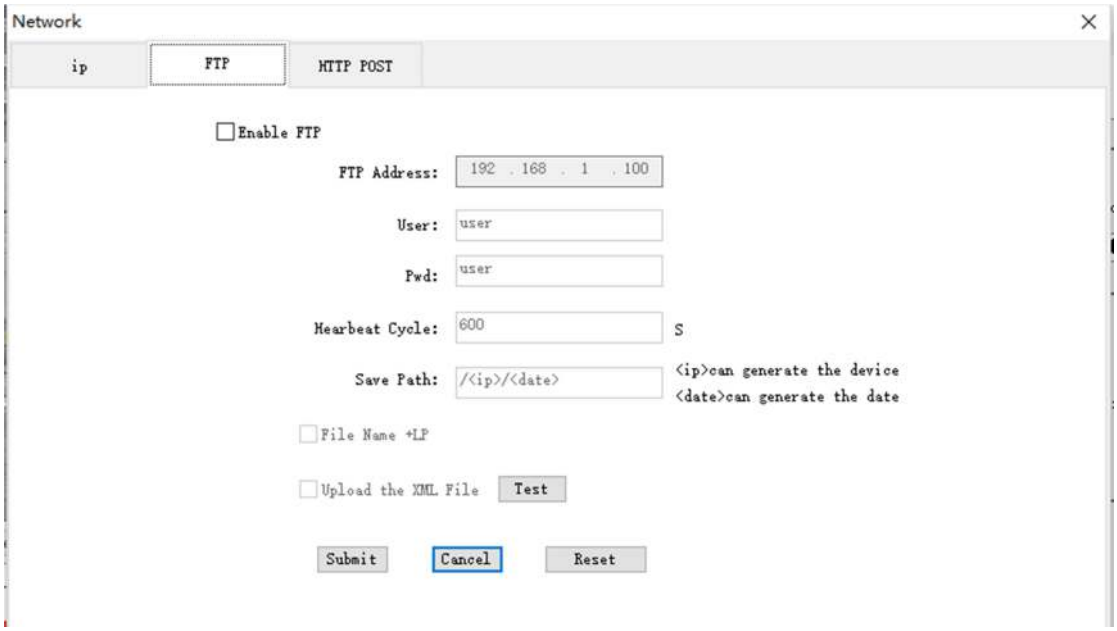
Network parameter including： IP parameter, FTP parameter、HTTP POST parameter

**1) IP parameter setting : setting camera network IP address , Gateway etc**




| Item | Content | Specification |
|---|---|---|
| 1 | IP | Setting camera IP address |
| 2 | Netmask | Setting subnet mask |
| 3 | Gateway | Setting Gateway |
| 4 | Preferred DNS | Setting the preferred DNS address for domain name resolution |
| 5 | Alternate DNS | Setting the alternate DNS address for domain name resolution |

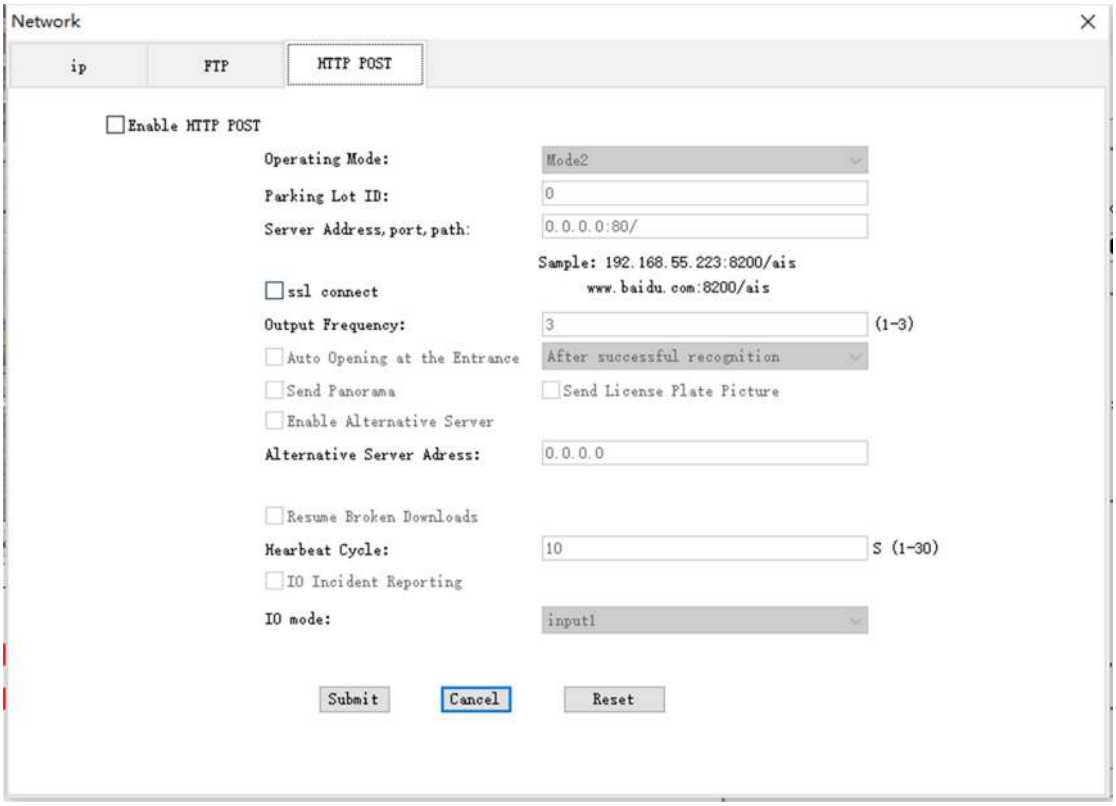
**2）FTP parameter setting：use to open camera FTP upload picture related setting**




| Item | Content | Specification |
|---|---|---|
| 1 | FTP address | Setting FTP Server address |
| 2 | user | Setting the user name for accessing the FTP server |
| 3 | Pwd | Setting the password for the user name accessing the FTP server |
| 4 | Hearbear cycle | Heartbeat packet sending interval between camera and FTP server |
| 5 | Save path | **Setting the picture save path on server**<br>When set to "/ <ip> / <date>" default format, it means that the path is automatically generated and stored according to the camera's ip and date .<br>**For Example**：Camera IP is: 192.168.55.100，date is: 2017 -7-10，<br>the save path is ： 192.168.55.100/20170710 |
| 6 | File name+LP | License plate number included in uploaded picture name |
| 7 | Upload the XML file | Click it , then every upload picture will have a corresponding XML file , to record the related Alarm information . |

### 3 . HTTP POST parameter setting

When the server uses the HTTP POST protocol to interface with the camera, the camera will set HTTP POST related parameters。 **( Recommend Mode 5)**

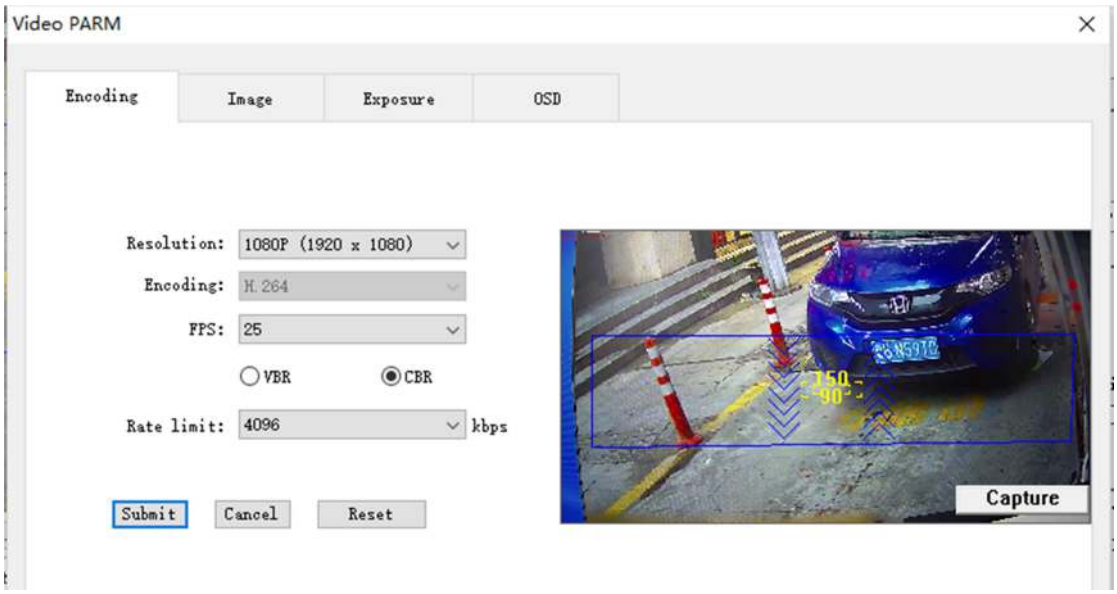



| Item | Content | Specification |
|---|---|---|
| 1 | Parking Lot ID | Setting the parking lot ID number |
| 2 | Server Address, Port, Path | Setting HTTP POST server accessing path |
| 3 | ssl connect | Support ssl connect， use openssl encryption for license plate information, heartbeat, etc. |
| 4 | Output frequency | You can set the maximum number of output frequency the camera sends, the default is 3 |
| 5 | Operating mode | Select different working mode， then sending information per to different protocols.<br>Eg : Mode 2/5： support LP number、 LP color、 timing、 Parking lot ID、Camera ID、PL panorama picture data and close-up picture data（base64 encoding）content sending.（please see detail protocol docking at《HTTP POST function Specification.docx》.<br>**Recommend to use mode 5** |

| | | |
|---|---|---|
| 6 | Auto Opening at the Entrance | The gate open mode can be set to the automatic opening mode for the entrance camera.<br>The opening mode is divided into three categories: successful opening, all opening, and feedback opening |
| | After successful recognition | **Camera setting:**<br>If the recognize result is a vehicle with a LP, the barrier will be automatically opened;<br>If the recognized result is a vehicle without a LP, the barrier will not be opened. |
| | All Open | **Camera setting:**<br>No matter the recognition result is with or without LP , the barrier open . |
| | Feedback open | **Server setting：**<br>The camera get the feedback information from server, the server decide open the barrier or not . |
| 7 | Send Panorama | Setting whether to send panorama picture to server or Not . |
| 8 | Send License Plate Picture | Setting whether to send License Plate picture to server or not . |
| 9 | Enable Alternative Server | Setting alternative server, alternative server used to Receive alarm information and capture picture, camera doesn't receive feedback information from alternative server |
| 10 | Resume Broken Download | When camera disconnect with HTTPPOST server network, the camera will automatically save the recognize result to SD card , when the network connection with the server is restored, the data stored on the SD card when the network is disconnected will be uploaded to the server . |
| 11 | Hearbeat Cycle | Setting heartbeat cycle, Heartbeat detection and reporting regularly . |
| 12 | IO Incident Reporting | 1) IO incident report：set whether to report IO incident or not<br>2) set the type of reported IO . |

### 3.6.3 Video Parameter

The video parameter including : Encoding , Image , Exposure , OSD Parameter




**1) Encoding parameter used to set video preview , video related parameter .**

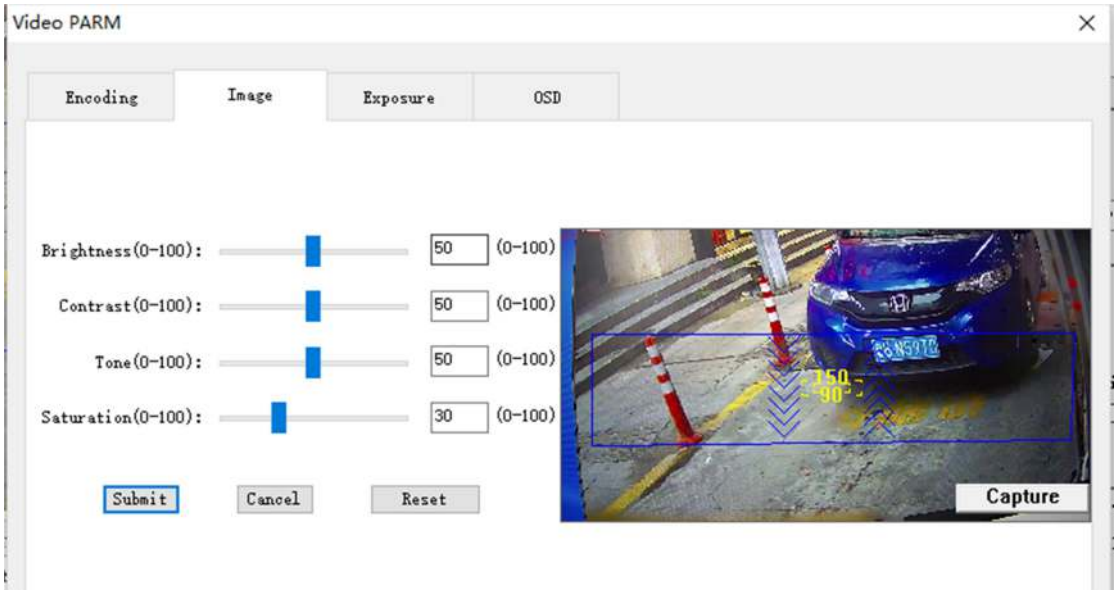
| Item | Content | Specification |
|---|---|---|
| 1 | Resolution | Setting the video pixel size |
| 2 | Encoding | Encoding mode used for video compression：H.264/MJPG |
| 3 | FPS (Frame rate) | Setting the camera current image FPS : recommend 25fps |
| 4 | VBR ( Video Bit Rate) | Automatically adjust the VBR according to the picture content during encoding |
| 5 | CBR ( Constant Bit Rate) | Encoding at a CBR when encoding |
| 6 | Rate limit | Maximum code rate |
| 7 | Reset | Restore encoding parameters to factory default values |

# Video encoding parameter notes:

1) When the encoding mode is MJPEG , the IE browser does not support preview of this format video, you need to use Google or Firefox browser to browse.
2) The address format for playing MJPEG video stream using Google or Firefox browser is as follows:：192.168.55.100:8000/preview_old.html ( PS : the IP address must be changed per to the camera actual IP address )
3) RTSP Video access address (PS : IP need to change per to the camera actual IP

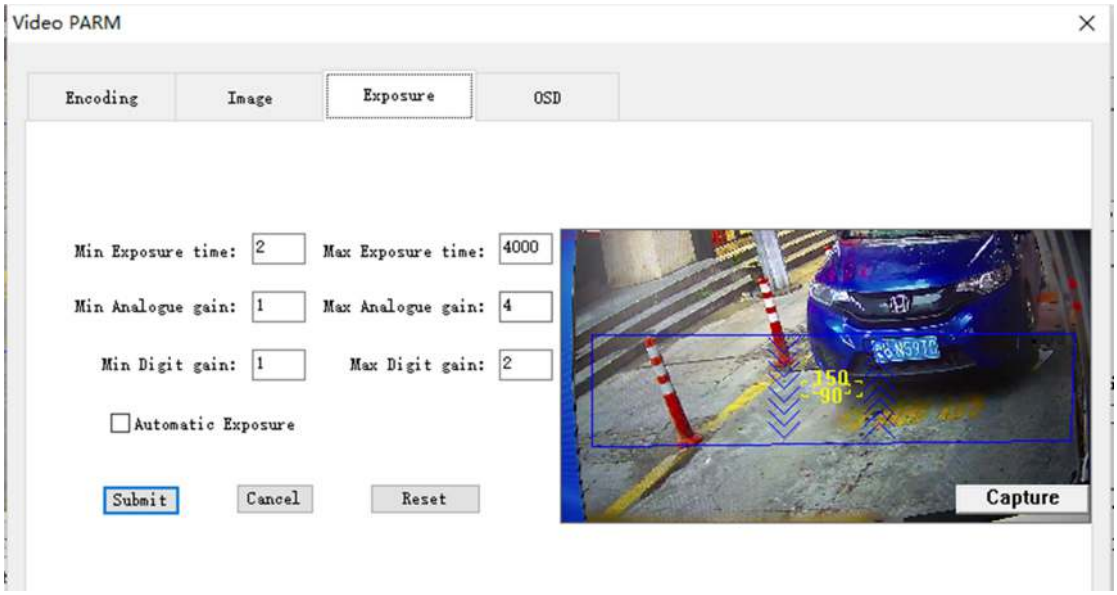
address : rtsp://192.168.55.100:554

### 2) Image Parameter



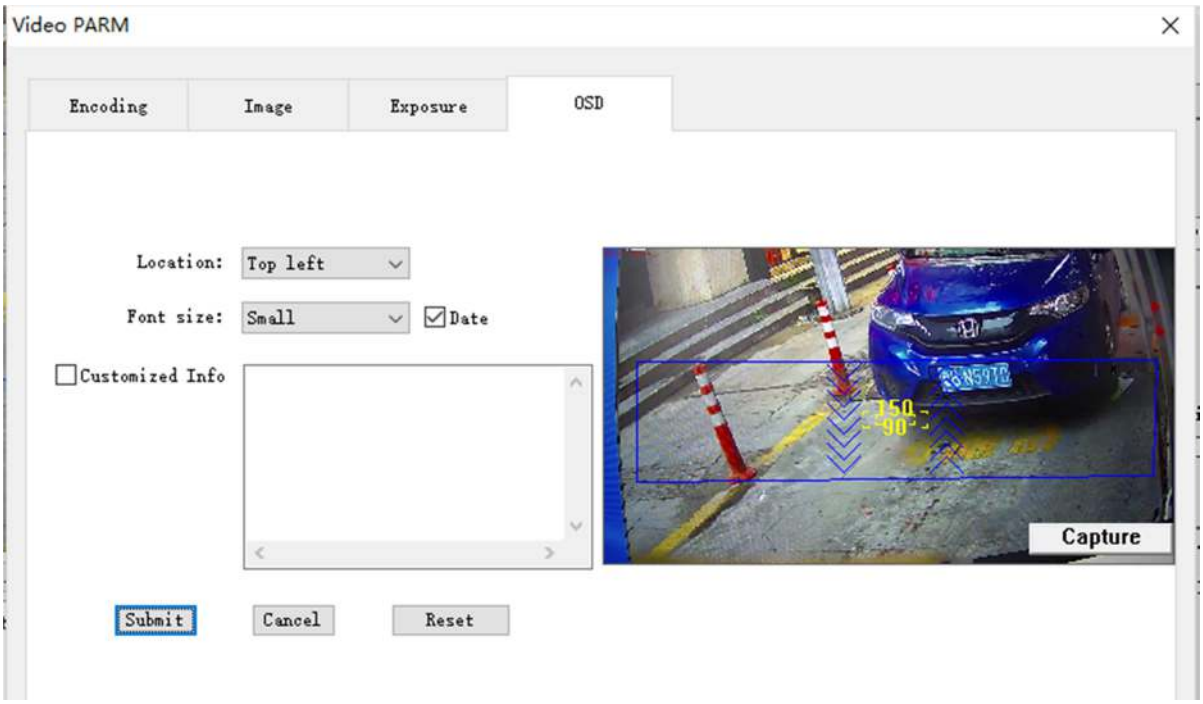

| Item | Content | Specification |
|---|---|---|
| 1 | Brightness | Adjust the camera brightness : default is : 50 |
| 2 | Contrast | Adjust the camera image contrast, default is : 50 |
| 3 | Tone | Adjust the camera image Tone, default is : 50 |
| 4 | Saturation | Adjust the camera image saturation , default is :30 |
| 5 | Reset | Reset the image parameter to factory default value |

### 3) Exposure parameter




| Item | Content | Specification |
|---|---|---|
| 1 | Exposure time | Adjust the video brightness value |
| 2 | Analogue gain | Image sensor analogue gain adjust video brightness value |
| 3 | Digit gain | Image sensor digit gain adjust video brightness value |
| 4 | Automatic Exposure | This mode can automatic adjust exposure time parameter (etc) per to recognize area's light change, to automatically adjust image brightness . |
| 5 | Reset | Reset the exposure parameter to factory default value |

**4 ) OSD Parameter**

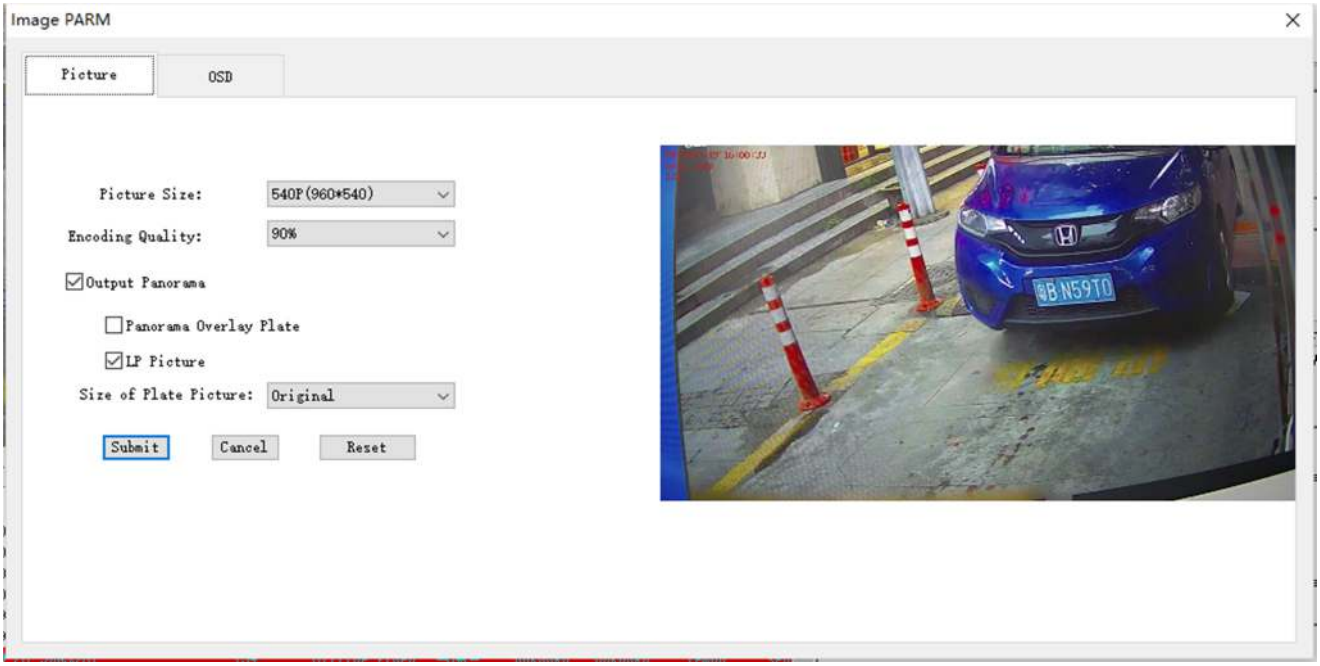



| Item | Content | Specification |
|---|---|---|
| 1 | Location | Select OSD Information location in video |
| 2 | Font size | Font Size option : Big , Middle , Small |
| 3 | Date | Click it will show date and timing information |
| 4 | Customized Info | Overlay Info can be customized : eg : No. 5 parking lot ,No.8 exit gate . |
| 5 | Reset | Reset the OSD parameter to factory default value |

### 3.6.4 Image parameter

Image parameter setting capture image related parameter

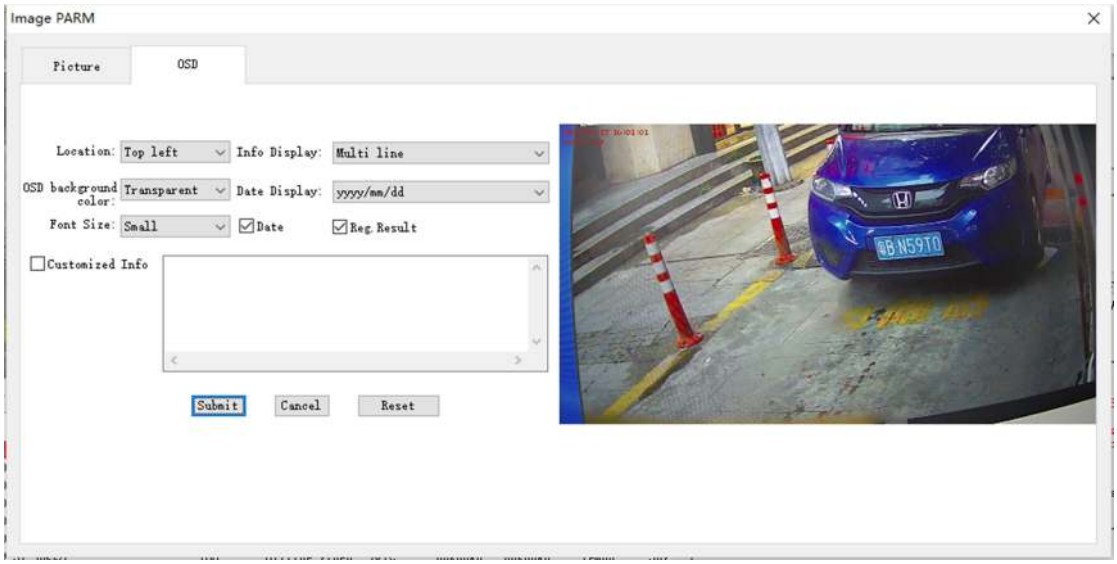
## 1）Image Setting




| Item | Content | Specification |
|---|---|---|
| 1 | Picture size | Set picture pixel size |
| 2 | Encoding quality | Set the encoding quality percentage<br>Overlay character font size : Big , Middle ,Small for option |
| 3 | Output Panorama | Camera recognize LP will output Panorama image |
| 4 | LP picture | After the camera recognizes the LP , it will output a close-up view of the LP |
| 5 | Panorama Overlay Plate | Click it, the LP close-up image will be overlay on the output panorama |
| 6 | Size of Plate Picture | Per to camera type, can select the Panorama image increase 1-3 times or not |
| 7 | Reset | Reset the image parameter to factory default value |

## 2) OSD Parameter

Setting the picture OSD overlay information related

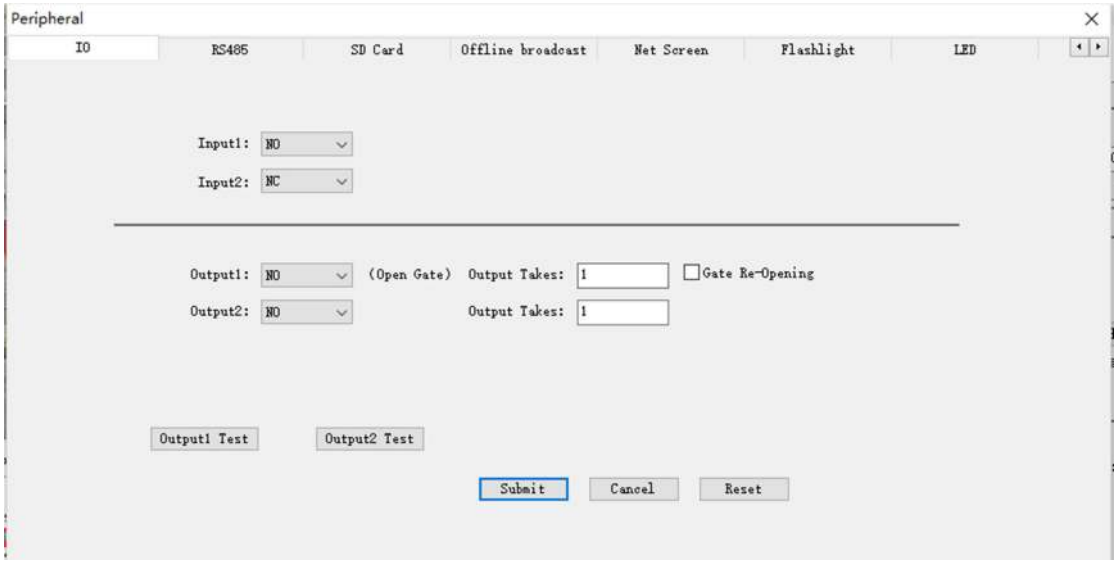



| Item | Content | Specification |
|---|---|---|
| 1 | Location | Selection the location for putting the OSD overlay information . |
| 2 | Info Display | Select single line or multi line |
| 3 | OSD background color | Select background transparent or Black |
| 4 | Date Display | yyyy/mm/dd or yyyy 年/mm 月/dd 日 |
| 5 | Font size | Overlay font size option : big , middle , small |
| 6 | Date | Click it , will show overlay time and date Info |
| 7 | Reg. Result | Click it, will show overlay recognition result on picture |
| 8 | Customized Info | Overlay Info can be customized : eg : No 5 Parking lot , No.8 exit gate |
| 9 | Reset | Reset the OSD parameter to factory default value |

## 3.6.5 Peripheral parameters

Peripheral parameter including IO parameter、RS485/RS232 parameter、SD card 、Offline Voice Broadcast、Network LED screen control、Strobe light control、 fill light control 、7 function modules in total

### 3.6.5.1 IO Parameter setting



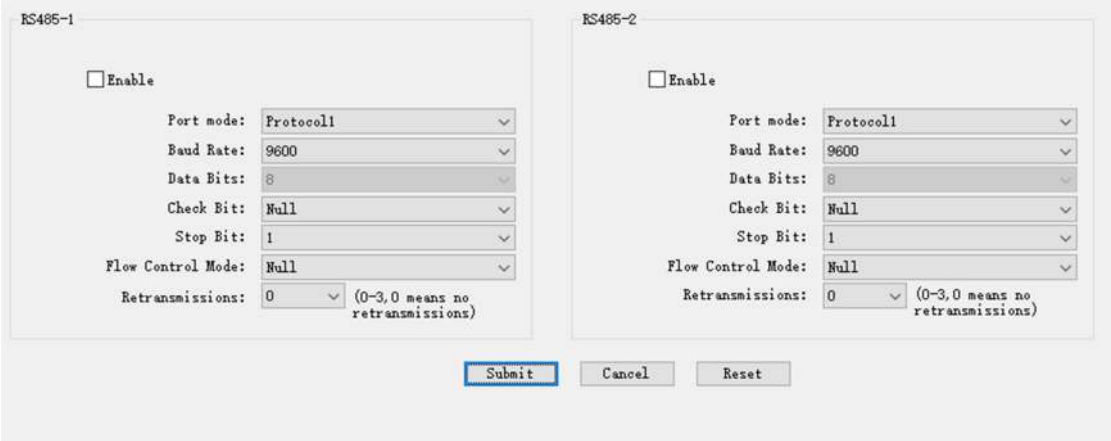

| Item | Content | Specification |
|---|---|---|
| 1 | Input 1 | Select whether input 1 is NO (Normally Open)or NC( normally closed ) by default |
| 2 | Input 2 | Select whether input 2 is NO (Normally Open) or NC (Normally Closed) by default |
| 3 | Output1 | Set output1 relay Open or Close time |
| 4 | Output2 | Set output2 relay Open or Close time |
| 5 | Gate re-opening | 1) Ground sense trigger mode : when vehicle keep at ground sense coil , the plat form will release gate open signal . This function will continue to output the signal through the switch output 1 , to avoid under the car following situation , the rear car can't enter the stadium normally.<br>2) Under video trigger mode : camera alarm input2 link with coil , when the vehicle keep at coil . when recognize LP and release gate open signal , this function will continue output signal through output 1 ,to avoid under the car following situation ,the rear door can't enter the stadium normally . |
| 6 | Output1 Test | Click this button , then will give a trigger signal to IO1 to test output is valid or not . |
| 7 | Output2 Test | Click this button , then will give a trigger signal to IO2 to test output is valid or not . |
| 8 | Reset | Set IO parameter to factory default value |

**The 2nd time gate opening Notes:**

1) The 2nd time opening only suitable for entrance gate , can suitable for exit gate .

2) When the 2nd gate opening function is open , the time of alarm output IO1 need to use default parameter 1s , can't change to other value , otherwise , it will affect gate opening .

### 3.6.5.2 RS485 Parameter



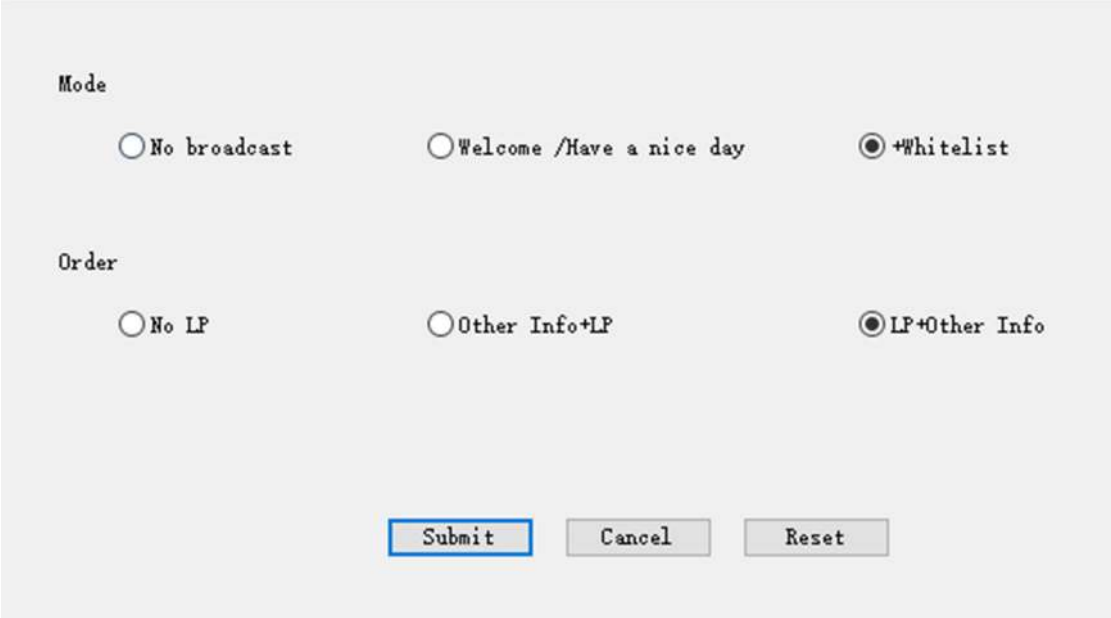

| Item | Content | Specification |
|---|---|---|
| 1 | RS485/RS232 | The camera support 2 types of ports to communication |
| 2 | Port communication parameter setting | Set Baud Rate, Check bit, Stop bit, Flow Control Mode, and Data Bits fixed 8 |
| 3 | Port mode | Select port working mode : protocol 1-4、transparent port、LED display control、Mixed Mode . |
| 4 | Protocol | LP protocol 1-4 correspond different communication protocol , default is protocol 1 . |
| 5 | Transparent port | The port as transparent access , can only proceed data forwarding |

| | | |
|---|---|---|
| 6 | Mixed Mode | When camera connect with platform working mode is transparent port, when camera disconnect with platform , port mode is protocol1 . |
| 7 | LED display control | The current support LED control card is customization |

### 3.6.5.3 SD Setting


| Item | Content | Specification |
|---|---|---|
| 1 | Status | the current SD card working status . |
| 2 | Capacity | Shows SD card capacity , already used or available capacity . |
| 3 | Storage Mode | Network disconnect storage：when camera is disconnect with platform, SD card store the LP capture result<br>Real-time storage：whether camera connect or disconnect SD card store the LP capture result<br>Not Stored：SD card don't stored |
| 4 | Format | Format the SD card , will clear all the data . |
| 5 | Uninstall | Before removing the SD card, need to uninstall the SD card. |
| 6 | Refresh | Refresh the SD card status |
| 7 | Disconnection | When network disconnect , the data stored on SD card.<br>When network connect again , will upload the data to platform automatically . |

### 3.6.5.4 Offline Voice Broadcast




| Item | Content | Specification |
|---|---|---|
| 1 | Offline Video broadcast | a) Camera need to insert SD card, and SD card stored voice file<br>b)When camera is disconnect with platform, will automatically broadcast when has the recognition result<br>c)Camera AUDIO OUT need to connect with audio output equipment |
| 2 | Mode | Set broadcast mode : No broadcast/ (Welcome /Have a nice day)/+Whitelist |
| 3 | Order | Set broadcast by order: No LP/ Other Info+LP /LP+other Info |

### 3.6.5.5 Network LED screen control


| Item | Content | Specification |
|---|---|---|
| 1 | Enable | Click it ： IP and port can be set |
| 2 | IP | Set IP， Default is : 192.168.188.80 |
| 3 | Port | Set port , Default is 2001 |

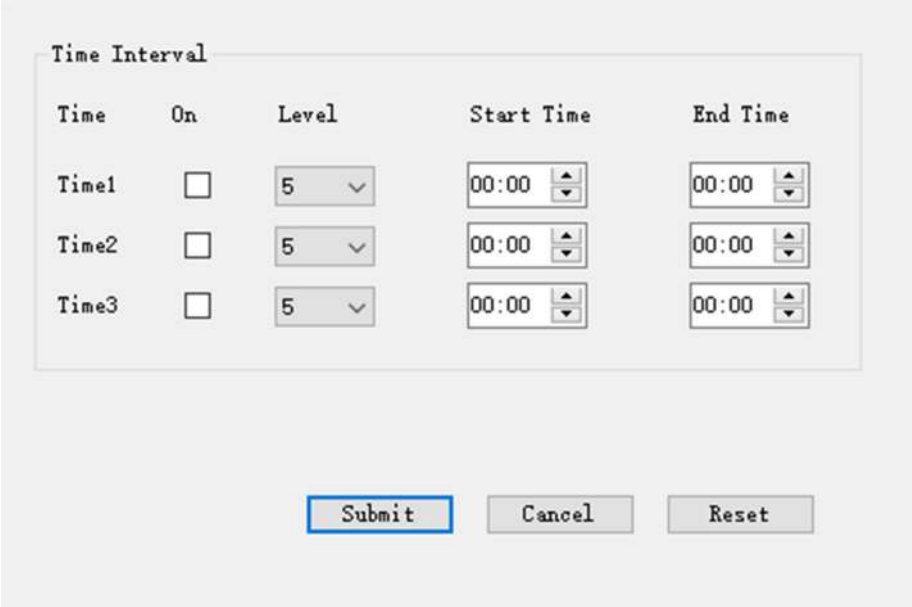
### 3.6.5.6 Strobe light control


| Strobe light Control Configuration and Result Spec. | | | |
|---|---|---|---|
| Switched On/Off by Cam | Switch Control | Configuration | Result |
| Off | Photosensitive | Sharp-Flash | Light flash when vehicle coming , day and night switch time per to photosensitive |
| Off | Photosensitive | Normal Lighting | Normal lighting ,day and night switch time per to photosensitive |
| On | Camera （Light without photosensitive ） | Sharp-Flash | Strobe light is not bright at daytime, only flash at night when vehicle coming . Day and night switch per to Camera |
| | | Delay | After the coil is triggered, the alarm information will be output after the set delay time |
| | | Duration | The duration of strobe light bright |
| On | Camera (Light without photosensitive) | Normal Lighting | Strobe light is not bright at daytime , normal light at night Day and night switch time per to camera . |

**Strobe light parameter setting notes :**

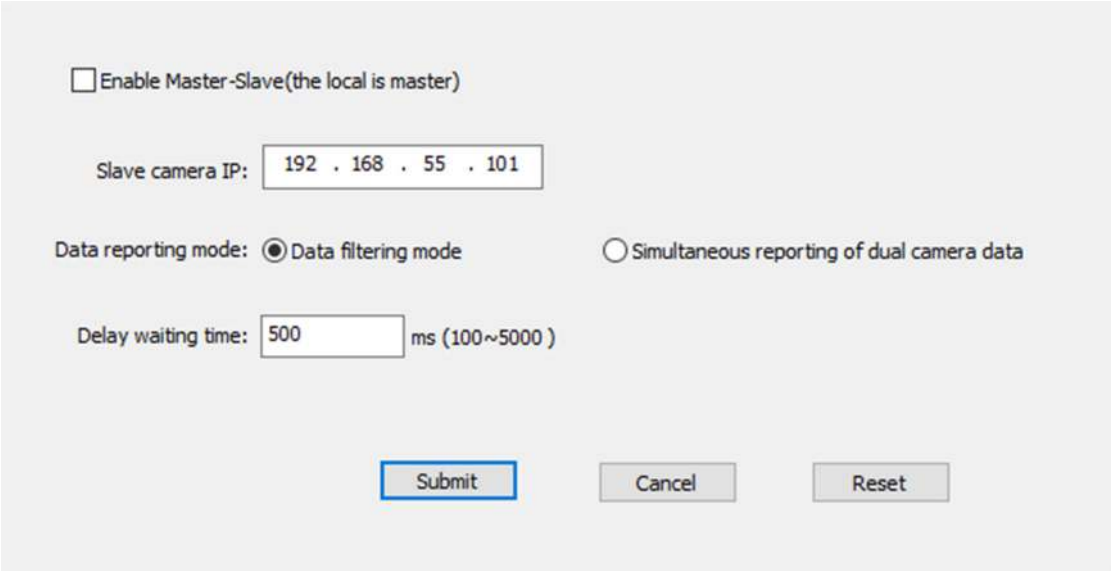
1) The Strobe light mode only support under coil trigger mode
2) Strobe light need to connect the camera alarm output IO2， when the strobe light is open , the alarm IO2 can't be used for others .
3) The Delay time and Duration time are to ensure the strobe light keep light status during camera recognition . So the system will mandatory set delay time can't longer than light time .

### 3.6.5.7 Built-in Fill-in light control




| Item | Content | Specification |
|---|---|---|
| 1 | Light brightness | Set light brightness per to request : 1 is light off, 12 is the brightest. |
| 2 | Light switch mode | Automatic： Image control light ON or OFF<br>Always ON ： Light mandatory ON<br>Always OFF： Light mandatory OFF |
| 3 | Time Interval control | 1. Automatic mode： during time interval , light control by time interval ; out of time interval , light control by image .<br>2. Always On Mode： during time interval ,light control by time interval ; out of time interval , light is always ON, bright level per to built-in light bright.<br>3. Always OFF Mode： during time interval , light control by time interval; Out of time interval , light is always OFF. |

### 3.6.5.8 Master-Slave Mode




| Item | Content | Specification |
|---|---|---|
| 1 | Enable Master -Slave | When Master-Slave mode is open , the local is master, receive recognize result from camera , and report the result to platform. |
| 2 | Slave camera IP | Set Slave camera IP at the Master Camera side, the Slave camera will report the recognition result to Master Camera. |

| | | |
|---|---|---|
| 3 | Data reporting mode | 一、Data filter mode<br>1) Master Camera recognize LP， during the delay waiting time interval , if Master Camera get Slave Camera recognize result, then Master Camera make judgement , report identified result to platform ;<br>2)The Slave Camera recognize the LP first , will report the result to Master Camera ;During the Delay waiting time interval , the Master Camera also output recognize result, then the Master camera make judgement , report identified result to platform ;<br>3) When the recognition results of the Master Camera or the Slave Camera exceed the waiting time, the Master camera will report two results to the platform according to the recognition order<br>二、Simultaneously reporting of dual camera data<br>The Master Camera and Slave Camera Recognition result both report to the platform. |
| | Delay waiting | Under Data filter mode , the time limit parameter to judge whether the Master-Slave Camera filters the recognition result is within the time limit |

**Notes：**

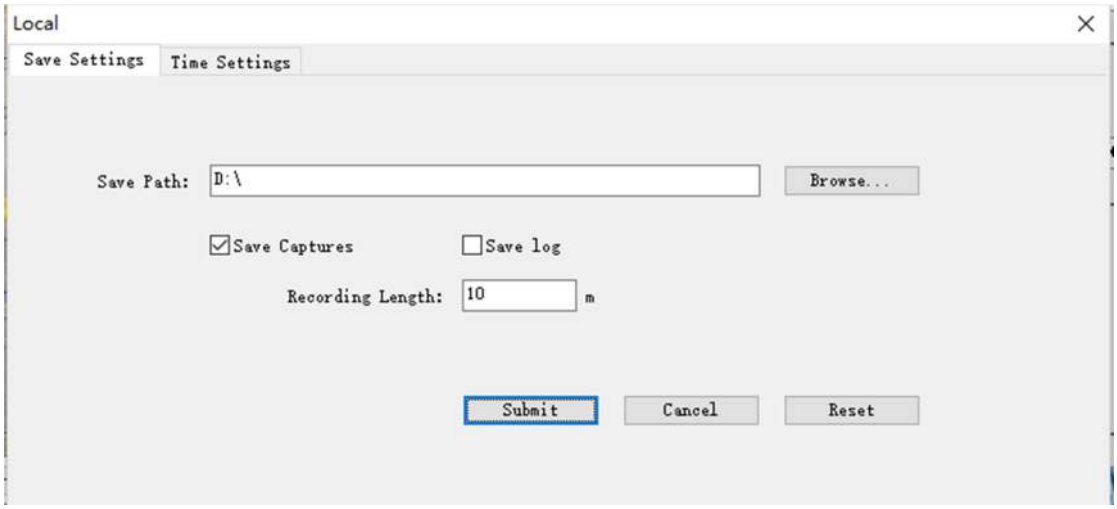
1) The Slave Camera doesn't need to set any "Master-Slave camera parameter "（If the Master and Slave Camera set each other as Slave Camera , there will have the problem of data sending to each other)

2) The Platform only need to connect Master Camera , the Master Camera report data to platform （Master camera won't filter the information receive at IE browser , so also including Slave Camera recognize result .

3) The Master Camera connect ground sense coil use coil trigger mode or mixed trigger mode , when the Master Camera coil trigger recognition , will send a Simultaneously recognition signal to Slave Camera immediately , If recognize result is non-motor vehicle and the non-motor vehicle filter is set from the camera, the recognition non-motor vehicle result will not be output from the Slave camera.

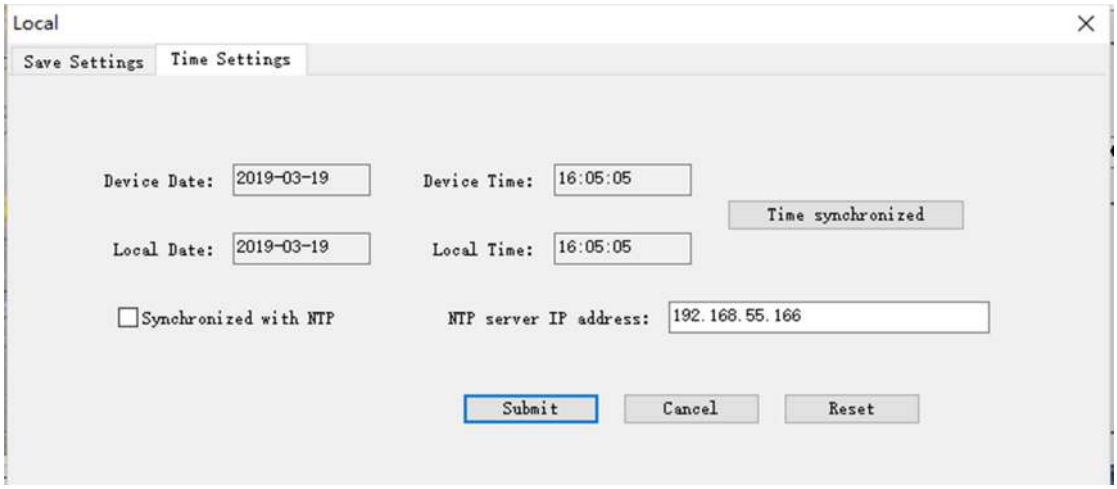
### 3.6.6 The Local Parameter

#### 3.6.6.1 Save Settings



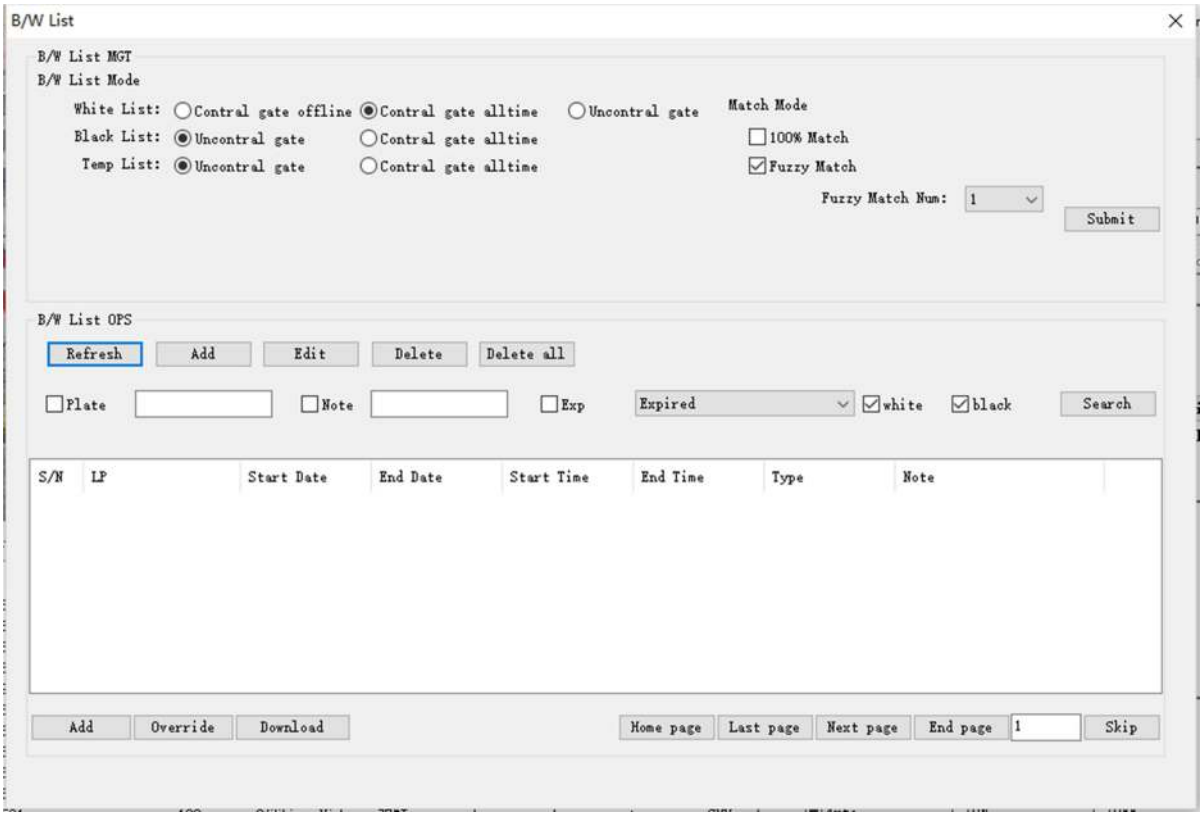

| Item | Content | Specification |
|---|---|---|
| 1 | Save Path | Save Path for the image and and Video, the program will automatically build up capture and video path to save captures and video data , also a subdirectory will be built： IP\ Year\month\day, eg：D:\capture\192.168.55.100\20170730 D:\video\192.168.55.100\20170730 |
| 2 | Save Captures | Save Captures or not |
| 3 | Save Log | Save IE log or not |
| 4 | Recording Length | Set each recording length |

### 3.6.6.2 Time Settings




| Item | Content | Specification |
|---|---|---|
| 1 | Time Synohronized | Clicking the button, the camera synchronizes the date and time with the current computer host |
| 2 | Synchronized With NTP | The camera automatically calibrated periodically with the NTP server time |
| 3 | NTP server IP address | Set NTP server IP address |
| 4 | Set the time Zone | Set the time Zone per to the Camera's time Zone |

### 3.6.7 B/W List




| Item | Content | Specification |
|---|---|---|
| 1 | White List | Control gate offline：camera connect with platform, the platform connect white list to open the gate; when the camera disconnect with platform, camera connect with white list.<br>Control gate all time：Camera connect white list to open the gate<br>Uncontrol gate：white list not control the gate open |
| 2 | Match Mode | 100% Match：recognition result complete same with white list<br>Fuzzy Match：the number or character match the white list by the number of allowed mismatches |
| 3 | Black List | Set Uncontrol gate or Control gate all time |
| 4 | Temp List | Set Uncontrol gate or Control gate all time |

**B/W (Black&White ) List OPS：**

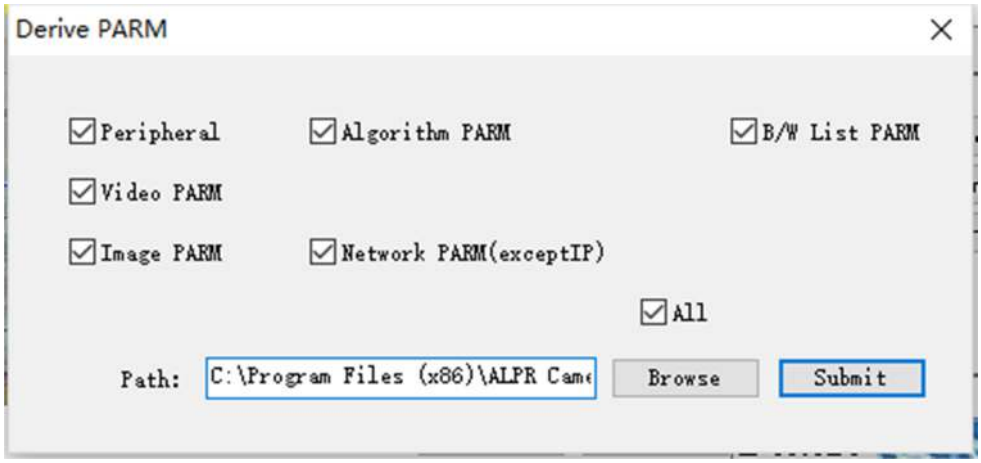
1、 For B/W list, Add ,Edit, Delete, Delete all、 Refresh ,Search .

2、 For B/W list, Plate , Note ,Exp(Expired), white, black search

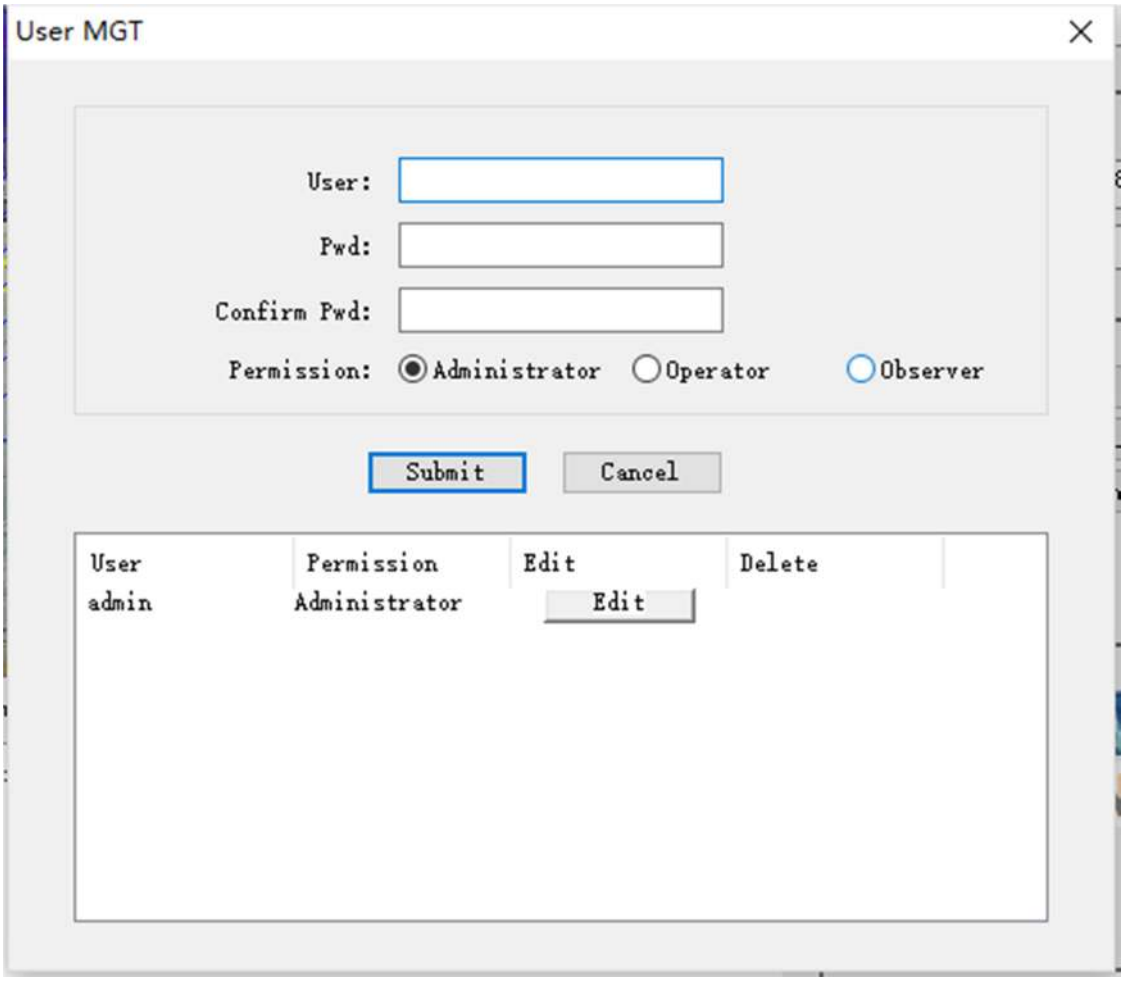
3、 Batch add or Override ,Download Function

### 3.6.8 Derive PARM

Select the Derive PARM option and path , click submit to derive



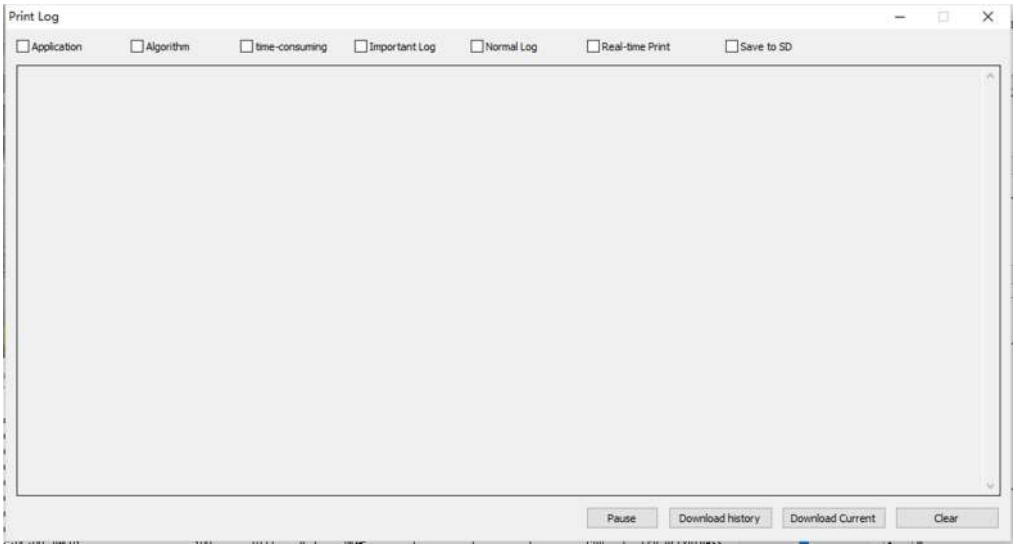
### 3.6.9 User MGT (Management)




| Item | Content | Specification |
|---|---|---|
| 1 | Permission | Administer： All the operation permission<br>Operator： no administer permission , others have<br>Observer： only observe permission |
| 2 | User | User must be English Characters and numbers,and begin with character |
| 3 | Pwd | Set the user login password |
| 4 | Edit | Administer can edit to change the user password and permission |

## 3.6.10 Print Log

Currently can only support history log download

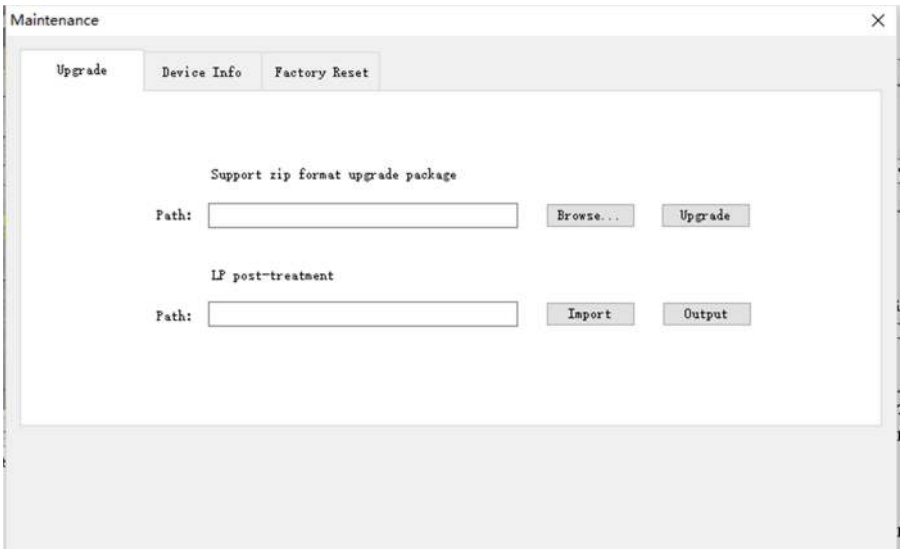



## 3.6.11 Maintenance

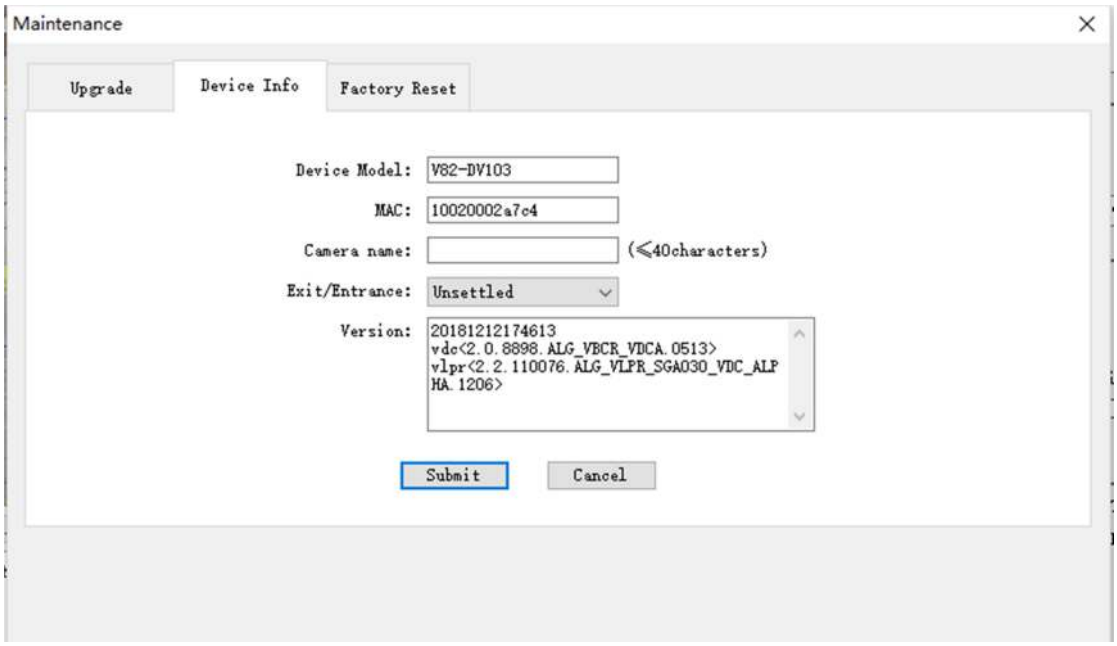
Maintenance include camera upgrade , device Info, Factory Reset 3x modules .

1）**Upgrade ( for the camera)**

For the camera upgrade , through “Browse”to select upgrade file , click “Upgrade” (support zip format upgrade package)

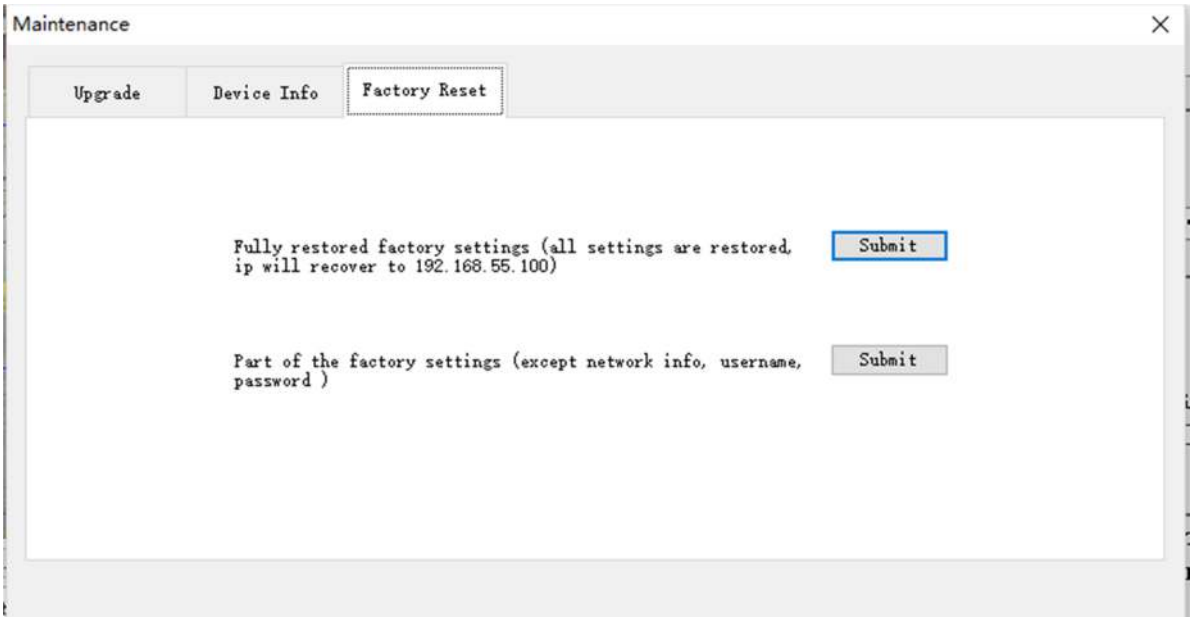


**2) Device Info**




| Item | Content | Specification |
|---|---|---|
| 1 | Device Model | Shows camera model |
| 2 | MAC | Shows camera MAC address |
| 3 | Camera Name | Set Camera Name |
| 4 | Exit/Entrance | Set camera used for Exit or Entrance（When use the camera's built-in off-line billing function , must set the Exit/Entrance type) |
| 5 | Version | Shows software version , Algorithm version details Info |

### 3) Factory Rest




| Item | Content | Specification |
|---|---|---|
| 1 | Fully restored factory settings | All settings are restored to default parameters |
| 2 | Part of the factory settings | Except network info ,username, password , the other information restored to default parameters . |
| 3 | Note | The camera will reboot after restore operation<br>Please use this function carefully and make a backup before restored. |