

# LPR IP camera

## User manual



### 1. Introduction

The camera adopts 2.1 Mega Pixel 1/2.8" SONY Exmor progressive scan CMOS sensor, featured WDR, low illumination, high definition. Special LPR technology applied: Highlight Compression(HLC) adjustable, multi-section shutter speeds, LED illuminators brightness adjustable, AGC adjustable, digital display setting, automatic snapshot and FTP upload, etc.

Easy setting: no need professionals, no need client software. BNC video output on control board for connection with a monitor. Manual setting all the function on control board inside camera. Connect NVR or computer, playback video, pause and see license plates clearly.

**Applicable in: freeway, city road, country road, entrance/exit of community, school, hospital, industrial park, parking lot or garage, toll gate, etc.**  
**Surveillance place**

### 2. Technical Parameter

|       |                   |  |
|-------|-------------------|--|
| Video | sensor            | 1/2.8 " SONY 2.1 Mega pixel Exmor progressive CMOS sensor  |
|       | Resolution max.   | Full HD/1080P(1920x1080) + Full D1   |
|       | Min. illumination | color: 0.05 Lux at F1.2 / LED illuminator ON: 0.001Lux at F1.2   |
|       | WDR               | Y  |
|       | video codec       | H.264 Main Profile @ Level 4.1 / Motion JPEG   |
|       | streams           | FHD/1080P + Full D1 + CVBS   |
|       | Frame rate        | 25 fps / 30fps   |
|       | video stream      | H.264& M-JPEG video stream : video out multichannel video at max. Resolution. Frame rate and video steam adjustable, H.264 support VBR/CBR |
|       | 16: 9 display     | support  |
|       | ROI               | Y  |

|         |                       |   |
|---------|-----------------------|---|
|         | Lens                  | f= 6mm/8mm/12mm 3MP fixed lens  |
| Audio   | Two-way audio         | 1 channel linear input, 1kΩ; 1 channel linear output, half duplex                   |
| Network | Network port          | 1 RJ45, 10/100M self adaptive Ethernet port, 1 BNC, 1 power supply port             |
|         | network protocol      | IPv4, TCP/IP, UDP, HTTP, DHCP, RTP/RTCP/RTSP, FTP, UPnP, DDNS, NTP, IGMP, ICMP ,etc |
|         | access agreement      | WEB, SDK API, ONVIF   |
| Storage | video                 | PC or NVR   |
|         | Snapshot images       | TF card and/or FTP upload   |
| Safety  | Built-in watchdog     | In unusual circumstances auto reset the system to ensure the normal operation.      |
|         | remote reset          | network remote reset  |
| General | OS                    | Microsoft Windows XP/Windows 7<br>IE: Microsoft Internet Explorer 6.x or above      |
|         | Video out             | 1.0Vp-p, 75 Ω   |
|         | Power supply          | DC12V   |
|         | Operating temperature | -10℃—50℃  |
|         | N.W. (approx.)        | 2.5KG   |
|         | Size                  | <b>12" (L) 390mm × (W) 140mm × (H) 143mm</b>  |

### 3. Installation and setting

3.1. Connection computer and license plate recognition camera with 75  $\Omega$  coaxial cable at BNC port.

3.2. Connect DC12V power supply, if the upper casing is open, the indicator light is on

3.3. When the image appears in the monitor, adjust the focus and Iris to get clear image. Surveillance area: max. 5-8 meters wide.

3.4. Digital display: current traffic mode and its parameters.

To select various traffic mode by Rocker Switch UP or DOWN. The indicator is ON for the selected traffic mode. Five traffic modes following:

A1: normal mode

A2: 30KM/H

A3: 60KM/H

A4: 90KM/H

A5: 120KM/H

Traffic mode A1: no shutter speeds and Highlight compression function.

Traffic mode: A2, A3, A4, A5: highlight compression and electronic shutter speed functions are working at the same time. HLC intensity is adjustable by Rocker Switch Left or Right. Set its intensity at night (or daytime when necessary). It automatically shifts according to the setting value from daytime to night. HLC intensity: E1-E6. When the intensity comes to E6 at night, it is the upmost highlight compression, the image view is much darker. Be sure to set to a suitable intensity for best view license plates. Factory default: E2 in daytime, E6 at night.

3.5. Set shutter speeds according to vehicle's speed. If there's ghost image, choose a higher speed mode. If the vehicle is not moving at all, choose the shutter speed mode: A1 or A2.

3.6. When main auxiliary lights is too strong or too weak, set LED brightness value from 00 to 32 by K1 or K2. The bigger value, the brighter LED illuminator. But it has to be not too whitish license plates. Factory default: 00 in daytime. Adjustable. 20 at night. Adjustable.

3.7. AGC setting. Enhance clearer image of license plates. Digital display: C1--C5, when it comes to C5, it is clearest image, but darker image.

3.8. External trigger signal input: Input external switch signal. The camera will automatically take snapshot picture when there's signal input. Snapshot images can be stored in TF card or FTP upload to designated computer.

3.9. Digital display: current traffic mode, HLC intensity, LED luminance value, AGC. Circle display them. Time interval: 5 seconds. Digital tube is off when finishing setting. It is on again when pressing any button for re-set

3.10. Connect PC or NVR via internet for live view or recording when finish setting.

3.11. Default IP: 192.168.1.4, user name: :system, password: system IE port: 6002

Initialize TF card and set snapshot parameters when logging in System.

3.12. NVR access protocol: ONVIF, port: 8080

### 3.13 TF card storage, FTP upload and image capture setting

3.13.1. Log in camera's system by IE browser. IP:192.168.1.4, user name: system, password: system IE port: 6002.

English

Login Update Contral

UserName: system

Password: ●●●●●●

Port: 6002

Login Reset

3.13.2 Log in system, **for video recording**, FTP set, “ Configuration - Record - Ftp Set - Submit - Save” .Step 1-6.

Use an internal network IP address (same network with camera) as FTP server. If untick “Record the 2<sup>nd</sup> Stream”, video recording main stream.

User: system | 2014-06-06 14:25:17 [Click to update video plug-in.](#) Live View **Configuration** Save Exit

Channel  
NetWork  
Record  
Storage Set  
**Ftp Set**  
Capture Set

Alarm  
System  
Extra Set

### FTP Set

Enable FTP  
Address: 192.168.1.88 Port: 21  
UserName: booker Password: \*\*\*\*\*  
Send data time: 2 (minute) Path: \ Enable:

Mode:  Schedule  Always  Record the 2nd Stream  
Week: Friday Copy To: Everyday Copy  
Type: All Day Timing

| Time          | Start   | End       |
|---------------|---------|-----------|
| Segment One   | 0 H 0 M | 23 H 59 M |
| Segment Two   | 0 H 0 M | 0 H 0 M   |
| Segment Three | 0 H 0 M | 0 H 0 M   |
| Segment Four  | 0 H 0 M | 0 H 0 M   |

Submit Refresh

3.13.3. Log in system, **for snapshot image**, capture setting, “ Configuration - Record - Capture Set - Submit - Save” Step 1-7.

Use an internal network IP address (same network with camera) as FTP server.

Tick “Enable Second Stream”, snapshot image from second stream.

User: system | 2014-06-06 14:30:59 [Click to update video plug-in.](#) Live View **Configuration** Save Exit

Channel  
NetWork  
Record  
Storage Set  
Ftp Set  
**Capture Set**

Alarm  
System  
Extra Set

### Capture Set

Capture amount(1~5): 1 Interval: 1000 millisecond  
Capture Handle: To the FTP server  Enable Second Stream

Address: 192.168.1.88  
Port: 21  
UserName: booker  
Password: \*\*\*\*\*

Submit Refresh

5 types of capture handle: Store the snapshot images to TF card, or To the FTP server, or through alarm channel upload, or TF card and FTP upload, or TF card and upload alarm channel.

To store images to TF card and FTP upload to a designated directory. Select it in down menu.

User: system | 2014-05-31 02:35:02    [Click to update video plug-in.](#)    Live View    Configuration    Save    Exit

### Capture Set

Capture amount(1~5):     Interval:  millisecond

Capture Handle:   Enable Second Stream

- To the FTP server
- Save to local hard disks
- To the FTP server
- Through the alarm channel upload
- Local preservation and FTP upload
- Local preservation and upload alarm channel

UserName:     Password:

3.13.4 Log in system. AlarmIn setting, “Configuration - Alarm - Alarm Set -Submit -Save”. Step 1-8. For snapshot or Record or Alarm to the CMS.

User: system | 2014-06-03 17:33:27    [Click to update video plug-in.](#)    Live View    Configuration    Save    Exit

### AlarmIn Set

Alarm Input:     Name:     Type:

Week:     Copy to:    

| Time          | Start   | End   |
|---------------|---|---|
| Segment one   | <input type="text" value="0"/> H <input type="text" value="0"/> M | <input type="text" value="23"/> H <input type="text" value="59"/> M |
| Segment two   | <input type="text" value="0"/> H <input type="text" value="0"/> M | <input type="text" value="0"/> H <input type="text" value="0"/> M   |
| Segment three | <input type="text" value="0"/> H <input type="text" value="0"/> M | <input type="text" value="0"/> H <input type="text" value="0"/> M   |
| Segment four  | <input type="text" value="0"/> H <input type="text" value="0"/> M | <input type="text" value="0"/> H <input type="text" value="0"/> M   |

Enable linkage action     Move to preset location      Cruise      Alarm to the CMS     Snapshot     Record

Trigger alarm output     Relay

3.13.5 Log in system, format TF card. “Configuration -System - Disk Set - Format”. Step 1-4.

User: system | 2014-06-03 17:37:26 [Click to update video plug-in.](#) Live View **Configuration** Save Exit

### Disk Management 1

| Disk ID | Disk Type: | Total size: | Free size: | Status: |
|---------|------------|-------------|------------|---------|
| 1       | 7          | 7460 M      | 7452 M     | Ready   |

4

32% 2.1K/s

3.13.6 Log in system. “Configuration - System - Advanced set - Restore “, restore camera if it is the 1<sup>st</sup> time setting. Step 1-3.

User: system | 2014-05-31 02:28:34 [Click to update video plug-in.](#) Live View Configuration Save Exit

### Advance Maintenance

**System time**  
 Before the system time set server, please determine synchronous way. If you choose and the machine synchronous, please make sure you system time correct. If you choose and management center synchronization, please determine to management center network Settings page the Settings

Time Zone: (GMT) Greenwich Mean Time - Dublin, Edinburgh, Lisbon, London

Current Time: 2014-5-30 (Friday) 19:31:9

**Upgrade firmware**  
  
 Please choose the compatible upgrade software. During the upgrade process, never power off the device, or will cause serious effect.Be patient! The upgrade process will take some time. After the upgrade, the server will reboot automatically. You need to choose the software which is compatible with the hardware to upgrade. During the upgrade process, please do not power off the device. It will take some time in this upgrade. After the upgrade, it will reboot automatically.

**Other Maintenance**

Save the modified parameters before you quit.

Click to recovery factory default settings.**Need to restart your device.**

Click to reboot the device.





3.13.8 Snapshot images by Video Motion Detection. It is for test purpose.

**Please be noted that snapshot by Motion Detection is much less accurate than by inductive loops, radar, etc. external trigger because of poor illumination at night.**

Log in System. “ Live View - VMD - Alarming Schedule - Linkage Action - ClearZone- Re-size VMD area - Setup - Save “. Step 1-6.

( Alarming Schedule: Copy to “ Everyday” and Copy. )

Threshold: less value, more sensitive.

The screenshot displays a web-based interface for video motion detection (VMD) configuration. The main window is divided into two sections: a live video feed on the left and a configuration panel on the right.

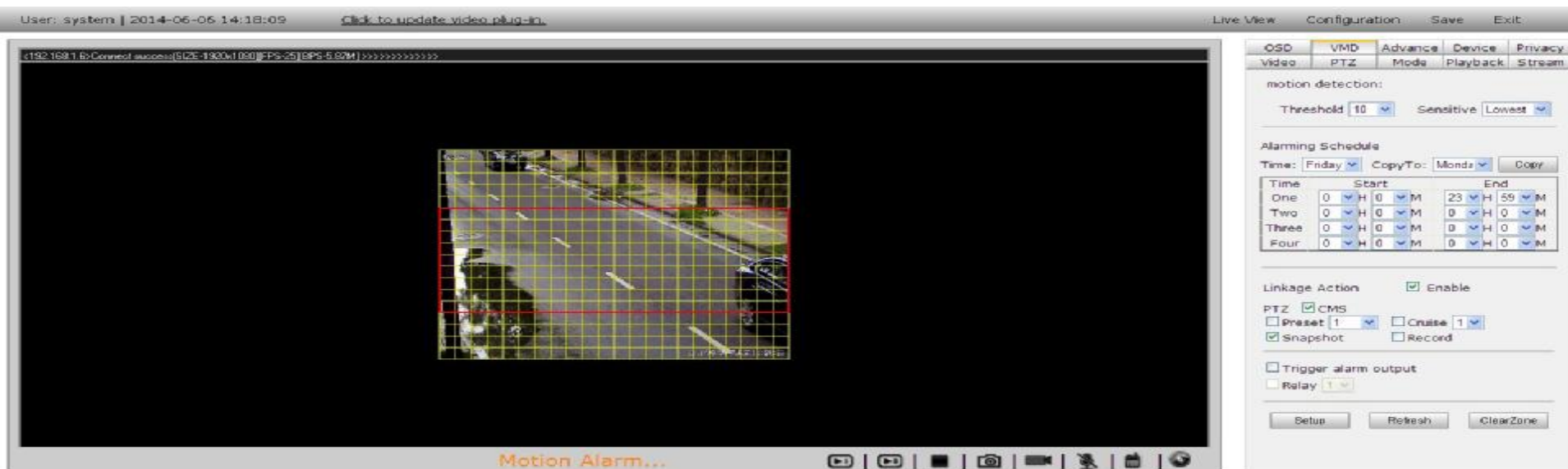
**Live View Section:**

- Top bar: User: system | 2014-06-03 10:37:14 | Click to update video plug-in.
- Navigation: Live View (highlighted), Configuration, Save (highlighted), Exit.
- Video Feed: Shows a road scene with a yellow grid overlay. A red rectangle (VMD area) is drawn around a blue truck. A red number '4' is placed near the rectangle.
- Bottom Bar: Playback controls (play, stop, full screen, camera, volume, mute, refresh, zoom).

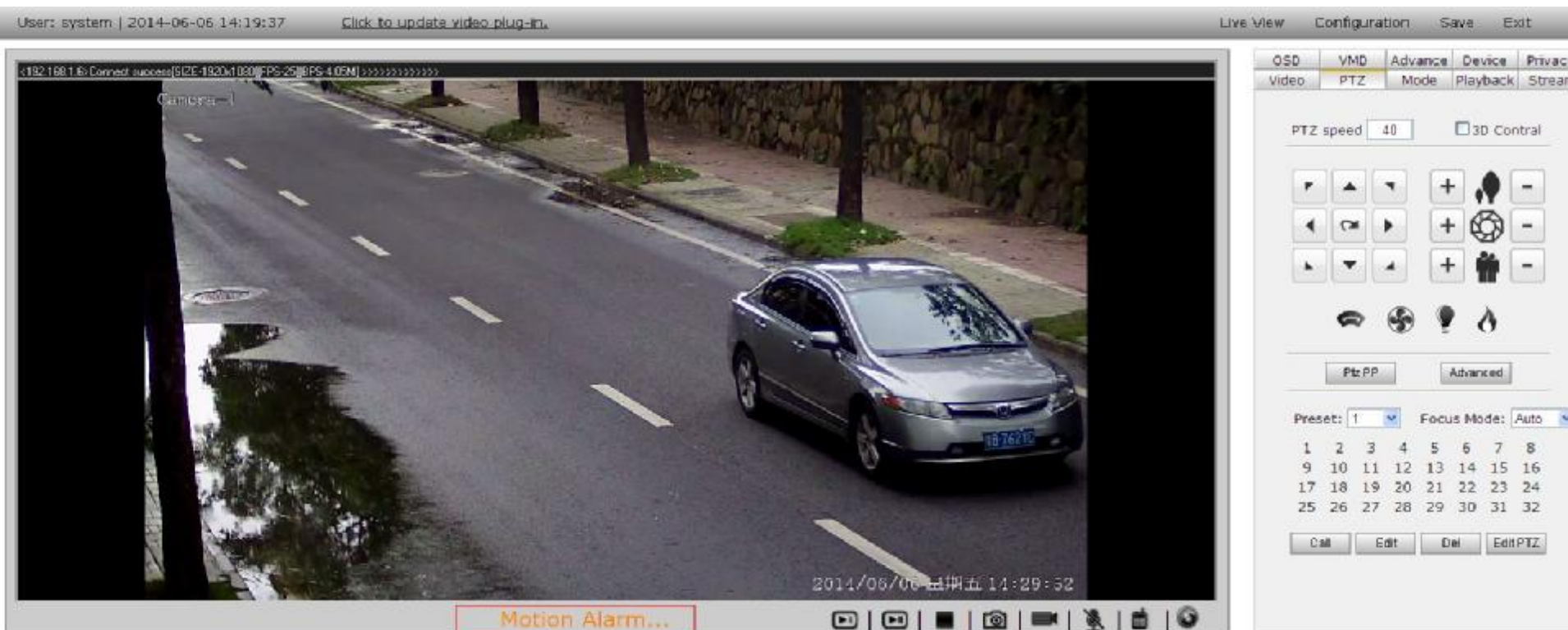
**Configuration Panel (Right):**

- Navigation: OSD, VMD (highlighted), Advance, Device, Privacy, Video, PTZ, Mode, Playback, Stream.
- motion detection: Threshold 10, Sensitive Lowest.
- Alarming Schedule (highlighted):
  - Time: Tuesd, CopyTo: Mond, Copy.
  - Table:
- Linkage Action (highlighted):
  - Enable:
  - PTZ:  CMS,  Preset 1,  Cruise 1.
  - Snapshot:  Snapshot,  Record.
- Trigger alarm output:  Trigger alarm output,  Relay 1.
- Buttons: Setup (highlighted), Refresh, ClearZone.

After finish VMD setting, it shows “Motion Alarm...” when the car is passing through the virtual square area.



When live viewing, it says “Motion Alarm...” when the car is passing through.



3.13.9 If you prefer MJPEG as second video stream, setting from “Live view - Stream - Stream Type - Second video stream setting- Setup - Save”. Step 1-6

User: system | 2014-06-04 12:38:33    [Click to update video plug-in](#)

Live View    Configuration    Save    Exit

OSD    VMD    Advance    Device    Privacy

Video    PTZ    Mode    Playback    Stream

Video:

StreamType: 1080P(H.264)+D1(MJPEG)+C

D1StreamType: Image Use Size720\*576

StreamEncrypt: Standard Stream

First video stream setting

Frame rate: All    Type: Video

Mode: CBR    Quality: Best

BitRate: 4096    Kbps

Second video stream setting

Frame rate: 12    Type: Video

Mode: CBR    Quality: Best

BitRate: 512    Kbps

IsImitate: yes

31%    526K/s    --°C

Setup    Refresh

**Remarks:** When sub video stream is MJPEG, can't set higher frame rate of real time view. The camera can't proceed high stream. It will restore from time to time because of high stream.

3.13.10 There are various video stream type (main stream and sub stream) to meet customer's requirement.

“Live View - Stream - Stream Type - Setup - Save “.

User: system | 2014-06-04 12:47:26 [Click to update video plug-in.](#)

1 Live View Configuration Save Exit

OSD VMD Advance Device Privacy

Video PTZ Mode Playback Stream

Video: 2

3

StreamType: 1080P (H. 264)+D1 (MJPEG)+C

D1StreamType: 1080P (H. 264)+D1 (H. 264)

StreamEncrypt: 1080P (H. 264)+D1 (MJPEG)

1080P (H. 264)+CIF (H. 264)

1080P (H. 264)+D1 (H. 264)+CVBS

1080P (H. 264)+D1 (MJPEG)+CVBS

First video stream setting 1080P (H. 264)+CIF (H. 264)+CVBS

1080P (MJPEG)+D1 (H. 264)

Frame rate: All 720P (H. 264)+720P (MJPEG)

Mode: CBR 720P (H. 264)+D1 (H. 264)

720P (H. 264)+CIF (H. 264)

BitRate: 4096 720P (H. 264)+D1 (H. 264)+CVBS

720P (H. 264)+CIF (H. 264)+CVBS

Second video stream setting 4

Frame rate: 12 Type: Video

Mode: CBR Quality: Best

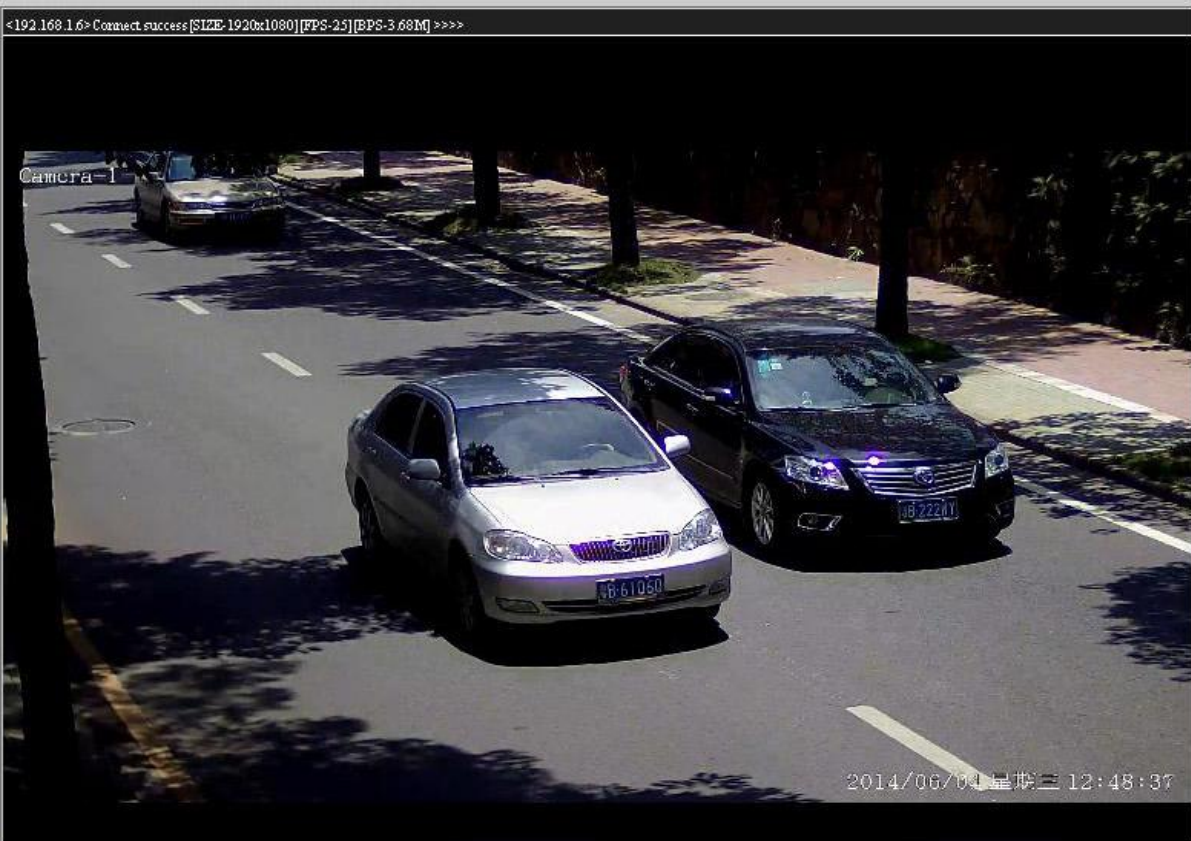
BitRate: 512 Kbps

IsImitate yes

5

31% 55K/s

Setup Refresh



3.13.11 To apply NTSC TV system, setting from “Live view - Device - Format Type - Setup - Save”. Step 1-5

User: system | 2014-06-04 12:53:45 [Click to update video plug-in.](#) Live View Configuration Save

OSD VMD Advance Device Privacy  
Video PTZ Mode Playback Stream

Device information:

Device Name: IPCAM

Format type: PAL

Device type: NTSC

Product SN: IPC2503142402885

MAC Address: 00-11-17-17-C4-A6

Software Version: 4.3.0.58Build20140512

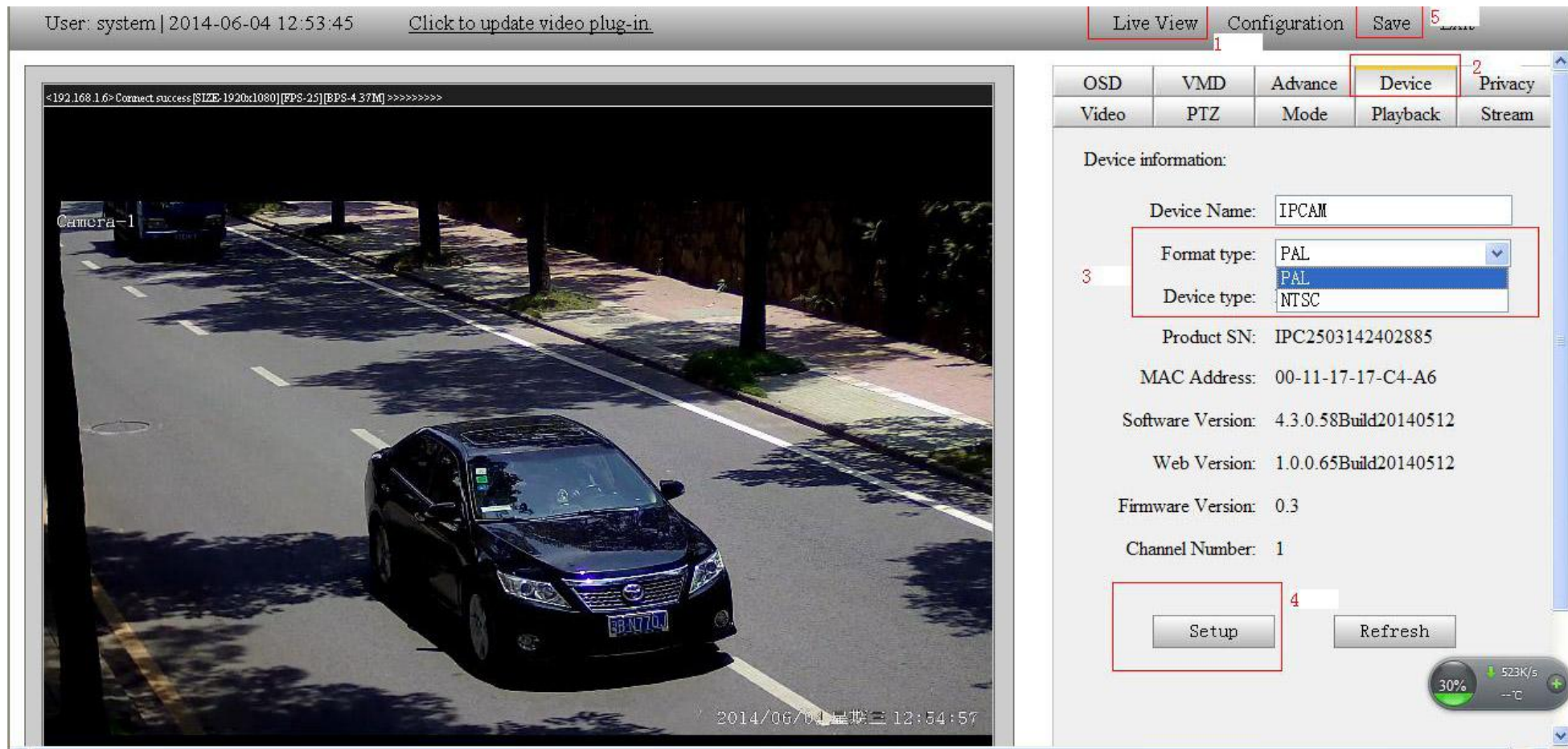
Web Version: 1.0.0.65Build20140512

Firmware Version: 0.3

Channel Number: 1

Setup Refresh

30% 523K/s --°C





3.13.13 Manual snapshot images, “Live view” Press image icon to start capture . Find images at D:/Record/Image on your computer . It is for test purpose.

The screenshot displays a web-based camera interface. At the top, the status bar shows "User: system | 2014-06-06 14:12:38" and a link "Click to update video plugin.". The main area is a live video feed of a silver van on a road, with a timestamp "2014/06/06 星期五 14:22:56" at the bottom. A toolbar at the bottom of the video feed includes icons for play, stop, full screen, a camera icon (highlighted with a red box), and other controls. On the right, a control panel features tabs for "OSD", "VMD", "Advance", "Device", and "Privacy". The "Advance" tab is active, showing "PTZ speed" set to 40 and a "30 Control" checkbox. Below this are directional and zoom controls, a "PtzPF" button, and an "Advanced" button. A "Preset" dropdown is set to "1" and "Focus Mode" is set to "Auto". A 32-preset grid is visible, and buttons for "Call", "Edit", "Del", and "EditPTZ" are at the bottom.

#### 4. problem and solution

If there is any problem in the camera, please try to solve it as below..

| problem  | solution  |
|--|---|
| License plate image is not clear enough or obscure | <ol style="list-style-type: none"><li>1. If too wide surveillance area.</li><li>2. Well focus</li><li>3. LED illuminator has enough luminance.</li><li>4. Suitable HLC intensity.</li><li>5. Set suitable shutter speed for fast vehicle speed.</li></ol> |
| Tailing image                                      | <ol style="list-style-type: none"><li>1. Set suitable shutter speed</li><li>2. NVR proceed too slowly. Replace an advanced NVR. etc.</li></ol>  |
| Image whitish.                                     | <ol style="list-style-type: none"><li>1 HLC intensity, AGC value, LED brightness value is on best match.</li><li>2. WDR function ON in the daytime.</li></ol>   |
| No network   | <ol style="list-style-type: none"><li>1. Network is connected.</li><li>2. Network protocol is correct.</li></ol>  |

#### 5. Warranty: one year from factory shipment.