



RoadWatch

QUICK REFERENCE GUIDE



Direction ↓

Country FRANCE

LPN HT-777-WS



CONTENTS

1

PRE-INSTALLATION

- 1.1 Choosing Location

2

INSTALLING AND POSITIONING CAMERA

1. Camera Installation
2. Adjusting Plate Tilt Angle
3. LPR (ANPR) Specification

3

CONFIGURING YOUR CAMERA

1. Data and Time
2. Network Settings
3. Analytics
4. SD Card
5. Exposure
6. Focus
7. Pixel width
8. Install or Update Application
9. Activate Application
10. Configure Application

4

INSTALLATION

1. Observing proper installation
2. Examples of proper installation



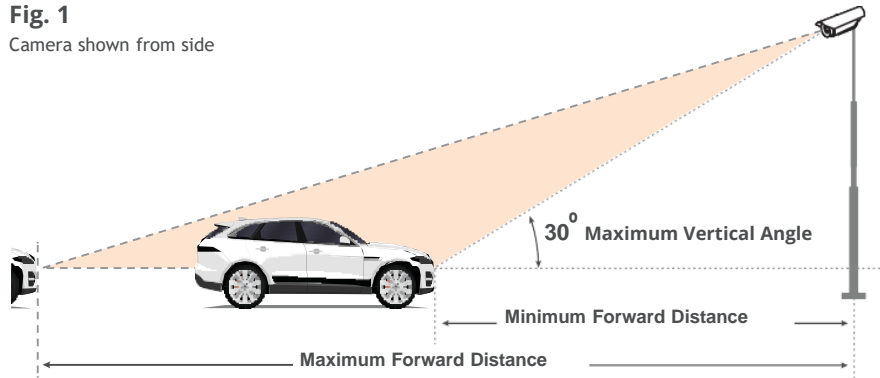
1 PRE-INSTALLATION

1.1 Choosing Location

The LPR (License Plate Recognition) / ANPR (Automatic Number Plate Recognition) Technology running on this camera will provide you with the best results when following the recommended installation requirements below.

Fig. 1

Camera shown from side



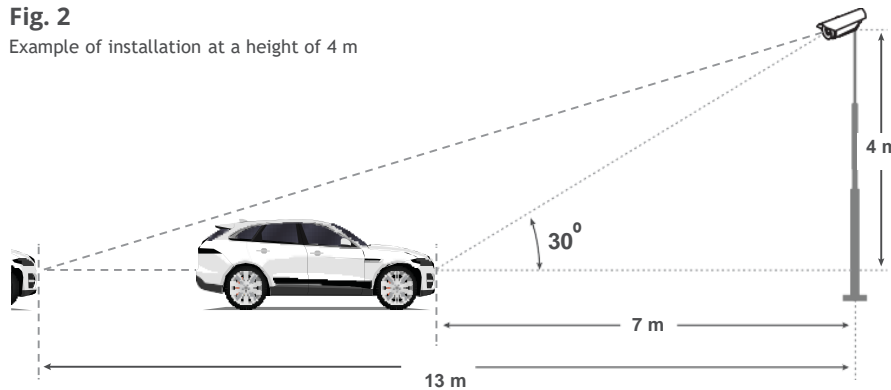
Recommended

30 degrees Maximum Vertical Angle
Minimum and Maximum Forward Distance depend on lens zoom.

Please, refer to the table on pp. 6-7 for different camera models.

Fig. 2

Example of installation at a height of 4 m



1.1 Choosing a Location (Continued)

Recommended

30 degrees Maximum Horizontal Angle

Fig. 3

Camera shown from top

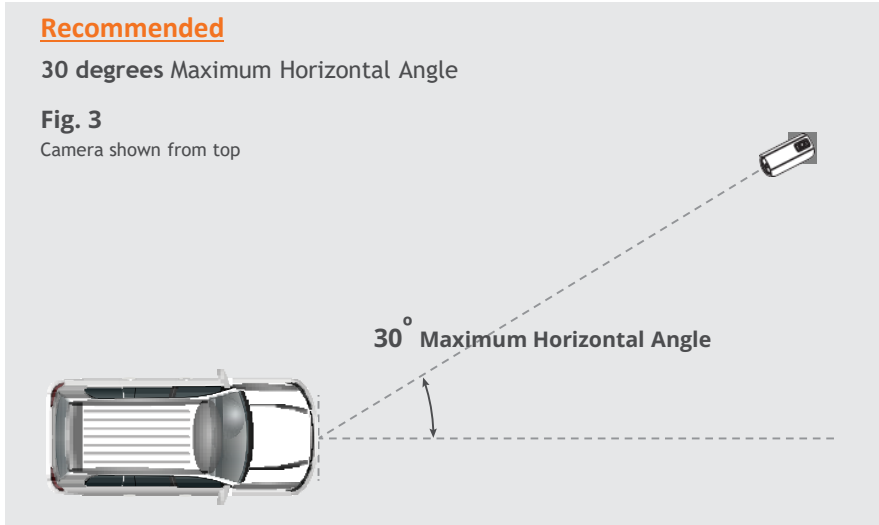
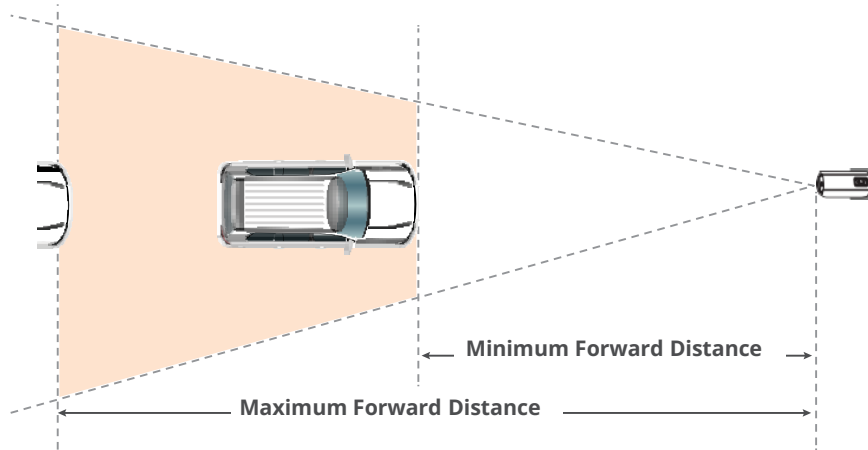
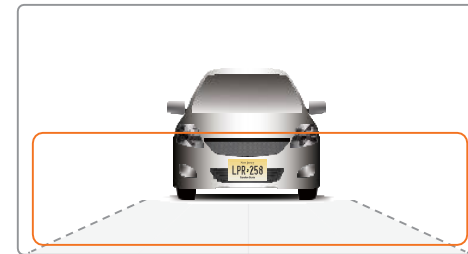


Fig. 4



Camera can cover 1 road lane.

Normally, setting recognition zone (see orange frame below) in lower half of camera view is sufficient and favours app performance.



All the license plates that meet the on-frame size criteria below will be recognized in the selected area.

- 130-300 pixels for regular EU plates
- 80-300 pixels for US plates without stacked symbols (small ones)
- 160-300 pixels for US plates with stacked symbols

Color coded pixel counts are available in the settings section of RoadWatch.

2 INSTALLING AND POSITIONING CAMERA

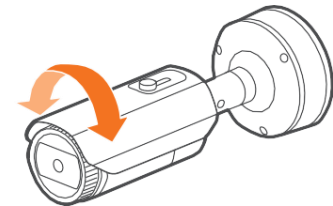
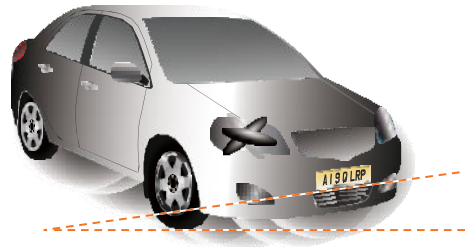
2.1 Camera Installation

NOTE: Refer to camera installation guide and follow the installation instructions.

2.2 Adjust for Plate Tilt Angle

For the best results, check the angle of your plate compared to the horizontal alignment and rotate the camera to achieve less than 5° as shown below.

Recommended Angles



5°max



>5°

NOTE: Refer to the "show plate grid" section available in RoadWatch settings for assistance.

2.3 LPR(ANPR) Specification: Wisenet 5 cameras



LPR(ANPR) CAMERAS

XNO-6120R/RW

XNO-6080R/RW

XNV-6080R/RW

LPR Usage Conditions	Urban Traffic	Urban Traffic	Urban Traffic
Speed Description	Regular Speed	Moderate speed	Moderate speed
Lane Coverage	1 lane (3.6m/12ft Wide) (with built in IR)	1 lane (3.6m/12ft Wide) (with built in IR)	1 lane (3.6m/12ft Wide) (with built in IR)
Speed limit	Up to 90km/h (55mph)	Up to 50km/h (30mph)	Up to 50km/h (30mph)
Min. Forward Distance	17m (55ft)	7m (23ft)	7m (23ft)
Max. Forward Distance	32m (105ft)	13m (42ft)	13m (42ft)
Max. Horizontal Angle	30°	30°	30°
Max. Vertical Angle	30°	30°	30°
Horizontal Offset	Up to 9.8m (32ft)	Up to 4m (13ft)	Up to 4m (13ft)
Camera Height	Up to 9.8m (32ft)	Up to 4m (13ft)	Up to 4m (13ft)

2.4 LPR(ANPR) Specification: Wisenet 7 cameras



LPR(ANPR) CAMERAS	XNO-6123R/RW	XNO-C6083R/RW	XNV-C6083R/RW
LPR Usage Conditions	Urban Traffic	Urban Traffic	Urban Traffic
Speed Description	Regular Speed	Moderate speed	Moderate speed
Lane Coverage	1 lane (3.6m/12ft Wide) (with built in IR)	1 lane (3.6m/12ft Wide) (with built in IR)	1 lane (3.6m/12ft Wide) (with built in IR)
Speed limit	Up to 90km/h (55mph)	Up to 50km/h (30mph)	Up to 50km/h (30mph)
Min. Forward Distance	17m (55ft)	7m (23ft)	7m (23ft)
Max. Forward Distance	32m (105ft)	13m (42ft)	13m (42ft)
Max. Horizontal Angle	30°	30°	30°
Max. Vertical Angle	30°	30°	30°
Horizontal Offset	Up to 9.8m (32ft)	Up to 4m (13ft)	Up to 4m (13ft)
Camera Height	Up to 9.8m (32ft)	Up to 4m (13ft)	Up to 4m (13ft)

3

CONFIGURING YOUR CAMERA

NOTE: *There is no default username and password to access the camera settings*

1) Please setup your own username and password when you access camera settings for the first time.

2) Make sure to set correct date and time for the camera before going in to any additional settings.

3) If camera firmware update is required, it is strongly advised to factory reset on camera to make sure that changes applied successfully

○ **Field of View**

Follow the steps below on the Wisenet camera configuration webpage

- Configure camera so that left and right sides are correct, not mirrored.
- Set camera zoom to capture license plates
- Adjust camera view angle so that plates pass through the middle of the image.

○ **Configure Initial Camera Settings**

For proper operations, please, check and set properly:

- Camera Date Time (see p.9)
- IP settings (see p.10)
- Analytics (see p.11)
- SD card storage (see p.12)
- Camera exposure and focus (see p.13-15)
- Check pixel size (see p. 16)

SSDR, WDR, DIS, Defog, AGC and anti-flickering features are good for human eye but affect computer vision performance and therefore turning them off is strongly advised.

3.1 Configure Initial Camera Settings

[Date and Time]

WISENET PNO-A9081RLP admin Help

Basic
Video profile
User
Date & Time
IP & Port
PTZ
Video & Audio
Network
Event
Analytics
Statistics
System

Date & Time

Current system time
Date & Time 2000-01-03 21:14:13

A

Time zone
Time zone (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
Daylight saving time
 Enable
Start time March.last.Sun/01:00:00
End time October.last.Sun/02:00:00
Apply Cancel

B

System time setup
 Manual
Y · M · D 2000 - 01 - 03 h : m : s 21 : 13 : 57
 Synchronize with PC viewer
2021-03-15 16:49:10
 Synchronize with NTP server
Address 1 pool.ntp.org
Address 2 asia.pool.ntp.org
Address 3 europa.pool.ntp.org
Address 4 north-america.pool.ntp.org
Address 5 time.nist.gov
Apply Cancel

Choose **A** Timezone and set Use daylight saving time if applicable.

Set **B** date and time or opt to synchronizing with your PC or NTP server.

NOTE: RoadWatch app relies on camera time and time zone settings and if those are not set properly, you may not see events in RoadWatch app and events delivered to the outer systems may not have proper timestamps.

3.1 Configure Initial Camera Settings (Continued)

[IP, DNS, Ports]

WISENET PNO-A8081RLP admin Help

Basic IP & Port

Video profile
User
Date & Time

IP & Port

PTZ
Video & Audio
Network
Event
Analytics
Statistics
System

IP address Port

IP4 setup

IP type DHCP

MAC address 00:09:18:61:A7:60

IP address 192.168.0.36

Subnet mask 255.255.255.0

Gateway 192.168.0.1

DNS setting by DHCP Use

DNS 1 168.126.63.1

DNS 2 168.126.63.2

Host name PNO-A8081R-00091861A760

MTU 1500 (1280 ~ 1500)

IP6 setup

IPv6 Enable

IP type Default

IP address

Prefix 64

Apply Cancel

Proper IP, DNS and ports setting are important for:

- NVR and other integrations
- outside LAN access if required

NOTE: *Reboot the camera whenever IP address gets changed.*

3.1 Configure Initial Camera Settings (Continued)

[Analytics]

Make sure all analytics is disabled

The screenshot shows the WISENET camera configuration interface. On the left is a navigation menu with categories: Basic, PTZ, Video & Audio, Network, Event, Analytics, System, and Open platform. The 'Analytics' category is expanded, and 'Sound classification' is highlighted with an orange box. The main content area is titled 'Sound classification' and contains the following settings:

- Enable sound classification
- Configuration**
 - Noise filter** Enable
 - Level of classification** [Empty input field]
 - Categories**
 - Scream
 - Gunshot
 - Explosion
 - Crashing glass
 - Handover** [Dropdown menu]
- Event action settings**
 - FTP** Enable
 - E-mail** Enable

3.1 Configure Initial Camera Settings (Continued)

[microSD card]

micro SD card needs to be setup correctly for the application to access it and store images

The screenshot displays the WISENET configuration interface for the Storage section. The left sidebar shows the navigation menu with 'Storage' highlighted. The main content area is divided into three sections: Storage action setup, SD File System, and Encryption.

	Device	Record	Free size	Total size	Status	
<input checked="" type="radio"/>	SD Card	On	29.64 GB	29.79 GB	Recording	Format
<input type="radio"/>	NAS	Off	0 MB	0 MB	None	Format

Storage action setup

Overwrite

Enable

Auto delete 180 days (1 ~ 180)

SD File System

Type VFAT

Encryption

Unencrypted

Enable

New password

Confirm new password

ⓘ A forgotten password cannot be recovered but only reset.

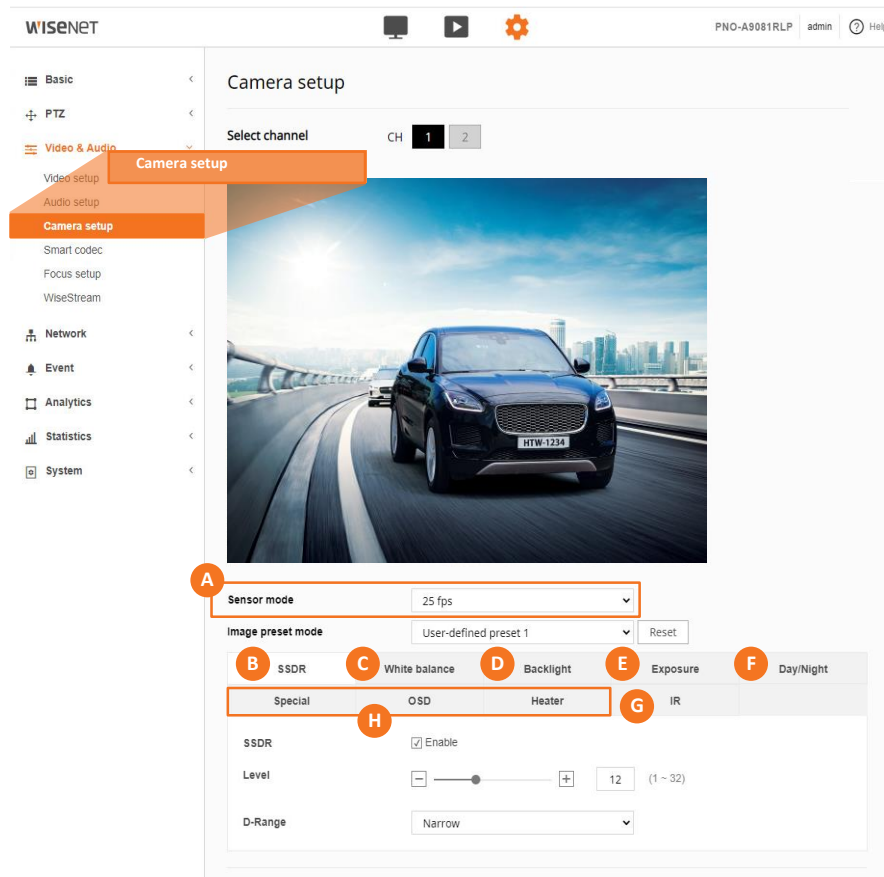
Make sure the SD card is installed, formatted in VFAT **A** and operating **B**.

Change the micro SD card if you see Error status.

3.1 Configure Initial Camera Settings (Continued)

[Exposure adjustments]

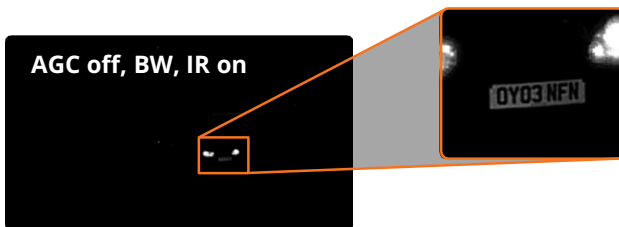
The recommended settings from the RoadWatch application are the starting point for the camera setup, and cover most cases. Adjust the settings up to your installation conditions. Make sure the number plates are well visible both in day and night.



- A** Sensor: 25-30 fps
- B** SSDR: Off
- C** White balance: ATW
- D** Back light: Off
(try other backlight options only if camera gets blind- ed by headlights in the night)
- E** Exposure:
 - minimum shutter speed : 1/500
 - maximum shutter speed : 1/12000
 - preferred shutter speed : 1/700
 - Anti flicker : Off
 - SSNR 2D level 4
 - SSNR 3D level 4
 - AGC MaxGain 30 db
- F** Day/Night:
 - Mode: Auto
- G** IR: mode Auto 1
- H** Other settings: default

3.1 Configure Initial Camera Settings (Continued)

[Exposure adjustments: Automatic Gain Control]



Automatic Gain Control can improve overall scene visibility notably. However, even at low setting AGC produces noise that can ruin license plate images, also lighter areas tend to bleach out. See illustrations to the left.

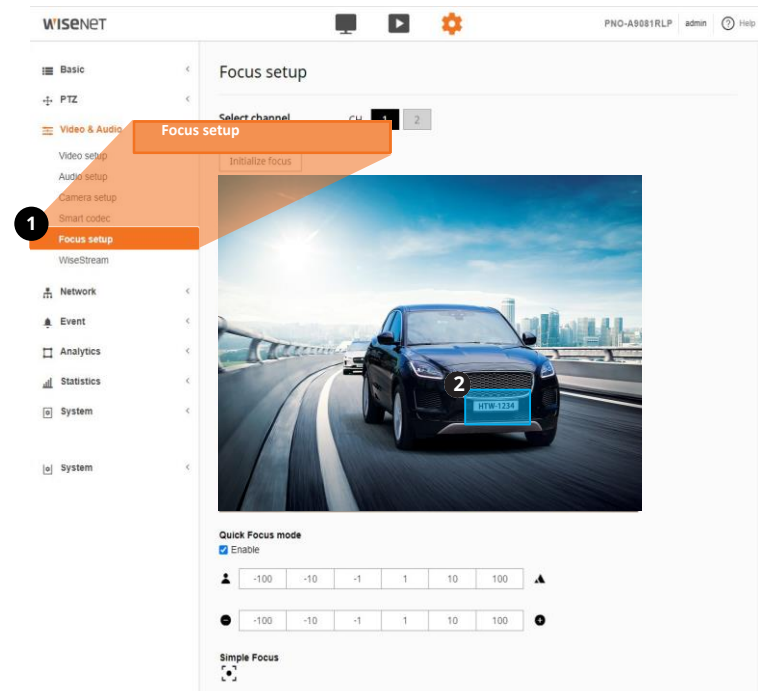
Start with turning AGC off. See the illustration to the left. Set AGC to low to improve plates visibility unless only other methods are helpful. Adjust zoom so that real plate pixel width is at least 130px. Consider adjusting recognition zone to be closer to the centre of the frame to avoid the IR vignette effect.

NOTE: Do not use WDR as it decreases the shutter speed and may lead to the blur of the vehicles on footage.

3.2 Simple Focus on Plate Read Area

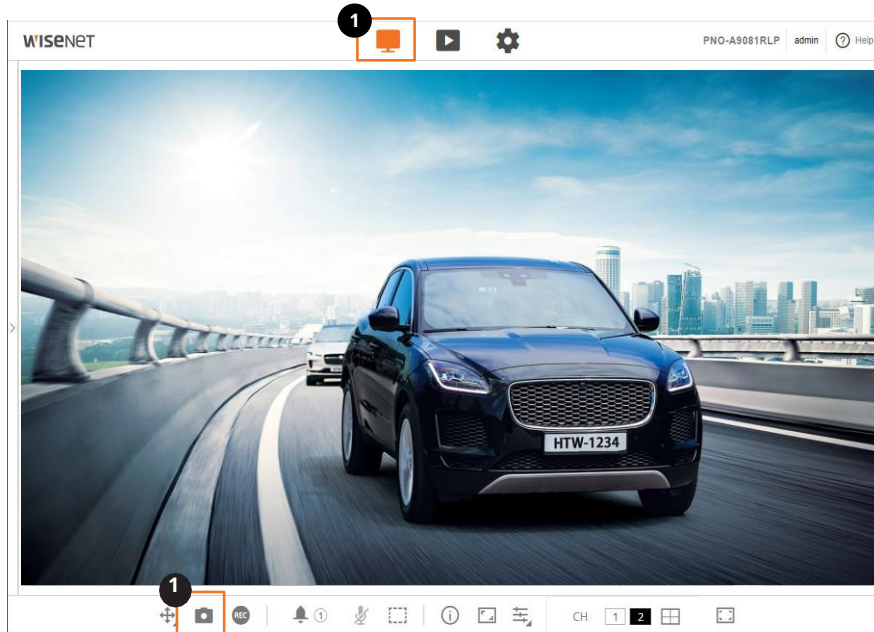
This feature allows you selecting the plate area and hitting a button to perform a “Simple Focus” on the plate area.

- 1 From the Video & Audio menu, select **Focus setup**.
- 2 Click and drag to draw an area of focus where the license plate is displayed.
- 3 Click the **Simple Focus** button to initiate a focus operation on the user-specified area.



3.3 To measure pixel width of license/number plate

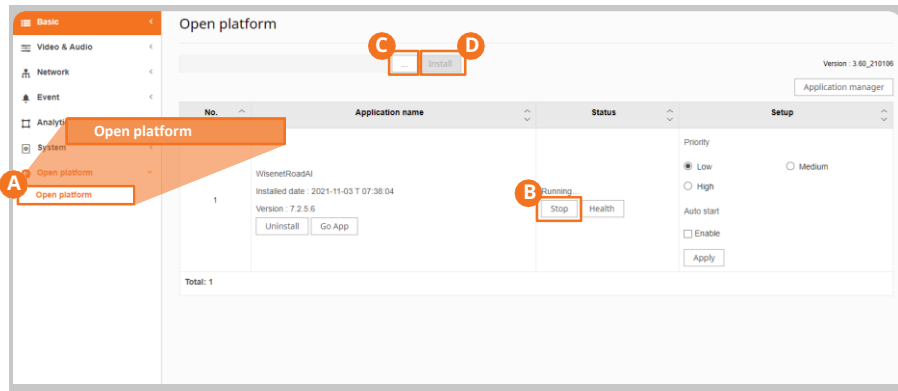
- 1 Spread or move license/number plate (vehicles) across the scene and take snapshots using web viewer capturing feature (**Live ; Capture**);



3.4 Install or Update Application

[Application]

Please go to App in camera open platform section.



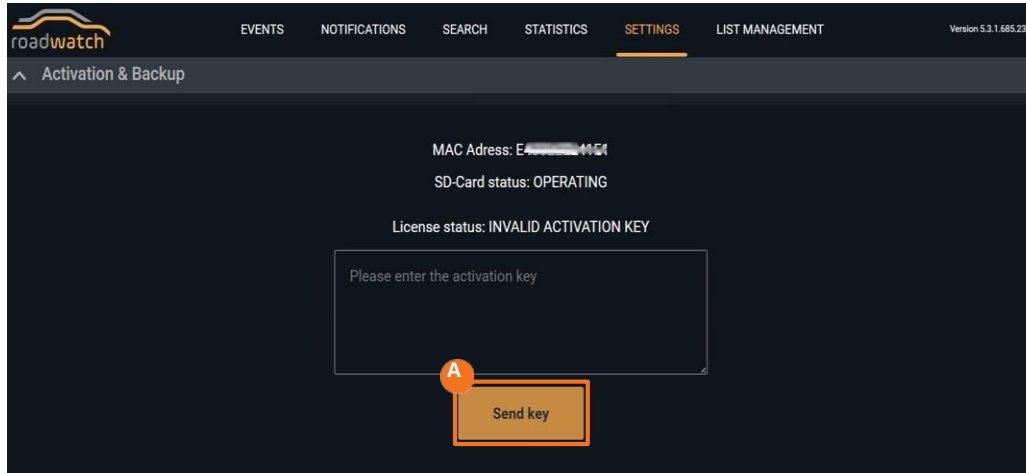
- A** Go to **Open platform** section in camera web viewer.
- B** Click **Stop** box to stop RoadWatch App
It is very important to stop App before updating App.
- C** Click “...” button to select App file to update.
- D** Click **Install** button to update App.

Note: you will need to re-apply license key

3.5 License Activation

[Application]

Please go to App settings



If your camera did not come with the RoadWarch application activated, you need to activate it in order to start registering the vehicles. You would also need to activate your application when you update or reinstall it.

Indicate the license key, click **A** Send key button, and wait for the application to restart. Then reload the page in the browser.

You can request the license key from Hanwha Vision Europe support.

Note: license is registered to the MAC address of the camera, please keep it safe.

3.6 Configure Application Settings

[Application]

Please go to App in camera open platform section.

The screenshot shows the WISENET application manager interface. On the left, a navigation menu includes 'Basic', 'Video & Audio', 'Network', 'Event', 'Analytic', and 'System'. The 'Open platform' menu item is highlighted with an orange box. The main content area is titled 'Open platform' and features an 'Install' button and 'Version: 3.60_210106'. Below this is a table with columns for 'Application name', 'Status', and 'Setup'. A table row is shown for 'WisenetRoadAI' with status 'Running...'. An orange callout box labeled 'A' points to the 'Go App' button in the 'Uninstall' field of the table row. The 'Setup' column contains radio buttons for 'Low' and 'High' (selected), and 'Medium', along with 'Auto start' and 'Enable' checkboxes, and an 'Apply' button. A 'Total: 1' indicator is at the bottom left of the table area.

Application name	Status	Setup
WisenetRoadAI Installed date: 2021-06-30 T 17:57:46 Version: Uninstall Go App	Running... Stop Health	Priority <input type="radio"/> Low <input checked="" type="radio"/> High <input type="radio"/> Medium Auto start <input checked="" type="checkbox"/> Enable Apply

To run the RoadWatch app, select the **Open platform** menu and click the **A Go App** button in the **Application name** field.

3.6 Configure Application Settings (Continued)

[Application]

Go to Woad Watch application tab and select “Settings” from the pull down menu.

First, choose the **Region** **A** .

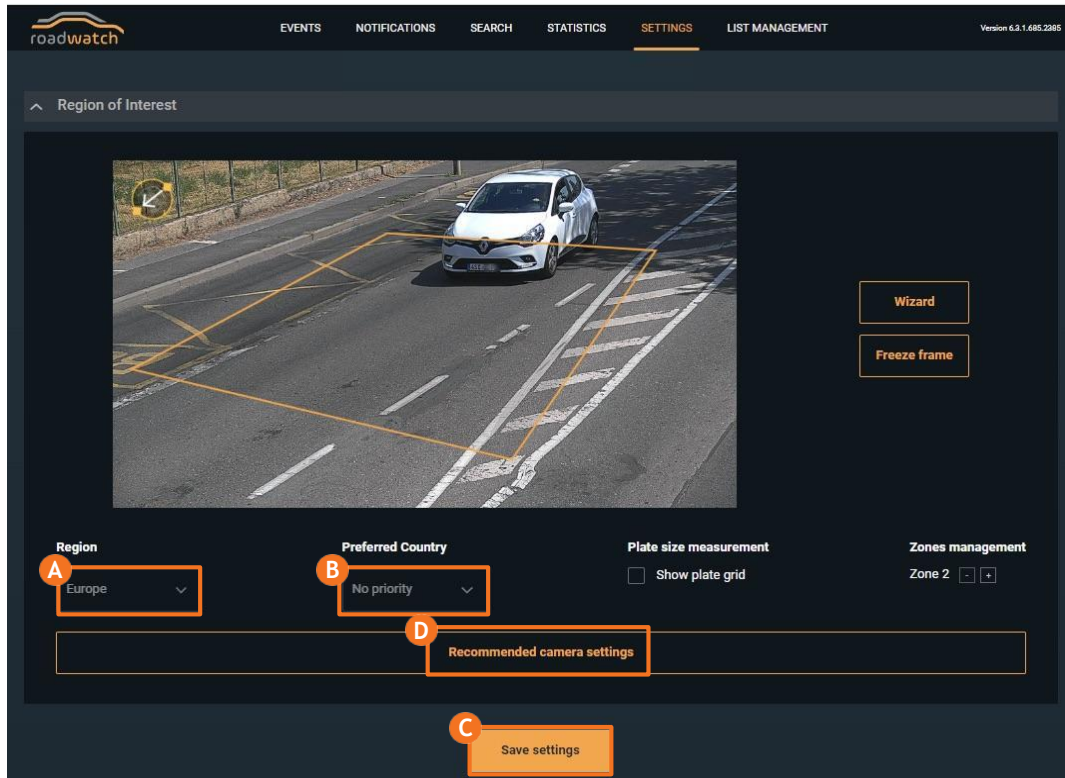
1) Choose the correct region that matches your country/region (Europe is set by default).

For Europe region specify **B** the **Preferred country** to improve the ANPR accuracy.

1) Save the settings. Click **C** **Save settings**. The application will restart for the selected region to take effect. After clicking Reload, wait for several seconds and reload the browser page.

1) You can apply **D** **Recommend camera settings** applied. They will give you a starting point for fine-tuning the camera settings.

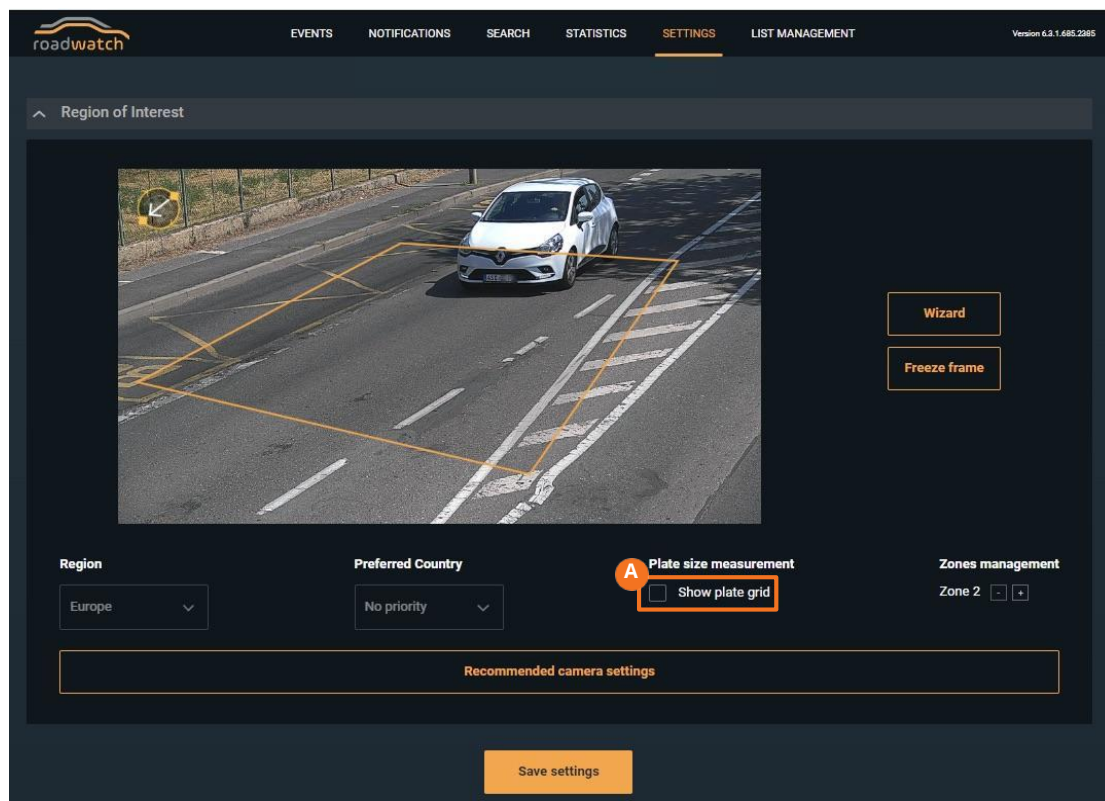
Most important settings are the shutter speed for fast/slow moving vehicles. Change the settings based on your installation setup.



3.6 Configure Application Settings (Continued)

[Application]

Check pixel width of the plate

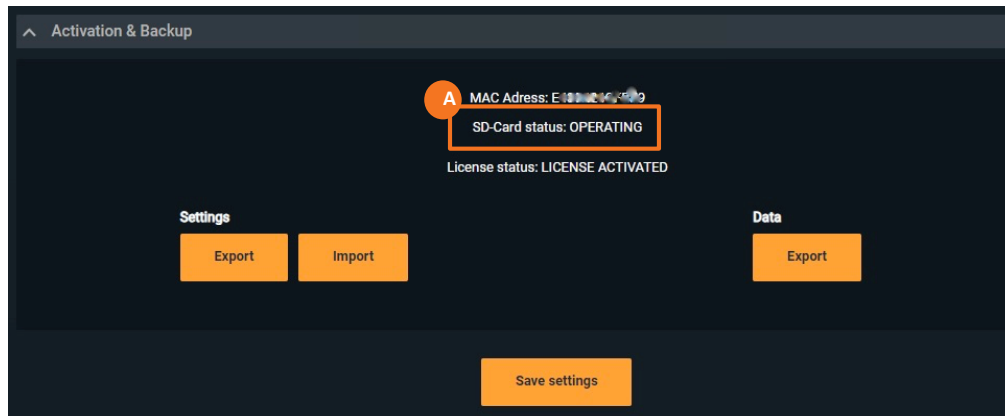


Use **A** Plate Grid tool in the Settings tab of RoadWatch and Freeze Frame feature to check whether plate fits the required range.

3.6 Configure Application Settings (Continued)

[Application]

Check that Application can see SD card



Please check the **A** SD-Card status in the **ABOUT** section of the RoadWatch app.

Change the micro SD card if you see Error status.

4

4.1 Observing PROPER Installation

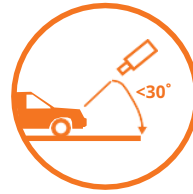
SCENE REQUIREMENTS:



License/number plate is more than 130 px in width



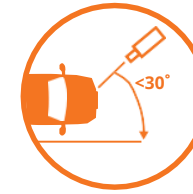
License/number plate is readable



Vertical angle is less than 30°



Tilt angle is less than 5°



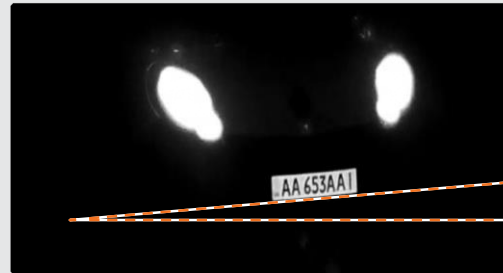
Horizontal angle is less than 30°

Fig. 1
Daytime



- good proportion to the frame width
- well illuminated
- sufficient contrast
- acceptable tilt angle

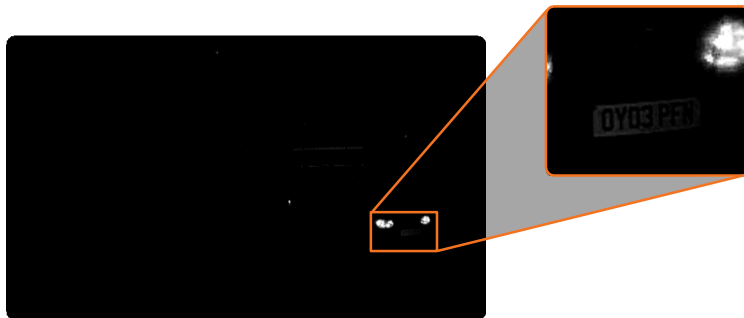
Fig. 2
Night time



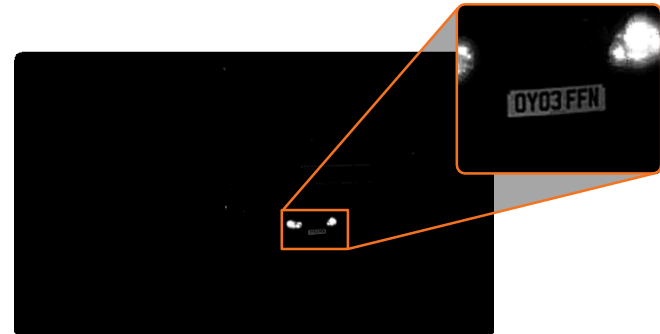
- good proportion to the frame width
- perfect IR power
- sufficient contrast
- critical yet acceptable tilt angle

4.1 Observing PROPER Installation (Continued)

POSSIBLE IR RESTRICTIONS:



The license/number plate is quite close to the frame boundary. You may notice a vignette effect.



The license/number plate is closer to the centre of the frame. The plate is illuminated much better.

Pay special attention to IR vignette effect (see illustration on the left) when setting up recognition zone. The closer to the center the more even illumination is.

Also, in this particular case the real pixel width of the license/number plate is critically small.

The Automatic Gain Control effect will be illustrated in camera exposure settings section.

4.2 Examples of IMPROPER Installation



Too small (less than 130px wide)
Tilt angle exceeds 5°

Focus and Shutter faults



Depth of field is insufficient to cover foreground license plates.
Adjust the lens settings.



Improper focus settings.
Adjust the lens.



Blurry image due to long exposure. Fix the shutter speed to obtain a sharper picture.

4.2 Examples of IMPROPER Installation (Continued)

Exposure faults



Too much light. Either adjust the iris or shutter speed.
Night time: dim the IR or set the AGC to Low.



Insufficient light. Adjust exposure settings or provide additional lighting.

For more information visit us at

hanwhavision.eu



Head Office
Heriot House, Heriot Road
Chertsey, Surrey
KT16 9DT
United Kingdom

© 2023 Hanwha Vision Co., Ltd. All rights reserved.

DESIGN AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

Under no circumstances, this document shall be reproduced, distributed or changed, partially or wholly, without formal authorization of Hanwha Vision Co.,Ltd.

* Wisenet is the proprietary brand of Hanwha Vision, formerly known as Samsung Techwin.