

ANPR Application Camera Settings Guide

Improve LP readings

A thick orange decorative bar that starts from the left edge, extends horizontally, and then curves upwards and to the right, ending at the right edge of the slide.

Camera Settings

Important note on web browsers

WisenetX cameras could be reached through
Non-Plugin Web Viewer via:

- Google Chrome 56
- MS Edge 39
- Mozilla Firefox 49 (Windows x64 only)
- Apple Safari 10 (Mac OS X only)

Or Plug-in Web Viewer via:

- Internet Explorer 11
- Apple Safari 10 (Mac OS X only)

The above is based on X-series datasheet.

NB! Internet Explorer doesn't recognize Live MJPEG stream
the app employs to visualize traffic video.

Tech note on the above:

multipart/x-mixed-replaceMIME Type is not supported by IE



Intro

This document provides tips and tricks on **camera settings** to achieve best LP readings even under severe environmental conditions.

The guide covers camera settings such as

- browser restrictions
- network
- exposure and focus
- best practices and don'ts

Latest edition always available as [PDF](#) and [Power Point](#)

Last updated **2019-05-01**

You may also find [Installation Checklist](#) useful.

[Other useful resources](#)

Camera Settings Overview

WISENET

XNO-6080R admin Help

Basic

- Video profile
- User
- Date & Time
- IP & Port

PTZ

Video & Audio

Network

Event

Analytics

System

Open Platform

Video profile

Video profile connection policy

☐ Keep connection when Profile properties are changed

Video profile

	Name	Codec	Type
☐	MJPEG	MJPEG	Event
☒	H.264	H.264	Default / Record
☐	H.265	H.265	
☐	PLUGINFREE	H.264	
☐	OPENSCKMJPEG	MJPEG	
☐	MOBILE	MJPEG	

Name:

Codec:

Profile type

☒ Default profile

☒ Record profile

☐ Digital PTZ profile

Audio in

☐ Enable

Dynamic FPS

☐ Enable

Multicast

Multicast (RTSP) ☐ Enable

IP address:

Port:

TTL:

For proper operations, please, check and set properly:

- Camera Date Time
- IP settings
- SD card storage
- Camera exposure and focus

Some features like **SSDR, WDR, DIS, Defog, AGC and anti-flickering** are good for human eye but affect computer vision performance and therefore setting these to the least possible effect or turning off strongly advised.

Note on IR: SNO-6095 IR is controlled by an external sensor and cannot be managed via iPolis.

Note on native camera events: native events (like Motion Detection) affect overall performance and also consume SD card storage when engaged. It is strongly recommended that you disengage any events on ANPR camera.

Camera Settings

Date and Time

WISENET

XND-6120R admin Help

Basic

Video profile

User

Date & Time

IP & Port

PTZ

Video & Audio

Network

Event

Analytics

System

Open Platform

Date & Time

Current system time

Date & Time 2017-07-01 13:17:28

Time zone

Time zone (GMT+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius

Daylight saving time ☒ Enable

Start time March, last Sun/03:00:00

End time October, last Sun/04:00:00

Apply Cancel

System time setup

☒ Manual

Y - M - D 2017 - 07 - 01 h : m : s 13 : 17 : 16

☐ Synchronize with PC viewer

2017-07-01 13:16:44

☐ Synchronize with NTP server

Address 1 pool.ntp.org

Address 2 asia.pool.ntp.org

Address 3 europe.pool.ntp.org

Address 4 north-america.pool.ntp.org

Address 5 time.nist.gov

Apply Cancel

Choose **Timezone** and set **Use daylight saving time** as appropriate.

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

ANPR app relies on these settings and if these are not set properly you may not see events in ANPR app and events delivered to the outer systems may not contain proper timestamps.

Camera Settings

IP, DNS, ports

WISENET XNO-6120R admin Help

Basic

Video profile

User

Date & Time

IP & Port

PTZ

Video & Audio

Network

Event

Analytics

System

Open Platform

IP & Port

IP address Port

IPv4 setup

IP type: Manual

MAC address: 00:16:6C:C3:9D:44

IP address: 10.0.3.135

Subnet mask: 255.255.255.0

Gateway: 10.0.3.1

DNS 1: 168.126.63.1

DNS 2: 168.126.63.2

Host name: XNO-6080R

IPv6 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

NB! Reboot the camera whenever IP address gets changed.

Camera Settings

SD Card

The screenshot shows the 'Storage' configuration page in the Wisenet interface. The left sidebar contains a menu with 'Event' and 'Storage' highlighted. The main content area is titled 'Storage' and includes a 'Storage action setup' table, 'Record profile' settings, an 'Overwrite' section, 'SD File System' settings, and a 'Normal record schedule' section.

	Device	Record	Free size	Total size	Status	
☒	SD Card	On	5.68 GB	7.39 GB	Recording	Format
☐	NAS	Off	0 MB	0 MB	None	Format

Record profile H.264

Normal recording Full frame

Event recording Full frame

Pre event duration 3 seconds

Post event duration 120 seconds

Record file type AVI

Overwrite ☒ Enable ☐ Auto delete 180 days (1 ~ 180)

SD File System

Type VFAT

Normal record schedule

☒ Always ☐ Only scheduled time

Check SD card is present physically.

Enable it and format if required.
Check **SD status** is **Recording**.

If SD card is not present or its status is Off then:

- no ANPR snapshots stored
- no advanced integration available

Should native events (motion detection, scheduled recording etc) be employed consider

- 1) installing 2 SD cards
- 2) using **class 10 64-128 Gb** SD cards
- 3) setting **Overwrite** and **Auto delete** features

However it is strongly recommended that you disengage any native events as these affect overall camera performance and thus ANPR app performance.

Camera Settings

Video setup

WISENET XND-6120R admin Help

- Basic
- PTZ
- Video & Audio**
 - Video setup**
 - Audio setup
 - Camera setup
 - Smart codec
 - WiseStream
- Network
- Event
- Analytics
- System
- Open Platform

Video setup

☐ Enable Privacy area

ⓘ Make 4 dots on the video preview window.



Pattern

Solid

Delete

No.	Name
-----	------

Video rotation

Flip ☒ On ☐ Off

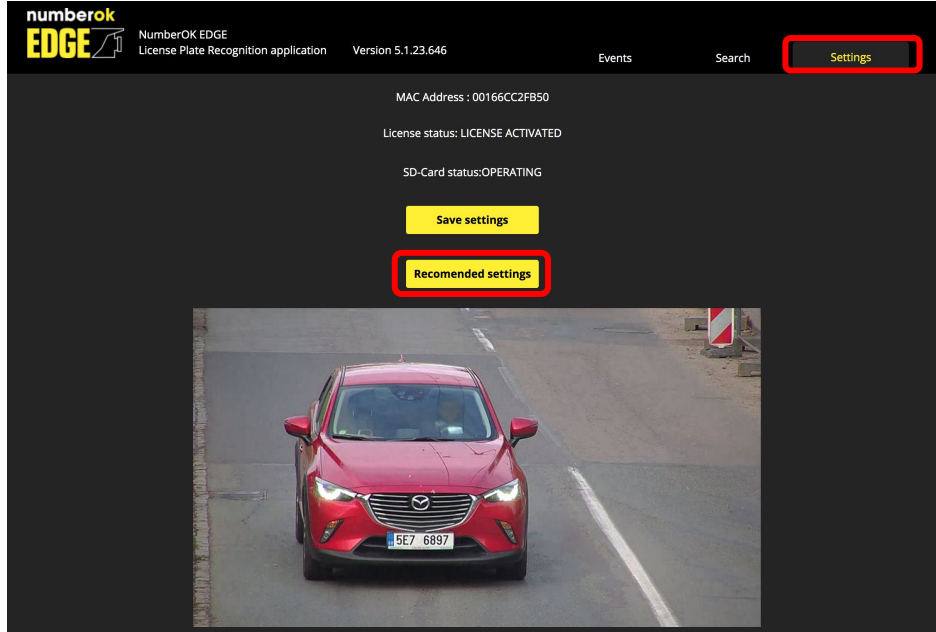
Mirror ☒ On ☐ Off

Hallway view 0 degree (Clockwise)

Check video settings and ensure the picture looks natural.

Camera Settings

Recommended settings



Customer can now use the **Recommended Settings** button on the **Settings** tab of NumberOkEdge application to configure video settings with the recommended parameters covered on the following sections.

Please keep in mind that fine-tuning of camera parameters depends on individual setup and may slightly vary from the basic setup

Camera Settings

Exposure adjustments

WISENET XND-6120R admin Help

Basic < PTZ < **Video & Audio** < Video setup < Audio setup < **Camera setup** < Smart codec < WiseStream < Network < Event < Analytics < System < Open Platform <

Camera setup

Camera setup



Image preset mode User preset

Sensor	SSDR	White balance	Backlight	Exposure
Day/Night	Special	OSD	Heater	IR

Brightness (1 ~ 100)

Minimum shutter

Maximum shutter

Prefer shutter

Anti flicker

SSNR

SSNR 2D Level

SSNR 3D Level

The settings below are optimal for the best ANPR results

Sensor: 25-30 fps

SSDR: Off

White balance: ATW

Back light: Off

(try other backlight options only if camera gets blinded by headlights in the night)

Exposure:

- Minimum shutter: 1/700
- Maximum shutter: as much as possible (e.g. 1/12000)
- Prefer shutter: 1/5000
- Anti flicker: Off
- SSNR (noise reduction): default
- Lens: as appropriate (set to DC whenever available)
- P-Iris: set to maximum
- AGC (gain control): Off

Day/Night:

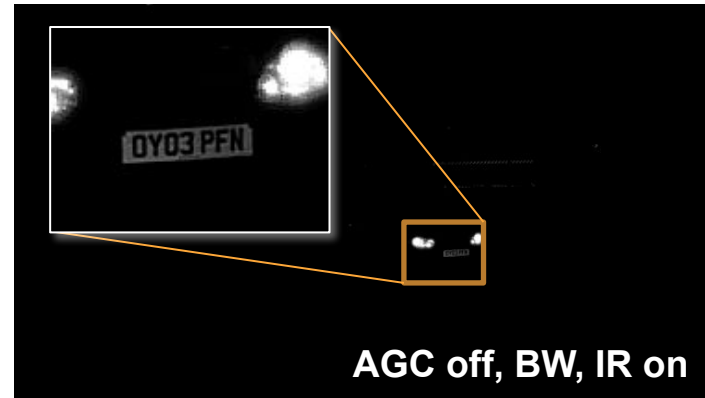
- Mode: B/W
- Simple focus after D/N: Off

IR: manual, level 100

Other settings: default

Camera Settings

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 and setting IR power as much as possible (while controlling possible bleach out at closer ranges). See the illustration above. Set AGC to low or high 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 so it is closer to the centre of the frame to avoid IR vignette effect.

Camera Settings

Focus setup

WISeNET XNO-6080R admin Help

Basic PTZ **Video & Audio** Wisestream

Video setup
Audio setup
Camera setup
Smart codec
Focus setup

Network
Event
Analytics
System
Open Platform

Focus setup

Reset

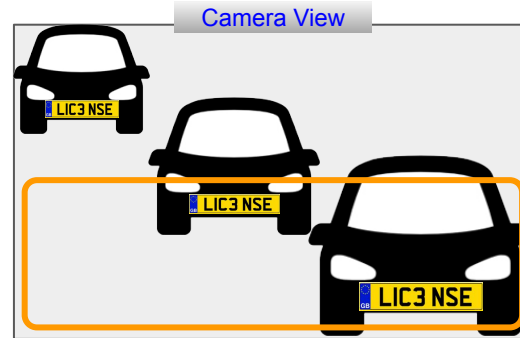


	-100	-10	-1	1	10	100
	-100	-10	-1	1	10	100

Focus setup controls including a zoom icon and a focus icon.

Adjust focus so number plates are sharp within intended recognition area.

Please, note that screen resolution pictures seem sharper than they actually are.



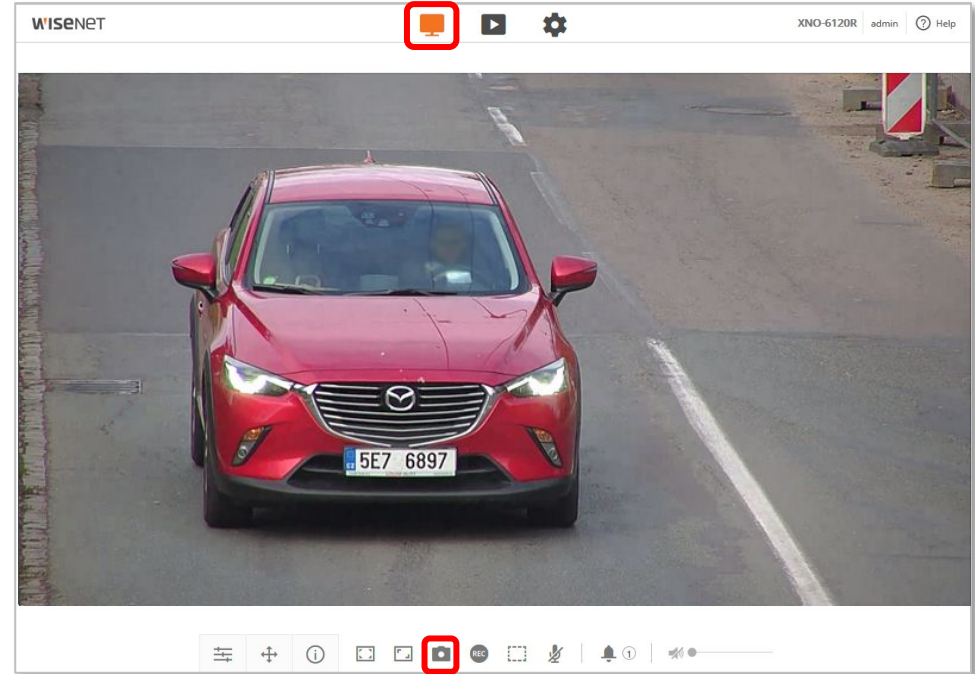
Camera Settings

Focus setup

To measure pixel width of plate numbers and check focus:

1) spread or move plate numbers (cars) across the scene (see illustration on the right) and take snapshots using WiseNet web viewer capturing feature (**Live** -> **Capture**);

2) use any free image processing or viewing software
(a) to assess picture sharpness at 100% zoom
(b) to measure plate number width and tilt angles



Camera Settings

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 sharper picture.



Camera Settings

Exposure faults



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



Insufficient light. Adjust exposure settings or
provide additional lighting.



Useful resources

Next step	Application Installation as PDF or Power Point Application Setup as PDF or Power Point
Product page	https://www.hanwha-security.eu/business-security-products/xno-6120rfnp/
Product wiki	ff-group.org/hanwha
Installation Checklist	PDF: https://goo.gl/v29ZTW
Tech support contacts	https://www.hanwha-security.eu/support/support-faqs/
Online tools	https://www.hanwha-security.eu/online-tools/
More resources	https://www.hanwha-security.eu/support/