# Installation & Configuration Guidance of DeepinView LPR Camera

# Preface

(1) Product Portfolio: **IP Camera:** iDS-2CD7A26G0/P-IZHS (C) iDS-2CD7A46G0/P-IZHS (C) iDS-2CD7A26G0/P-IZHSY (C) --Support Wiegand iDS-2CD7A46G0/P-IZHSY (C) --Support Wiegand iDS-2CD7026G0/EP-IHSY(C) iDS-2CD7046G0/EP-IHSY(C)

#### DVR:

iDS-72XXHUHI-M/S

#### NVR:

DS-xxxxNI-I iDS-xxxxNXI-I

- (2) Highlight Features:
- Newly support vehicle type, vehicle logo and plate characters recognition at the same time;
- Two detection modes can be selected:
  - a) Vehicle Priority: the overview of the vehicle needs to be obtained first, and then the plate recognition can be performed;
  - b) License Plate or Vehicle:

Product	Deeplearning Algorithm	Plate Recognition Mode	Recognition Object
DS-2CD7xxx/P	$\checkmark$	License Plate or Vehicle/Vehicle Priority	Plate characters
iDS-2CD7xxx/P	$\checkmark$	License Plate or Vehicle/Vehicle Priority	Plate characters, vehicle type
iDS-2CD7xxx/P (C)	$\checkmark$	License Plate or Vehicle/Vehicle Priority	Plate characters, vehicle type

### **Chapter 1 Installation**

(1) It is recommended to cover no more than 2 lanes for each ANPR camera;

(2) Select the appropriate lens according to following table:



Lens (mm)	Min recognition distance (m)	Max recognition distance (m)
2.8~12	2	18
8~32	6	48
3.8~16	3	24
11~40	8	60

(3) Choose installation height accordingly (when pitch angle is  $30^{\circ}$ ):



Туре	Height(m)	Min L (m)
Entrance/Exit	1.5	2.5
	2	3.5
City Street	3	5
	4	7
	5	8.5
	6	10

Entrance/Exit			City Str	eet		
<b>HIKVISION®</b>	Live View Playba	ack Picture	Application Co	nfiguration Smart Di	splay VCA	
VCA Resource	Detection Configuration	Picture Advanced Parame	eters Configuration Blockli	st & Allowlist		
General VCA Settings	Туре	Vehicle Detection	~			
Road Traffic	Enable					
Road Traffic	Area Settings Armi	ng Schedule and Linkage Metho	d			
	66-66-2021 Pri 16:82-24					
	Total Number of Lanes	1	~			
	Region	Europe Region	~			
	Country/Region	General	~			
	Select Mode	Entrance/Exit City Street				
	Detection mode	Alam mput	U			
	☑ Remove Duplicated Lie Time Interval	ense Plates	minute(s)			
	Save					

(4) The pitch angle (the angle between camera-vehicle line and the road) should

be larger than 15  $^\circ~$  and less than 30  $^\circ~$ 



# Example:



(5) The angle between the vehicle-moving direction and the vertical direction should be less than 30  $^\circ$ 



Example:





#### (6) The pixels of following objects need to satisfy:

	Plate Characters	Vehicle Logo	Vehicle Type
	Recognition	Recognition	Recognition(*)
2 MD Camora	20 <height<30< td=""><td></td><td>&gt;256</td></height<30<>		>256
	100 <width<200< td=""><td>~23 x 25</td><td>~230</td></width<200<>	~23 x 25	~230

4 MP Camera	27 <height<40< th=""><th>&gt;34 x 34</th><th>&gt;345</th></height<40<>	>34 x 34	>345
	135 <width<270< td=""><td>· · · · · · ·</td><td></td></width<270<>	· · · · · · ·	

\*Note: For vehicle type recognition, the camera needs to be installed at a bayonet and be able to overview the whole vehicle. The short edge of vehicles's circumscribed rectangle (see illustration fig. below) should be larger than the pixels listed on above table.



### **Chapter 2 Configurations**

 Go to Image>Display Settings>Day/Night Switch and set the Day/Night Switch to the "Triggered by Video"; ^Day/Night Switch

Day/Night Switch	Triggered by Video	~
Sensitivity	4	~
Filtering Time	0	5
Smart Supplement Light	OFF	~
Supplement Light Mode	IRlight Supplement Light	~
Light Brightness Control	Auto	~

(2) Go to Image>Display Settings to change Exposure Time and Gain according to the standard below (the Gain control can be operated only after step 1 is finished):

Speed < 30km/h	 Exposure Time : <b>1/150-1/200</b> ;
30km/h < Speed < 60km/h	 Exposure Time : <b>1/250-1/500</b> ;
60km/h < Speed	 Exposure Time : <b>1/500-1/1000</b>

Gain : Generally set as **20** and we usually don't change this.



(3) Make sure the Focus Mode is semi-auto.

HIKVISION®	Live View	Playback	Picture	Applicatio	n Configuration	Smart Display
🖵 Local	Display Settings	OSD Settings	Privacy Mask	Picture Overlay	Image Parameters Switch	
System	Faana	Nor	mal			
Network	scene	INOT	mai	<b></b>		
Video/Audio	63/31/2821 Net 19/54:32		8		* Image Adjusun	ent
🔝 Image		CKR	C.D.		~ Exposure Setti	ngs
Event					^ Focus	1941
🖺 Storage	100		AL.	N THE	Focus Mode	Semi-auto
Road Traffic	apt-	THE REAL PROPERTY OF	ES MA		~ Day/Night Swite	ch
Counting			<b>R</b> ank (	215-14 A	~ Backlight Settin	ngs
				S. Sec.	~ White Balance	
		A	Construction (Down		✓ Image Enhance	ment
	100		- F	1	~ Video Adjustme	ent
		- And	10-20-2	Ganera 01	~ Other	
				60	Default	

If the image effect is not satisfied:

a. Choose the pre-settings Scene and the referring using scenario to try whether the effect is getting better.

Display Settings	OSD Settings	Privacy Mask	Picture Overl	ay
Scene	Bac	mal k light		
	Fror	nt light Illumination		
No.	Cus	tom1 tom2		

- b. WDR or HLC will make the image easier to perform the "ghost image" or detail lost. So if the strong light can be solved by the exposure and gain settings, we don't recommend you enable these to counter strong lights.
  - A Backlight Settings

BLC Area	OFF	~
WDR	OFF	~
HLC	OFF	$\checkmark$

White Balance

c. Double check whether the installation angle is smaller than 30  $^\circ\,$  and the

installation height satisfy the full observation of full scale of vehicle.

(4) Go to Picture to choose the text overlay on the picture as the scenario needs;

HIKVISION®	Live View Play	yback Pict	ure Applicatio	n Configuratio	on Smart Displa	y VCA	
C VCA Resource	Detection Configuration	Picture Advance	ed Parameters Configuration	Blocklist & Allowlis	t		
General VCA Settings	Picture Type	Background	<ul> <li>license plate/target close</li> </ul>	e-up 🗌 Vehicle			
Road Traffic	<ul> <li>Picture Quality</li> </ul>		80				
Road Traffic	O Picture Size	1024	kb				
	Overlay						
	Font Color		<b>()</b>				
	Background Color		•				
	Text Overlay						
	Device No.	Capture Time	Vehicle Type	Moving Direction	Plate No.	Camera Info.	
	Validity	Vehicle Color	Vehicle Brand				
		Туре			Sorting		
		Camera Info.			÷ +		
		Device No.			<b>+ +</b>		
		Capture Time			÷ +		
		Plate No.			<b>+ +</b>		
		Vehicle Color			÷ +		
		Vehicle Type			<b>+ +</b>		
		Vehicle Brand			+ +		
		Moving Direction			<b>+ +</b>		
				©2021 Hikvis	sion Digital Technology (	Co., Ltd. All Rights Reserved	d.

(5) Go to Road Traffic to select detection type;

HIKVISION®	Live View Pla	yback Pic	ture .	Application	Configuration	Smart Display	VCA				
Co VCA Resource	Detection Configuration	Picture Advan	ced Parameters (	Configuration	Blocklist & Allowlist						
General VCA Settings	1990 - 19900 - 19900 - 19900 - 1990 - 19900 - 1990 - 1990 - 1990 - 1990 - 1990	Mixed-traffic De	tection								
Road Traffic	Type	vencie Delectio	ли :								
Road Traffic											
1	Area Settings A	Area Settings / Arming Scheoule and Linkage Method									
	68-66-2021 Fri 18-59:	₽ ₽	Lan Corres								
	Total Number of Lanes	1		<b>~</b>							
	Region	Europe Region		~							
	Area/Country	General		~							
	Select Mode	Entrance/Exit		~							
	Detection mode	Vehicle Priority	,	· 0							
	Remove Duplicated	License Plates									
	Time Interval	4		minute(s)							
	🖹 Save										

Detection type can be set as Vehicle detection or Mixed-traffic Detection.

- Vehicle detection: the passed vehicle can be detected and the picture of its license plate can be captured.
- Mixed-traffic Detection: motor vehicle and non-motor vehicle can be detected, and the picture of the object or license plate can be captured
   (6) Go to Road Traffic to select lane numbers (1~2) and traffic mode;

HIK	VISION®	Live View Play	back Picture	Application	Configuration	Smart Display	VCA
63	VCA Resource	Detection Configuration	Picture Advanced	Parameters Configuration	Blocklist & Allowlist		
1	General VCA Settings	Ture	Vahiala Detection	v l			
	Road Traffic	Type	Venicie Delection	•			
	Road Traffic	V Enable	vice Cabadula and Linkas	Mathad			
		68-66-2021 Pri 19-66:3		Lane ine t Caree of			
		Total Number of Lanes	1	~			
		Region	Europe Region	~			
		Area/Country	General	~			
		Select Mode	City Street	~			
		Detection mode	Vehicle Priority	✓ ①			
		Remove Duplicated	License Plates				
		Time Interval	4	🧭 minute(s)			
		☑ Remove Duplicated I Time Interval 🖹 Save	License Plates	🥏 minute(s)			

(7) Area Settings:

*Blue Detection Line*: Mainly used for Entrance/Exit with a purpose of improving the capture efficiency. The line is the trigger line of license plate and we highly recommend you put it middle-lower of the screen to make sure the car can pass it with the plate and the full scale.

Detecting Area: The Actual detect area is the 2 yellow lane and the square they seized.

(8) Select Mode:

*Entrance/Exit:* It means the camera is set to monitor the Entrance & Exit and will get a better performance at this scenario. Also, E&E mode only supports 1 lane.

City Street: It means the license plate information of the detected vehicle will

be uploaded when the vehicle passes the detection area and triggers the detection. City Street can support 2 lanes.

*Alarm Input:* It means the input alarm will trigger a license plate capture and recognition action.

(9) Detection Mode:

*Vehicle priority mode*: the classic mode of the ANPR camera, it will detect the vehicle scale first, then catch the plate out to make the analysis. It will get the better accuracy but sometimes it will lose some results in the not-satisfied installation scenario. When choosing this mode, the City Street mode is recommended.

*License plate or Vehicle mode*: this mode will allow the ANPR camera to capture the vehicle plate simultaneously with the scale of vehicle is detected. This mode will greatly improve the recognition at some not-satisfied installation scenario. When choosing this mode, the Entrance/Exit mode is recommended.

So we recommend you to use **Vehicle priority mode first** if there is no issues on installation and filling lights. After the issues of plate recognition is carried out, you can **switch the mode to License plate & Vehicle mode**.

(10) Go to Arming Schedule and Linkage Method to continue:Here you can set the arming schedule and linkage action independently for allowlist, block list and other list, so you need to set them one by one;



(11) Select a direction here. The Forward means vehicle moves toward the camera; Reverse means vehicle moves away from the camera. Only the vehicles moving as the selected direction can trigger selected linkage methods. We highly recommand you choose All if there is no special use;

 Linkage Method

 Direction 

 All 
 Forward 
 Reverse

 Normal Linkage
 Trigger Alarm Output
 Send Email
 A->1
 Notify Surveillance Center
 A->2
 Upload to FTP/Memory Card/...

(12) You can set linkage here, including Send Email, Notify Survelliance Center or Upload to FTP/xxxx;

Linkage Method								
Direction								
🖌 Normal Linkage	✓ Trigger Alarm Output							
☑ Send Email	☑ A->1							
✓ Notify Surveillance Center	☑ A->2							
Upload to FTP/Memory Card/								

(13) The last part is to import the blocklist and allowlist. If you don't have

-												
HIKVISION®	Live View Playback P	icture Application	Configuration Smart Display	VCA								
VCA Resource	Detection Configuration Picture Advan	ced Parameters Configuration Block	list & Allowist									
General VCA Settings												
Road Traffic	Import Blocklist & Allowlist											
Road Traffic	Blocklist & Allowlist File Browse Import											
Road Halle	Status											
Note: You can set at most 10,000 license plates in blocklist & allowlist in total. Export Blocklist & Allowlist												
	Blocklist & Allowlist Content											
	Filter by All Types	✓ keywords	Search									
	Add Delete											
	No. Plate No. Type	Creation Time Effictive Start Date	Effictive End Date Wiegand CardID	Operation								
			Total 0 Item(s) << <	1/0 > >>								

such a list in advance, export the template first to make one;

The template looks like this:

(when inputting the plate number, input several consecutive numbers/letters with no blank included.)

5								ccel							
	件开	始	插入	页面布局	公式	数据	审阅	视图	♀ 告诉那	ten	要做什么				鸱
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.al		A			в			с			D		E		F
1 1	lo.			Plate No.		Grou	up(0 block	list, 1 al	low list)		Effective Start Date (Format: YYYY-MM-DD	, e.g., 2017-12-07)	Effective End Data(Format: YYYY-MM-DD, e.g., 2017-12-07	Card No.	
2															
3															
4															
5															

(14) After the configuration is done, when there are vehicles passing, you can check the real-time plate recognition results on [Smart Display] on the camera's web page.

