Project Name: DH Network Camera
Product Construction Instruction Manual (Angle-Mounting Passenger Flow Solution)

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DH Network CameraProduct Construction Instruction Manual (Angle-Mounting Passenger Flow Solution) V1.0

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Revision History

No.	Revision Description	Revision Date	Revised Version No.	Revised by	Approved by
1	Creating document	2018-07-05	V1.0	Qi Gaoyuan	Yu Zhenwei
2	Document Revision	2018-11-12	V1.1	Chen Jiawei	Xu Jianchun
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I. Introduction

Compared with stereo vision passenger flow cameras, monocular angle-mount passenger flow cameras are installed in places where top-mounting is not possible, such as in an outdoor channel; monocular angle-mount cameras are also used for surveillance.

<table>
<tr><th>Model</th><th>Picture</th><th>Features</th></tr>
<tr><td rowspan="4">See the final section of the manual for specific camera models
IV. Model</td><td>  </td><td>IP67 waterproof
7-35mm, 2.7-12mm, 2.7-13.5mm, 05-60mm, 08-32mm
Optional for this model</td></tr>
<tr><td>  </td><td>IP67 waterproof
2.7-12mm, 7-35mm, 2.7-13.5mm, 08-32mm
Optional for this model</td></tr>
<tr><td>  </td><td>2.7-12mm, 2.7-13.5mm
Optional for all models</td></tr>
<tr><td>  </td><td>IP67 waterproof
2.8~8mm
Optional for all models</td></tr>
</table>

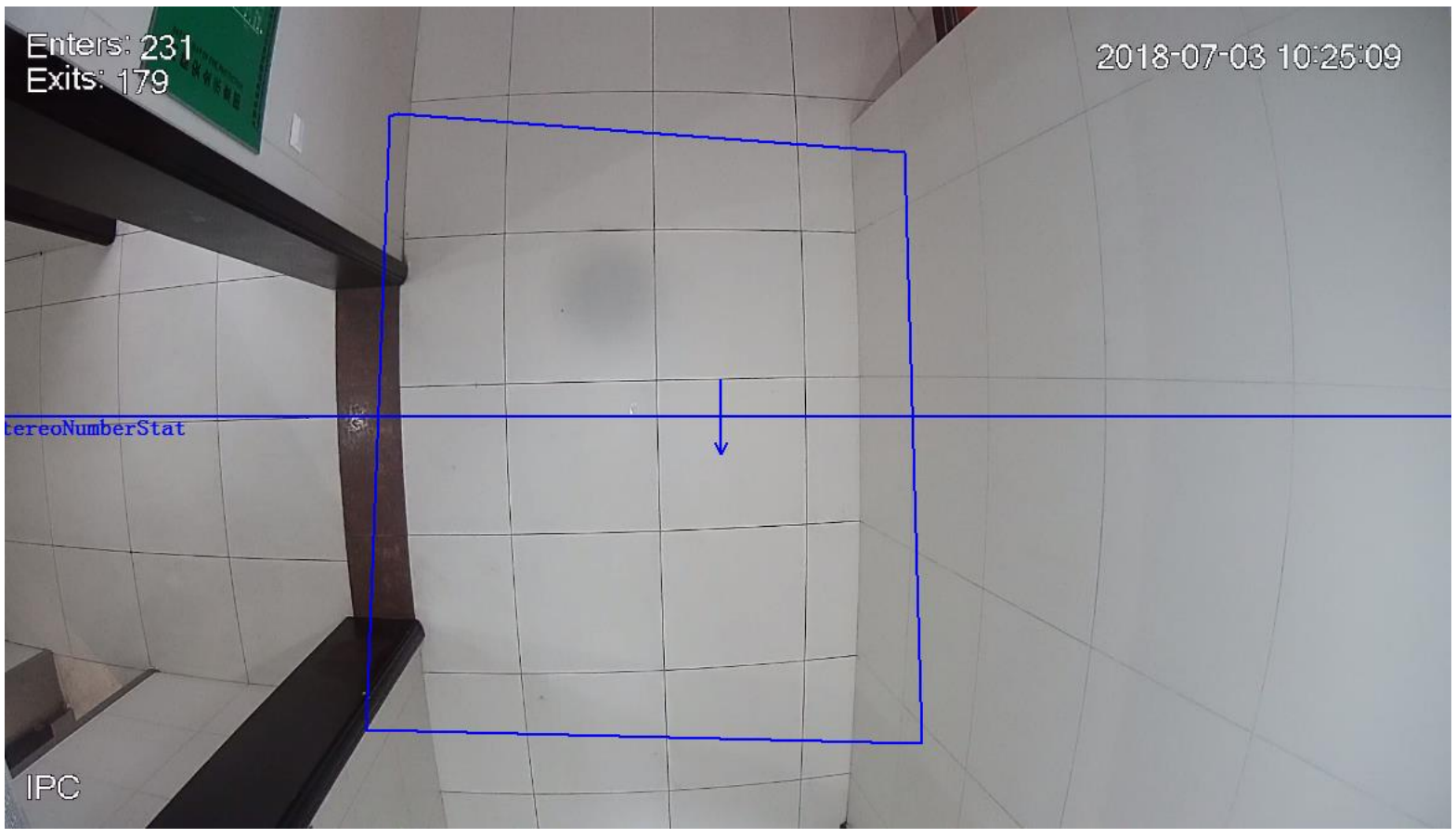
II. Installation and Adjustment

2.1 Site survey

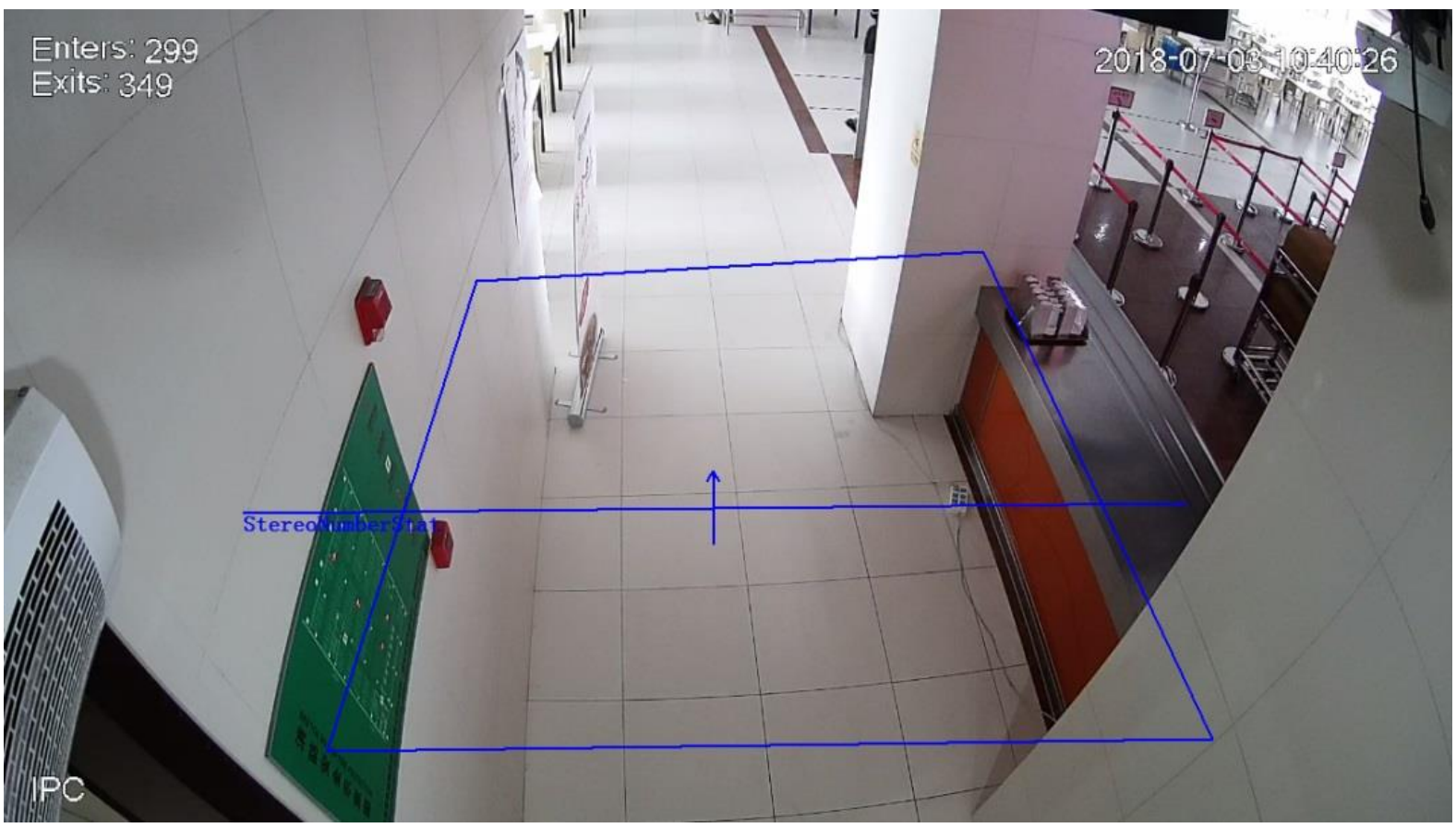
1. The installation site must be bright enough, at least to ensure the head and shoulder contour of people in the detection area is clear

2. Avoid a complex scenario with frequently changing light, backlight, and direct light exposure;

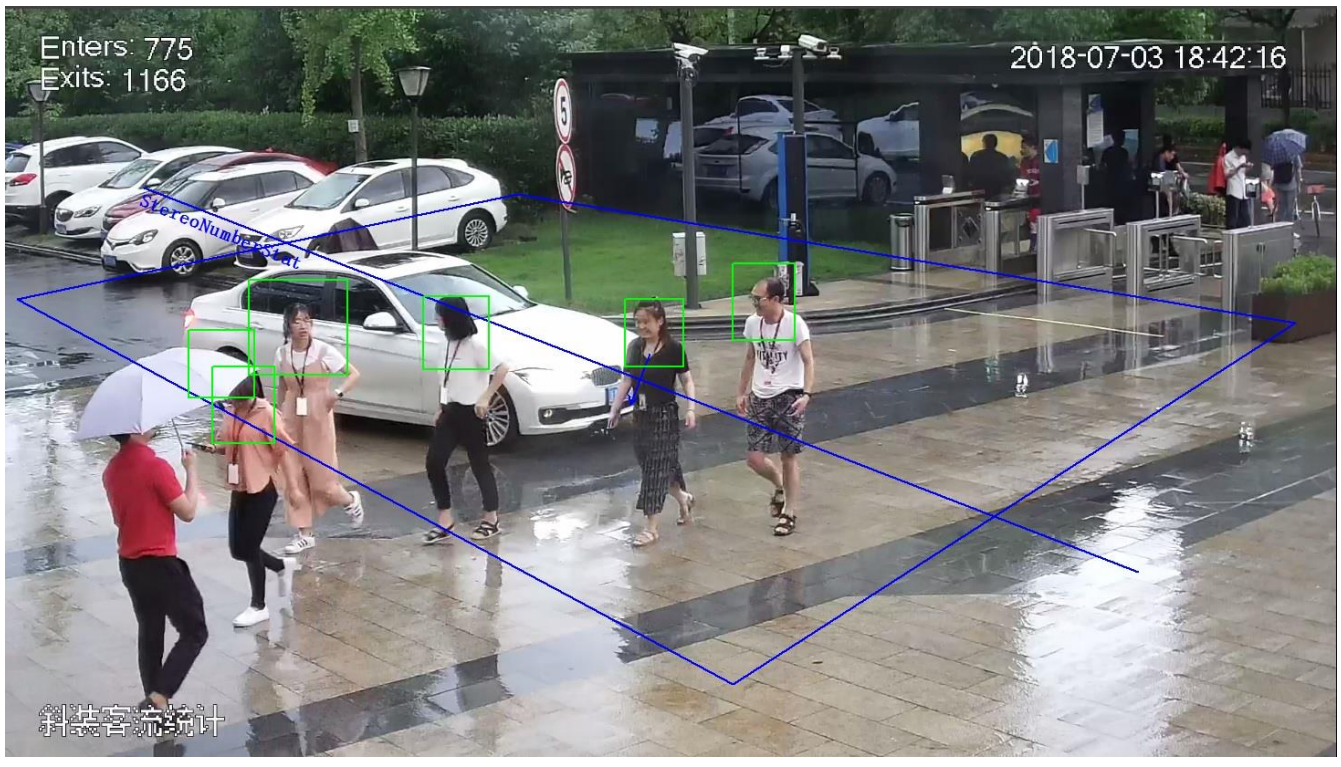
3. People count is more accurate where people largely flow to one direction and the camera is installed to directly face against the mainstream flow. A typical top mounting mode is displayed below:



If top mounting is not possible, angle-mounting or side-mounting can be substitute. However, to reduce blocking, the latter is not recommended at this stage. The figures below represent the typical image scenario of each type of installation:



Camera image of angle mounting



Camera image of side mounting

2.2 Type selection and Installation

The maximum installation height and maximum detection distance are specified for lenses of two segments in each installation mode.

Mind that the pixel size requirements apply to people in the detection area. Typically for a 1080P resolution, the pixel size is required to be 40 points for the head, and 100 points for the shoulders.

Monocular passenger flow camera

The maximum installation height and maximum detection distance are specified for zooming lenses of three segments in each installation mode. If the photographing distance reaches 45m or above, use 0560mm lenses; for 10m or below, use 2.7~13.5mm lenses or 3.5~12mm lenses; for 10-40m, use 0735mm lenses

Mind that the pixel size requirements apply to people in the detection area. Typically for a 1080P resolution, the pixel size is required to be 40 points for the head, and 100 points for the shoulders.

Top-mounting zooming monocular lenses:

Installation	Camera resolution	Type of lens	Focal length/mm	Max installation height/m	Max channel width/m	Max channel thickness/m
Top-mounting (zooming lenses)	200W	Zooming	2.7~13.5	17	7	4
	200W	Zooming	7~35	50	6.5	4
	200W	Zooming	05~60	84	6.9	3.8
	400W	Zooming	2.7~12	10	11.5	4.6
	400W	Zooming	08~32	39	10	5.6

	500W	Zooming	2.7~13.5	12.7	7.8	4.8
	500W	Zooming	7~35	33.9	5.2	4.0

Parameters of products with prime lenses are given below. The minimum installation height is 2.5m. For installations above 10m, products with zooming lenses are a better choice. The table below lists products with prime lenses based on the installation height

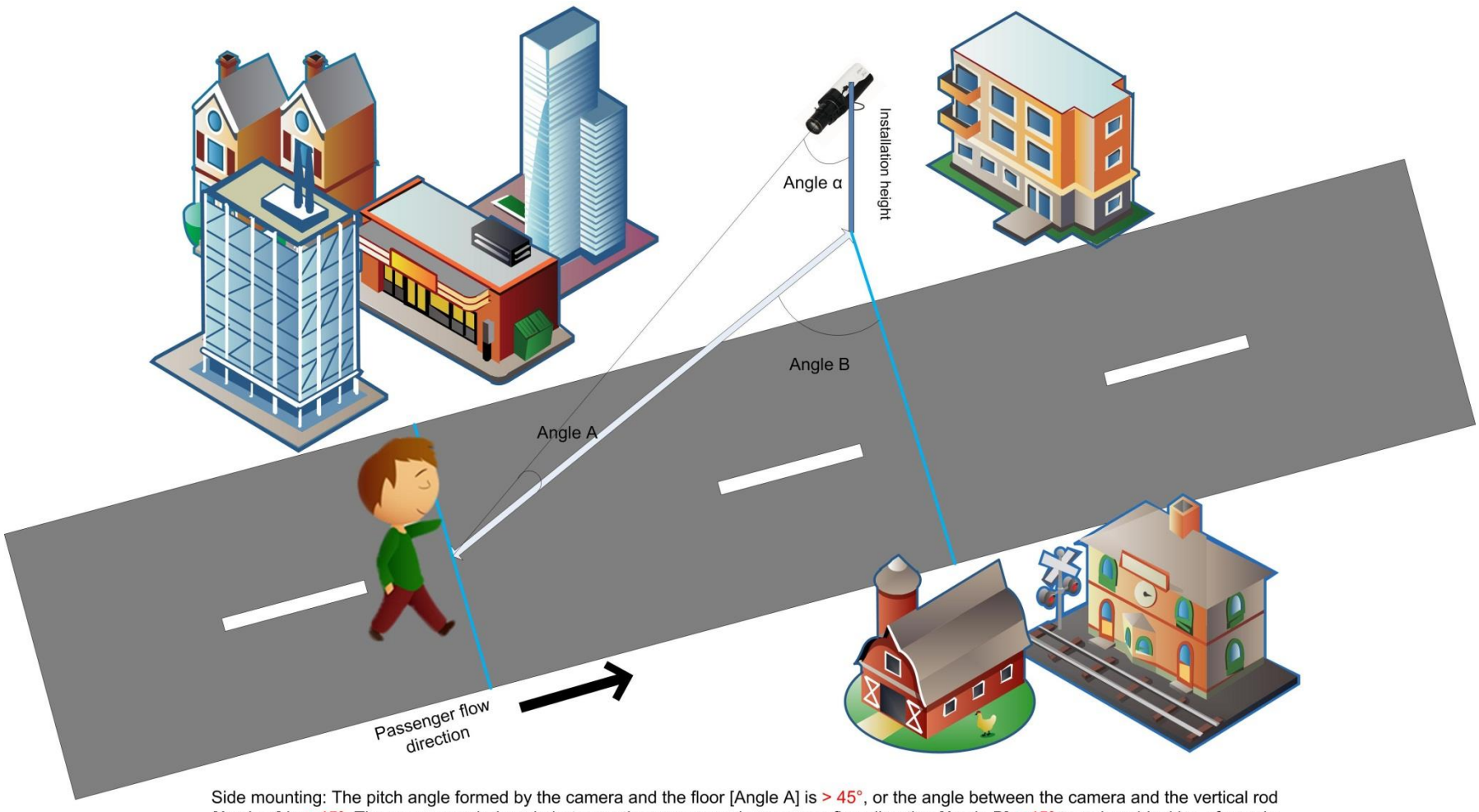
Recommended height for top-mounting products with prime monocular lenses

Installation	Focal length/mm	Recommended installation height/m
Top-mounting (prime lens)	2.8	2.5~3.5
	3.6	3.5~5
	6	5~7
	8	7~9
	12	9~16

Resolution data of top-mounting products with prime monocular lenses

Installation	Camera resolution	Type of lens	Focal length/mm	Max installation height/m	Max channel width/m	Max channel thickness/m
Top-mounting (prime lens)	200W	Prime lens	2.8	4	8.2	3.5
	200W	Prime lens	3.6	6	8	3.7
	200W	Prime lens	6	9	7.4	3.7
	200W	Prime lens	8	12	7	4
	200W	Prime lens	12	17	6.5	3.5
	400W	Prime lens	2.8	4	6.5	2.8
	400W	Prime lens	3.6	5	6.2	2.9
	400W	Prime lens	6	7	5	2.9
	500W	Prime lens	2.8	4	6.5	4
	500W	Prime lens	3.6	5	6	4
	500W	Prime lens	6	7	5.5	4
	500W	Prime lens	8	10	5.5	4
	500W	Prime lens	12	14	5.5	4

The recommended depression angle for angle mounting is 45°. Here are some recommended installation parameters on this basis:



Side mounting: The pitch angle formed by the camera and the floor [Angle A] is > 45°, or the angle between the camera and the vertical rod [Angle α] is < 45°. The recommended angle between the camera and passenger flow direction [Angle B] > 45° to reduce blocking of people.

The angle installation parameters of products with zooming monocular lenses are as follows

Installation	Camera resolution	Focal length/mm	Installation depression angle/°	Max installation height/m	Max monitoring distance/m
Angle mounting	200W	2.7~13.5mm	45°	5.5	11
	200W	7~35mm	45°	5.5	29
	200W	5~60mm	45°	5.5	55
	400W	2.7~12mm	45°	5.5	7.5
	400W	8~32mm	45°	5.5	32
	500W	2.7~13.5mm	45°	5.6	9
	500W	7~35mm	45°	5.6	24

The angle installation parameters of products with prime monocular lenses are as follows

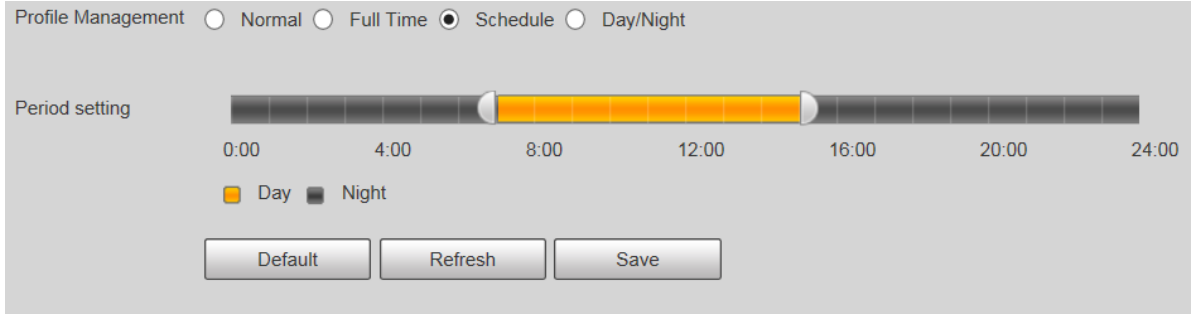
Installation	Camera resolution	Focal length/mm	Installation depression angle/°	Max installation height/m	Max monitoring distance/m
Angle mounting	200W	2.8	45°	4.5	4
	200W	3.6	45°	4.5	4.5
	200W	6	45°	5	6.5

	200W	8	45°	5.5	8.5
	200W	12	45°	5.5	12
	400W	2.8	45°	3.8	2.7
	400W	3.6	45°	4	3.3
	400W	6	45°	4.4	4.9
	500W	2.8	45°	4.4	3.5
	500W	3.6	45°	4.8	4
	500W	6	45°	5.4	5.8
	500W	8	45°	5.6	7
	500W	12	45°	5.5	10

2.3 Configuring images

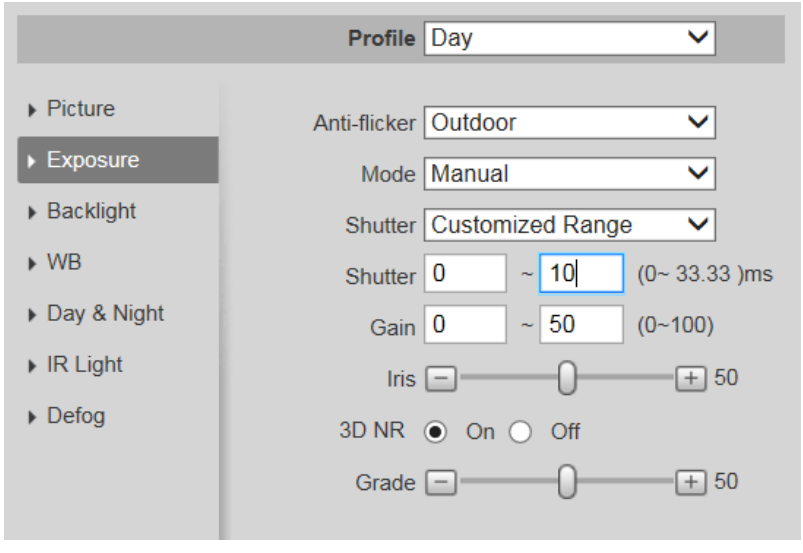
1. Upgrade to the latest general program before configuration. On GDP (gdp.dahuatech.com), choose the correct **Program Type** according to model numbers: Baseline, general patches, and then download the latest programs.

2. Set up different parameters for different scenarios in configuration. Some scenarios need two configuration plans to show the effect. In this case, switch between the configurations by time. See the following figure:

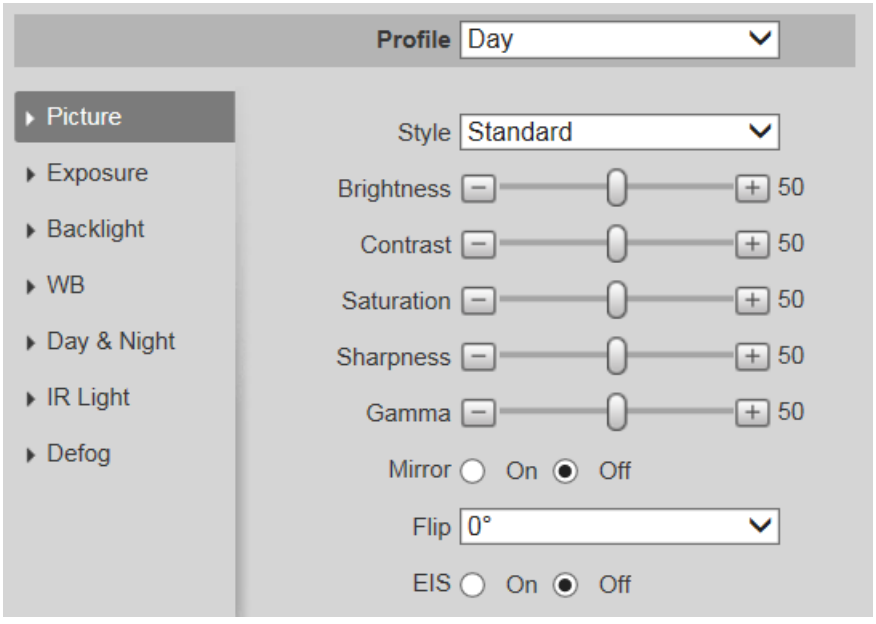


3. Like traditional cameras, angle-mounting passenger flow cameras can be used for surveillance. To this end, adjust the image quality. The default settings are enough to handle common scenarios;

Adjust the **Exposure** first. See the following figure:

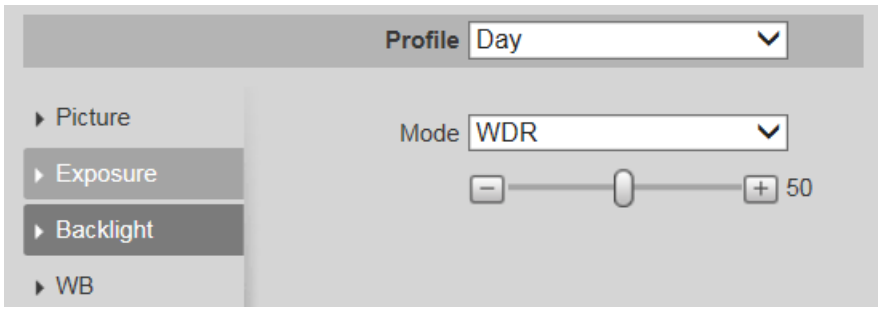


Adjust the **Picture** parameters for more refined details.



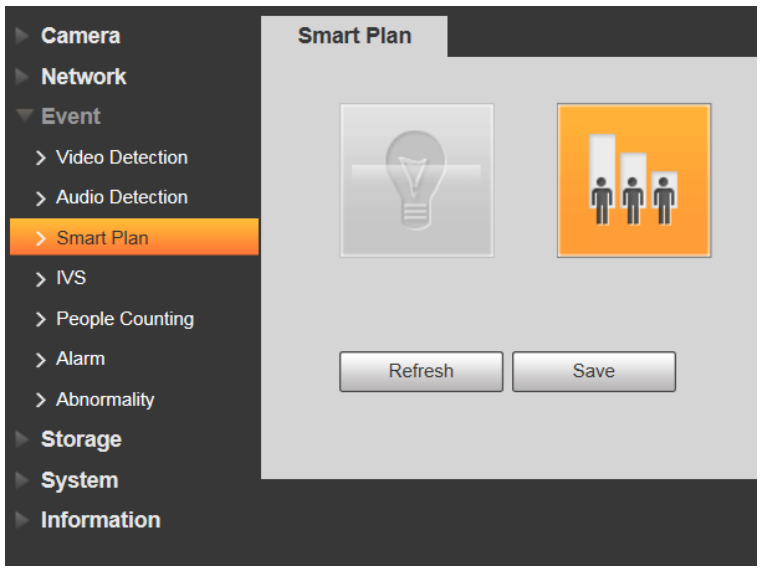
4. Adjusting the overall color: The overall cast can switch to the white balance mode, which can be done with the **Outdoor** or **Road Lamp** settings

5. In a backlight scene, enable **Backlight WDR** to adjust the picture quality.

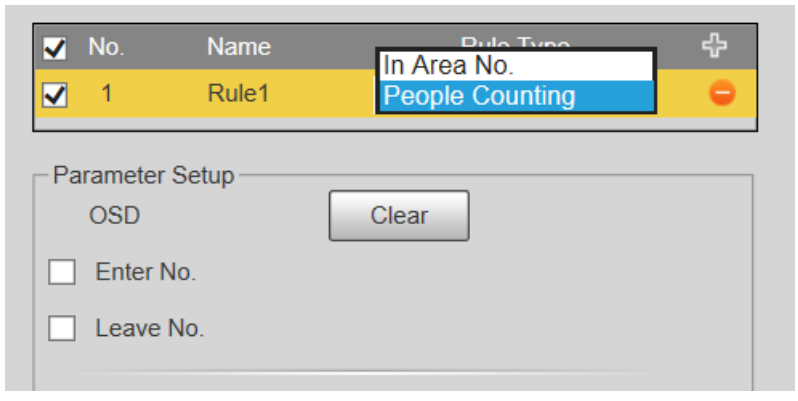


2.4 Function config

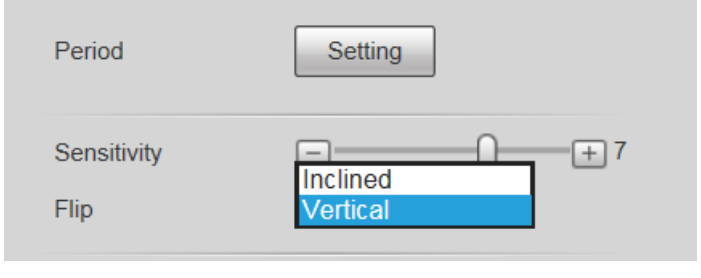
In **Settings**-**Smart Plan**, enable **People Counting**.



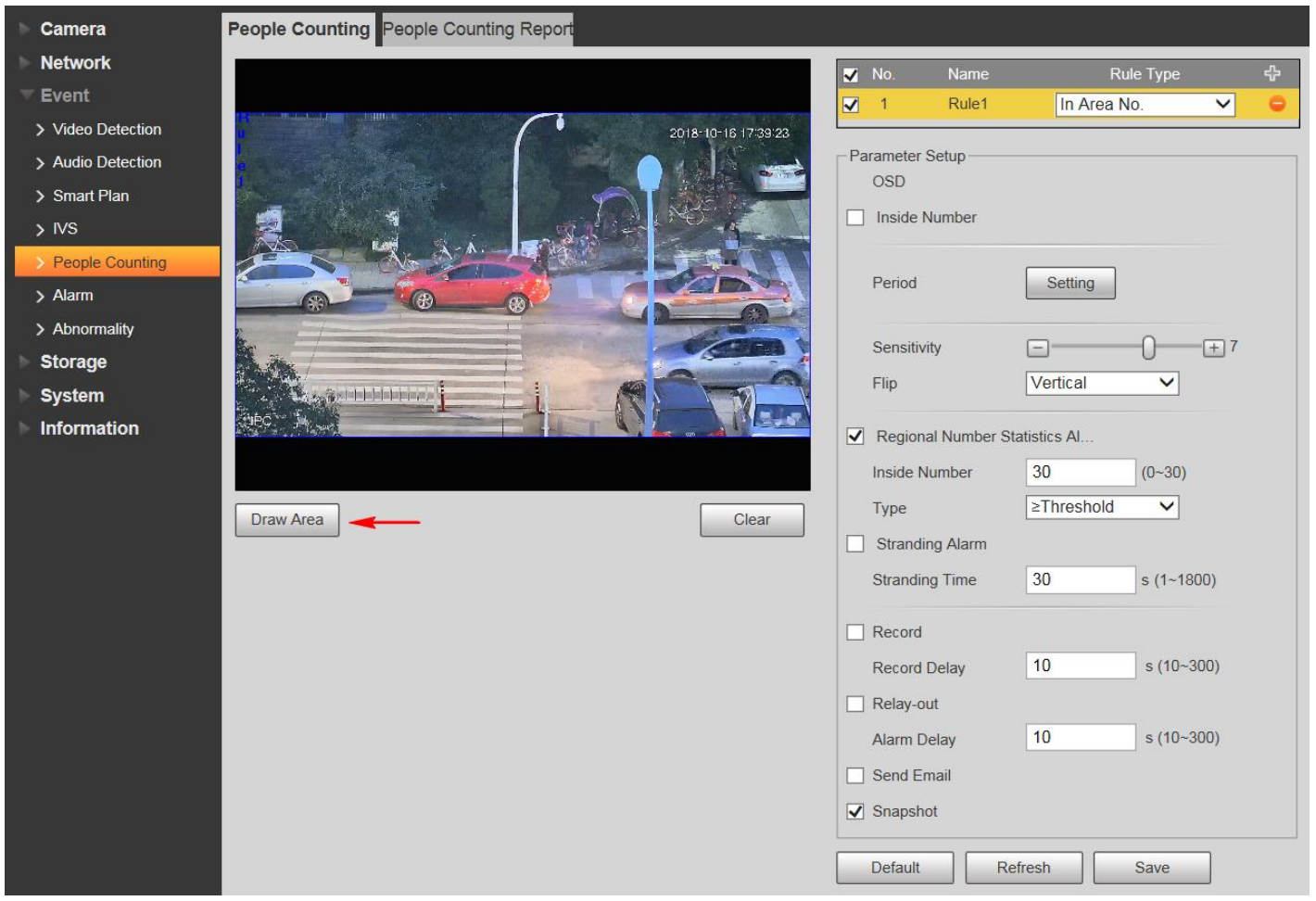
Then enable **People Counting** and **In Area No**.



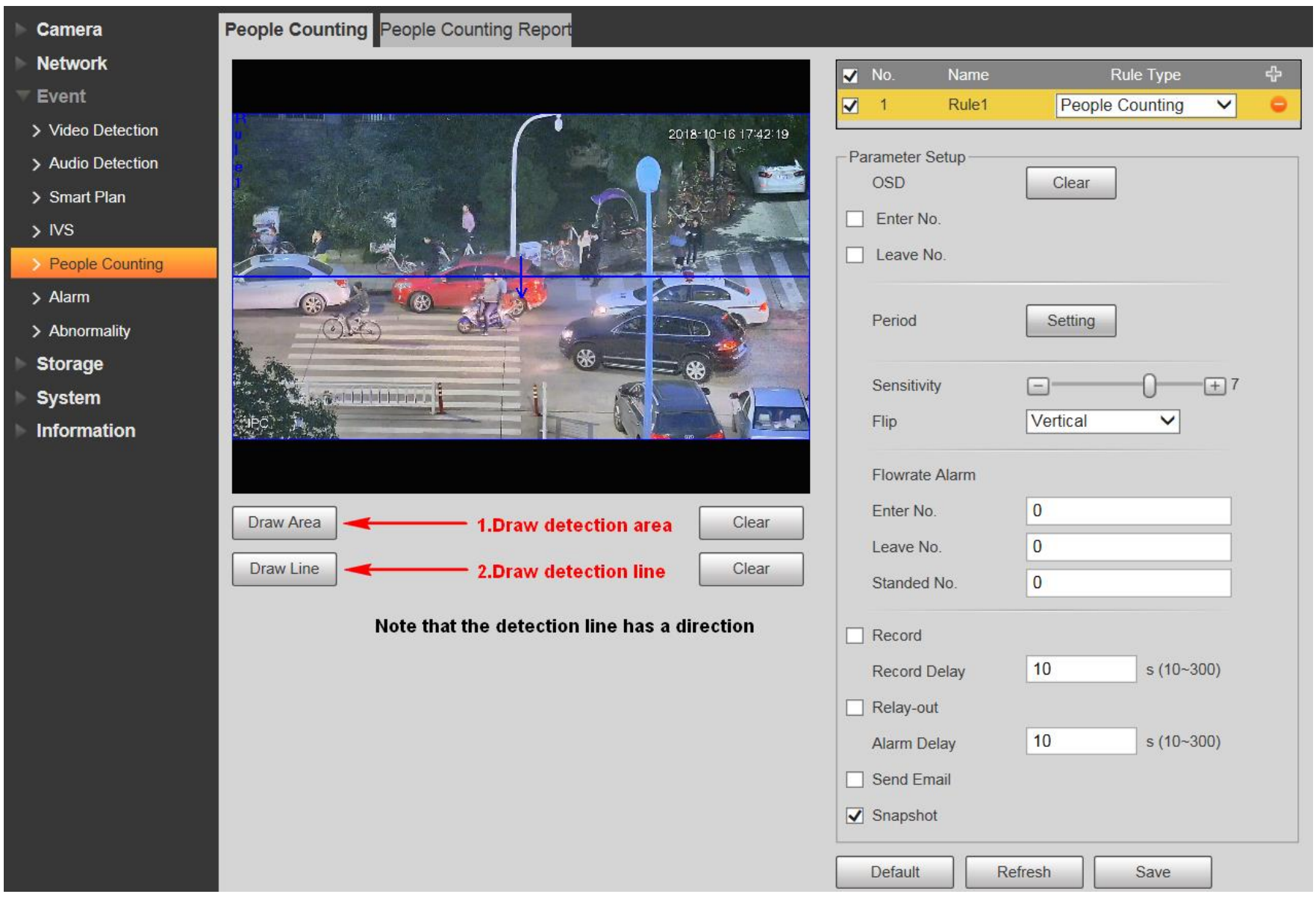
Also, select corresponding view angle of installation in the **View Angle** option based on how the camera is installed



If **In Area No**. is enabled, draw the corresponding area



If **People Counting** is enabled: Draw the detection area, and the green detection box only appears after people step into the area; the detection lines also need to be drawn



III. Notes

1. Mind that the pixel size requirements apply to people in the detection area. Typically, the pixel size is required to be 40 points for the head, and 100 points (below 450 points) for the shoulders.

2. When the camera is angle mounted, the depression angle formed by the camera and the ground must be greater than 30°; for side-mounting, the depression angle must be greater than 45°

3. Draw the detection line in the center of the image as much as possible and avoid doing this in the edges

IV. Model

Language	Product series	Shape
English	8241 series	R-type hemisphere camera, E-type gun camera, F-type bullet camera
English	5241 series	E-type small/medium gun camera, T-type acousto-optic camera, T-type infrared gun camera, T-type white light gun camera, T-type white light conch camera T-type conch camera, H-type acousto-optic conch camera, G-type hemisphere camera, R-type hemisphere camera, E-type hemisphere camera,
English	5442 series	E-type small/medium gun camera, T-type infrared gun camera, T-type white light gun camera, T-type white light conch camera, T-type conch camera, G-type hemisphere camera, R-type hemisphere camera, E-type hemisphere camera,
English	5541 series	E-type small/medium gun camera, T-type acousto-optic camera, T-type infrared gun camera, T-type conch camera, H-type acousto-optic conch camera, G-type hemisphere camera, R-type hemisphere camera, E-type hemisphere camera
English	7X4X series	bullet camera

IV. List of Files

NVR	NVR5X-4KS2	DH_NVR5XXX-4KS2_MultiLang_V3.216.0000002.0.R.20181106.zip
Client	SmartPss	DH_SMARTPSS-Win32_ChnEng_IS_V2.002.0000007.0.R.181023.zip
	DMSS	
Supporting Tools	NETSDK	General_NetSDK_Chn_Win32_IS_V3.050.0000003.1.R.181031.7zip
	PlaySDK	

	ConfigTool	
	Player	
DSS	DSS PRO	General_OverseasDSS-PRO_IS_V7.020.12I2000.0.R.20180921.exe