Installation and Configuration Guide for Dual-lens People Counting Camera

Content

Chapter 1. Brief introduction

DS-2CD6825G0/C-I(V)(S), dual-lens camera, based on the binocular stereo vision technology, adopting 3D head detection and 3D tracking, can obtain accurate real-time trajectory of all moving objects within the monitoring scope, analyze the trajectory data and achieve high-precision people counting. It is very suitable for places where people counting is needed, such as shopping mall, supermarket, chain store, the scenic spot, subway station, bus station, exhibition hall, etc. Meanwhile together with iVMS-4200, platform or server, solutions with comprehensive data analysis and query system can also be established.
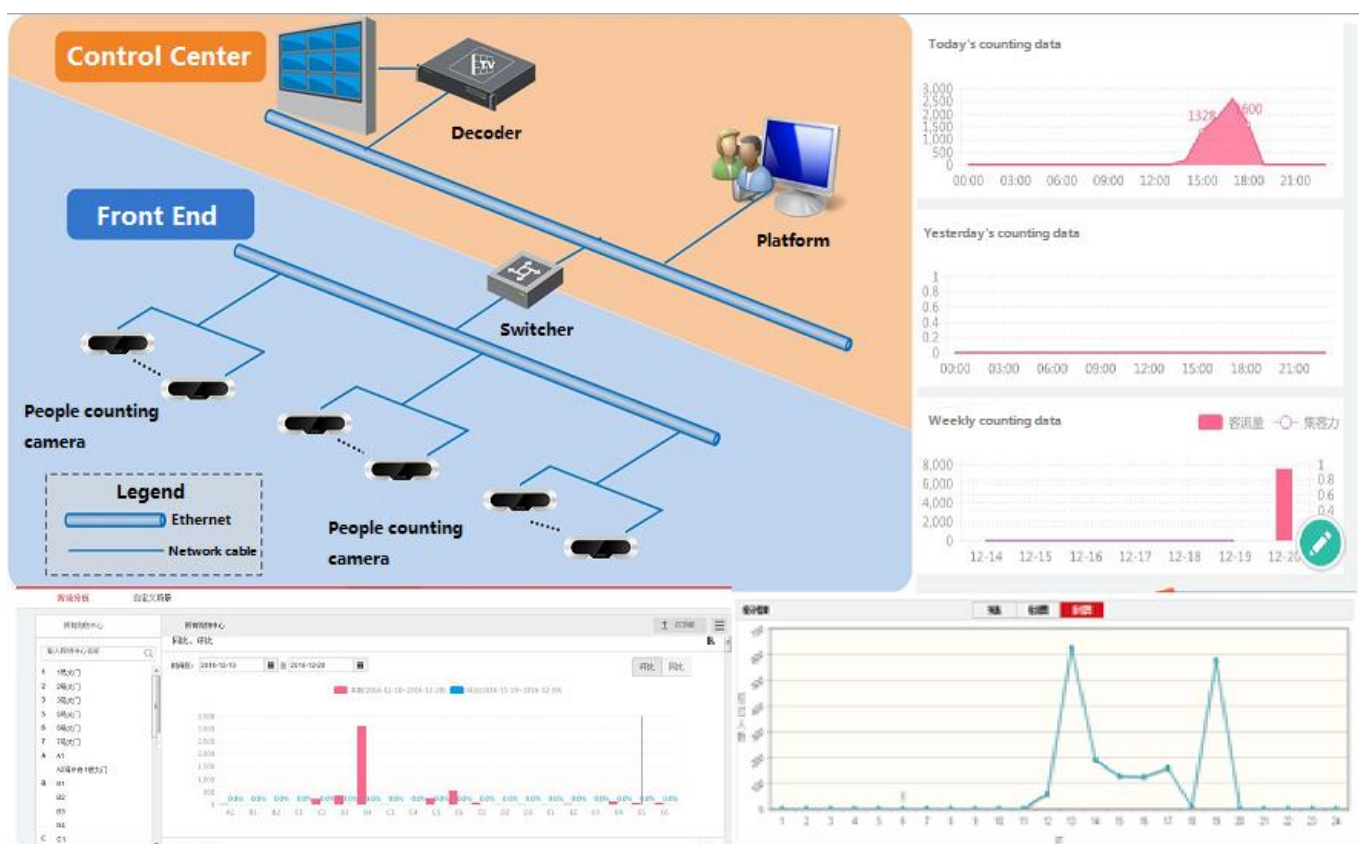
Chapter 2. Installation specification

2.1 Focal length and counting width

The counting width depends on the installation height. The recommended installation height for dual-lens camera is less than 4.0m (13.1ft). The specific corresponding relation shown below:

Focal length (mm/ft)	Installation height （m/ft）	Max. counting width （m/ft）	Max. counting depth （m/ft）
2/0.066	2.1/6.9	1.02/3.3	0.58/1.9
	2.2/7.3	1.28/4.2	0.72/2.4
	2.3/7.5	1.54/5.1	0.86/2.8
	2.4/7.9	1.79/5.9	1.01/3.3
	2.5/8.2	2.05/6.7	1.15/3.8
	2.6/8.5	2.3/7.5	1.3/4.3
	2.7/8.9	2.56/8.4	1.44/4.7
	2.8/9.2	2.82/9.3	1.58/5.2
	2.9/9.5	3.07/10.1	1.73/5.7
	3.0/9.8	3.33/10.9	1.87/6.1
	3.1/10.2	3.58/11.7	2.02/6.6
	3.2/10.5	3.84/12.6	2.16/7.1
	3.3/10.8	4.1/13.5	2.3/7.5
	3.4/11.2	4.35/14.3	2.45/8
	3.5/11.5	4.61/15.1	2.59/8.5
	3.6/11.8	4.86/15.9	2.74/9

Focal length (mm/ft)	Installation height （m/ft）	Max. counting width （m/ft）	Max. counting depth （m/ft）
	3.7/12.1	5.12/16.8	2.88/9.4
	3.8/12.5	5.38/17.7	3.02/9.9
	3.9/12.8	5.63/18.5	3.17/10.4
	4.0/13	5.89/19.3	3.31/10.9
	4.1/13.5	6.14/20.1	3.46/11.4
	4.2/13.8	6.4/21	3.6/11.8
	4.3/14.1	6.66/21.9	3.74/12.3
	4.4/14.4	6.91/22.7	3.89/12.8
	4.5/14.8	7.17/23.5	4.03/13.2
	4.6/15.1	5.5/18	3.08/10.1
	4.7/15.4	5.69/18.7	3.19/10.5
	4.8/15.7	5.88/19.3	3.3/10.8
	4.9/16.1	6.07/19.9	3.4/11.2
	5.0/16.4	6.26/20.5	3.51/11.2
	5.1/16.7	6.45/21.2	3.62/11.9
	5.2/17.1	6.64/21.8	3.72/12.2
	5.3/17.4	6.83/22.4	3.83/12.6
	5.4/17.7	7.02/23	3.93/12.9
	5.5/18	7.21/23.7	4.04/13.3
	5.6/11.5	7.4/24.3	4.15/13.6
	5.7/18.7	7.59/24.9	4.25/13.9

Focal length (mm/ft)	Installation height （m/ft）	Max. counting width （m/ft）	Max. counting depth （m/ft）
	5.8/19	7.78/25.5	4.36/14.3
	5.9/19.4	7.97/26.1	4.47/14.7
	6/19.7	8.16/26.8	4.57/15

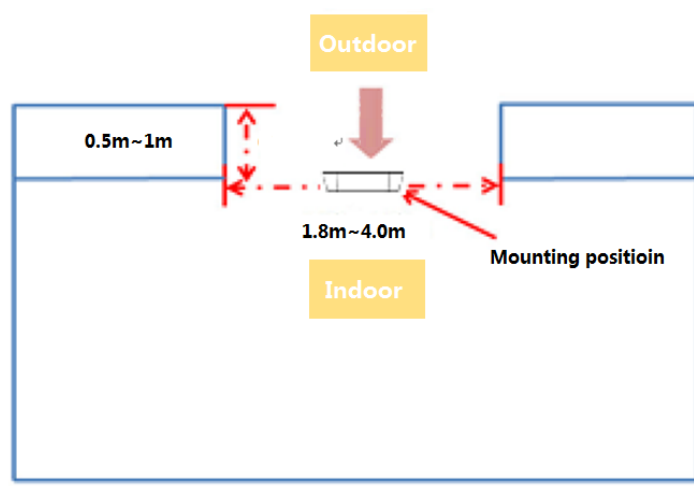## 2.2 Accessaries

	Dual-lens Camera
	Drill Template
	Screws
	Quick guide

2.3 Installation steps

Please pay great attention to the mounting position. Inappropriate mounting position may cause loss of accuracy. The recommended mounting position is shown below:
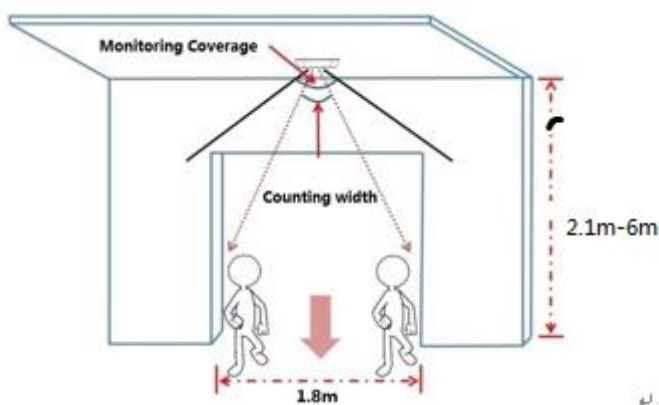
Horizontal sketch map of mounting position

Vertical sketch map of mounting position
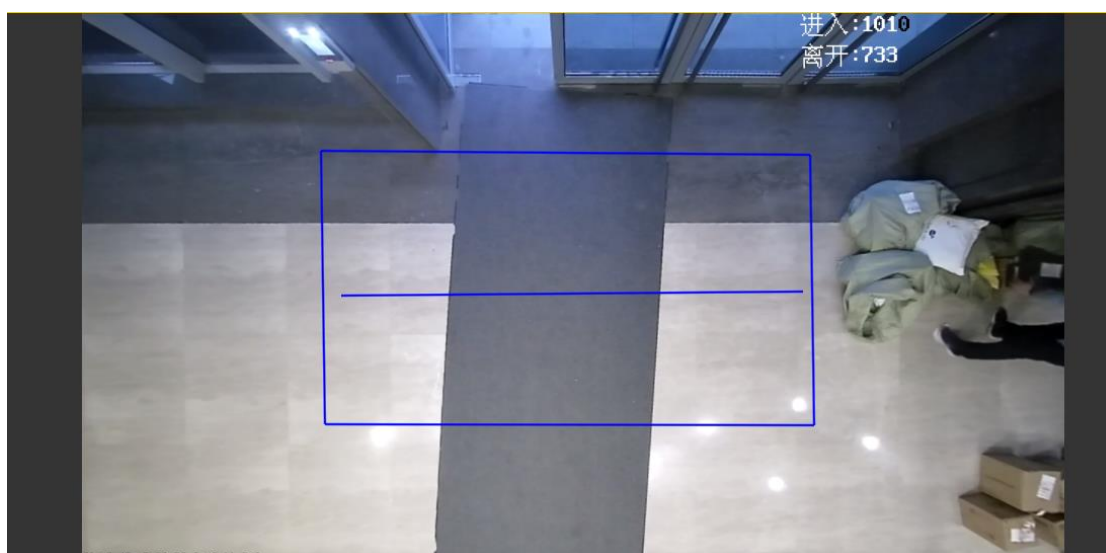
Effect picture after installation

- Keep "HIKVISION" logo in the same direction as the "Front" arrow, see picture below:

"Front" arrow and "HIKVISION" logo

● Make sure camera mounted vertically above the passenger flow(90°vertical by the ground), see picture below:

Passenger flow（perpendicular to the door）

● For some scenarios where there are multiple cameras, mount the cameras according to two rules.

Rule one: If there are turnstiles, each camera should be mounted to monitor certain turnstile

Rule two: If there is no turnstile, at first, mount the cameras in one line, and make sure the cameras have the same focal length. Then, keep a proper distance between each camera according to the overlap (see the yellow area below) of the adjacent two cameras' counting width. The suggested overlapping length is between 0.2-0.5m.
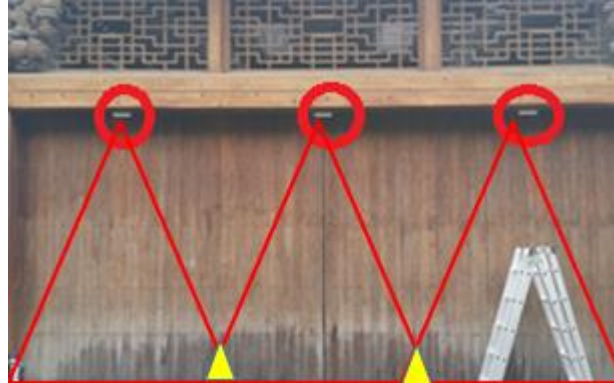
Sketch map of multiple cameras installation

Notice

1) People flow should be in vertical up-and-down direction

Passenger flow in horizontal direction (wrong)

Passenger flow in slant direction (wrong)

Passenger flow in vertical up-and-down direction (right)

2) Passageway width should be within camera's counting width
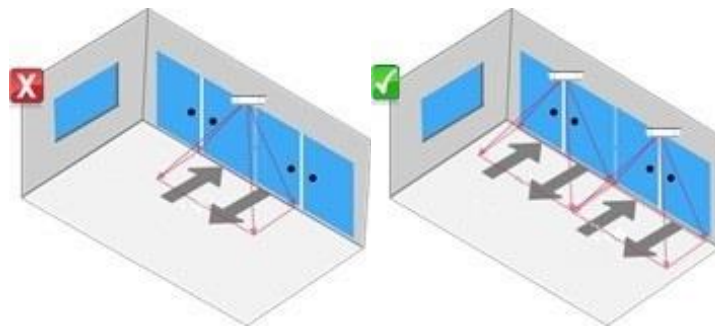
3) Avoid obstacles such glass door, shield door and turnstile that block the camera. For Each divided passageway, mount one camera right above
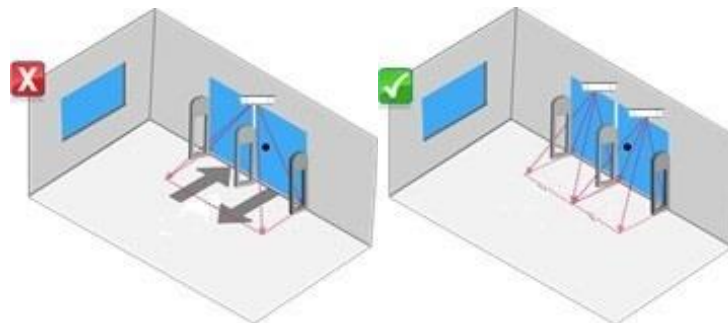
4) The camera should be mounted as close as possible to the passageway without obstacle. Remove the obstacle or adjust the camera mounting position if there is obstacle below the camera. Meanwhile, to prevent miscounting, if there's sliding door onsite, make sure the trajectory of sliding door not overlap the detection line. Otherwise, the counting number may be misled by the door opening and closing
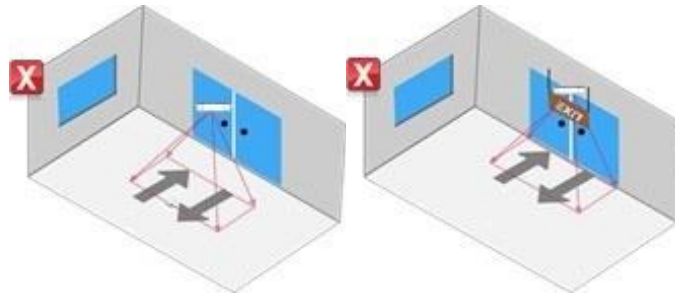
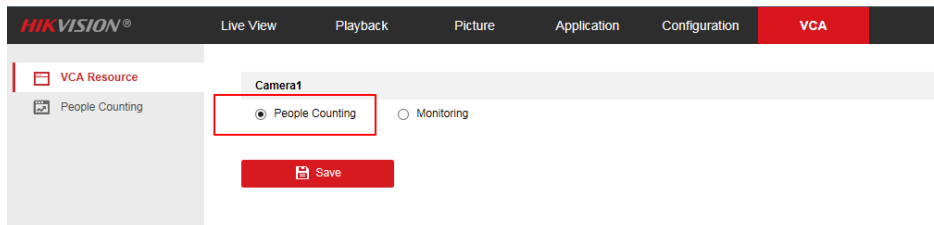Too far away from the door/Obstacle below camera
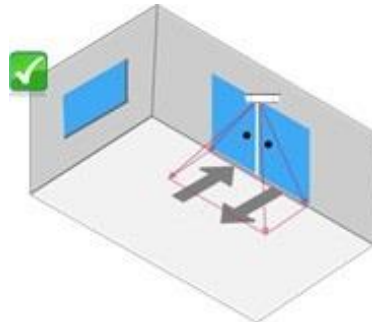
Recommended installation
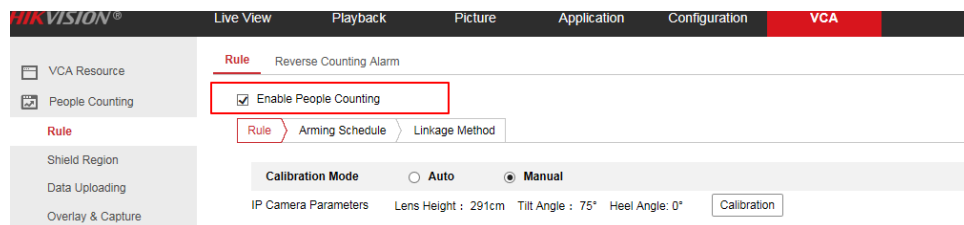
2.4 Counting configuration

Configuration for single camera

Step 1. Select VCA Resource. It is necessary to select the VCA source as People Counting Mode.

Step 2. Rule Configuration:

1) Enter 【VCA】-【People Counting】, check "Enable People Counting"。

2) Select the calibration mode: Manual and Auto are selectable.

Manual Calibration Mode: Input the Lens height (the height from Entry/Exit area to the camera), Tilt Angle and Heel Angle manually, then click "Calibrate", A red detection area will automatically

appear in the image. The red area is for counting. To increase the success rate of the manual calibration, make sure the lens height is the true value in vertical direction between the lens and the ground.
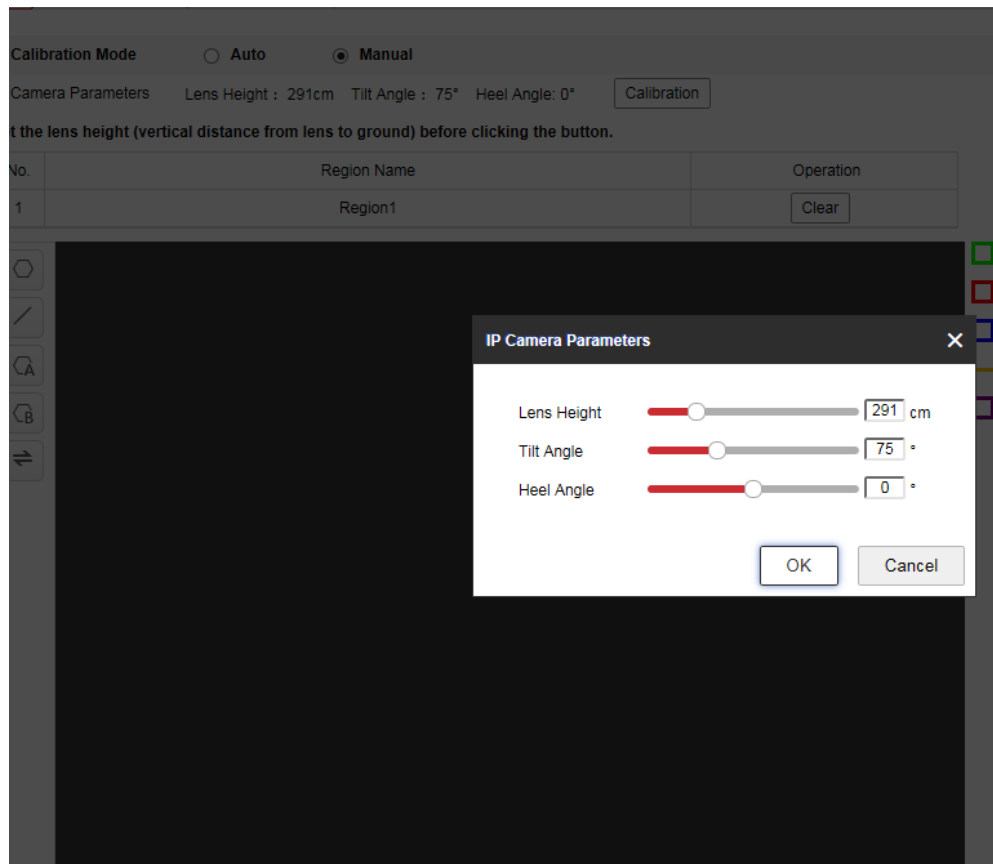
Auto Calibration Mode: It will generate the lens height and a green calibration area automatically. The calibration area is used for calibrating the height from the ground to lens. So we strongly recommend to select the totally ground part as calibration area.

Notice: If auto calibration fails, switch to [Manual] and input the measured "Height", then click [Calibration].

Step 3. Draw the region (shown as the blue frame in the below picture)

**NOTE: The rule frame should be within red counting frame**.

Step 4. Draw detection line (the yellow line as shown in the below picture) or detection region.

Detection Line: the yellow line should be within the blue detection region.

Detection Region: Draw A and B region. Make sure the two areas don't overlap. If the target enters from A region to B region, then it is counted as the entering number; If the target enters from B region to A region, then it is counted as the exiting number.
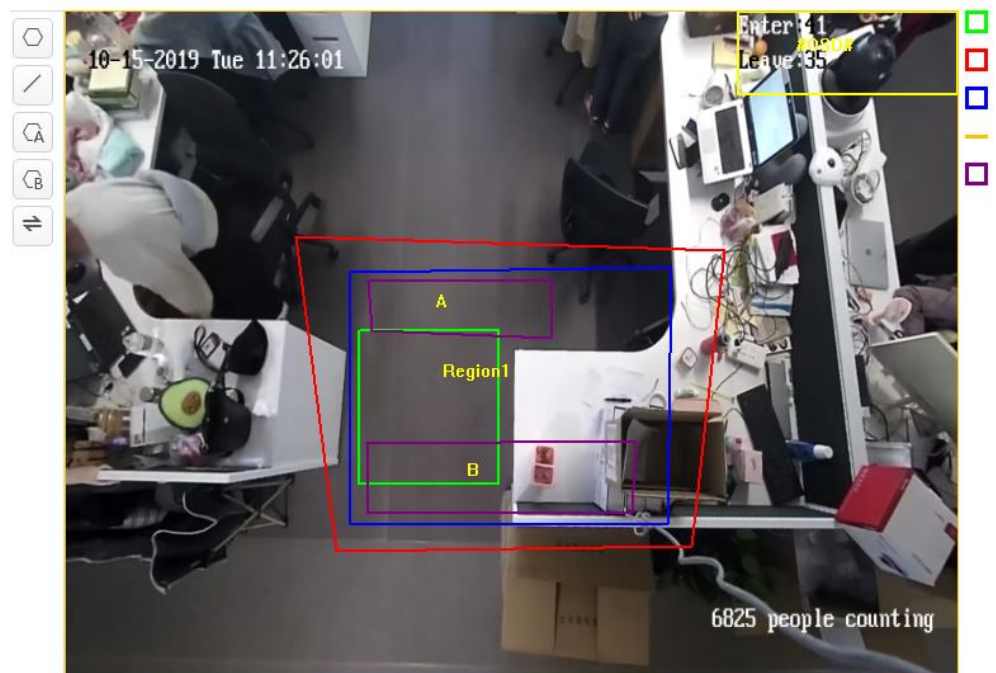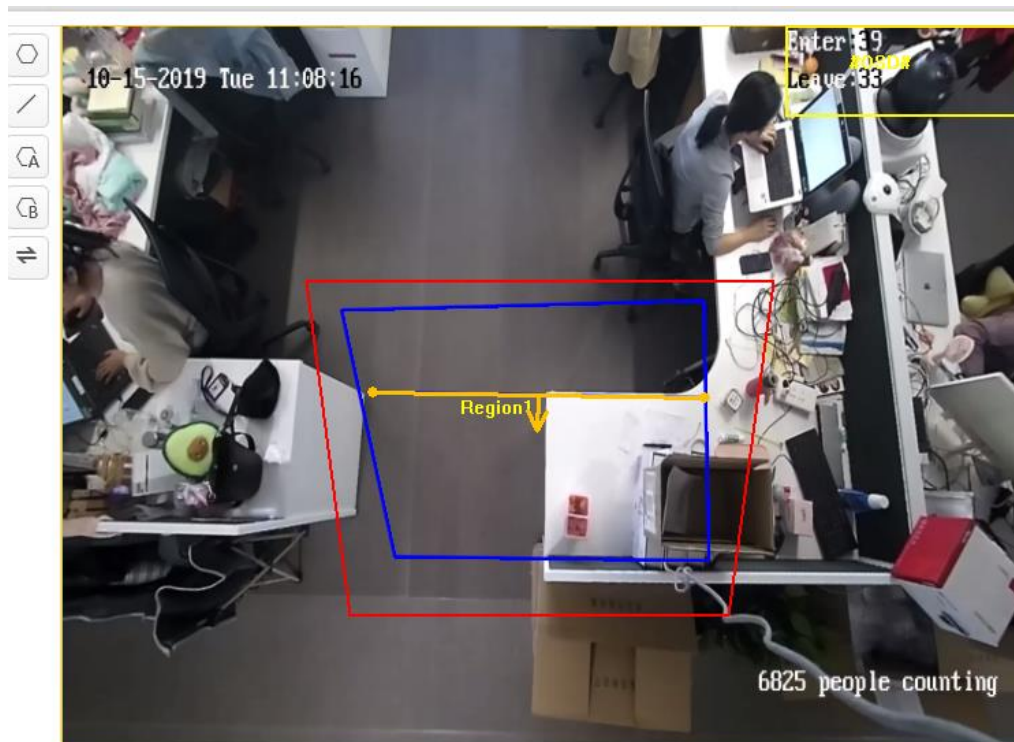
Step 5. Save it after finishing the configuration. Set the Arming schedule and linkage method.

Rule ⟩ Arming Schedule ⟩ Linkage Method

✕ Delete   🗑 Delete All

	0	2	4	6	8	10	12	14	16	18	20	22	24
Mon													
Tue													
Wed													
Thu													
Fri													
Sat													
Sun													

Rule ⟩ Arming Schedule ⟩ Linkage Method

☑ **Normal Linkage**

☑ Notify Surveillance Center

Configuration for multiple cameras

Step 1.   Do configuration for each camera following the steps above

Step 2.   Move each camera's detection line and connect the ends of adjacent lines. Some objects could be placed on the image border for reference. See picture below:
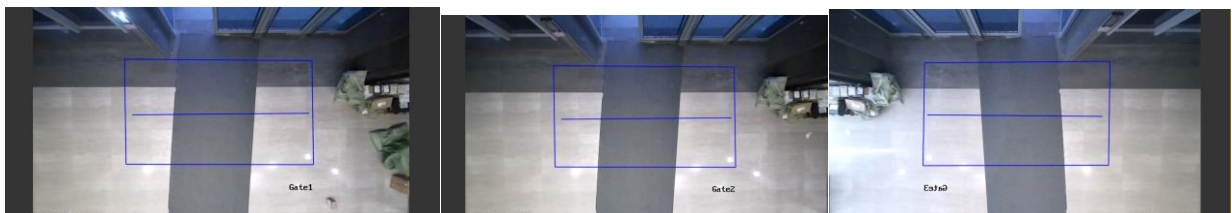
Configuration of each detection line

Parameter description

Reverse Counting Alarm:

Set reverse counting alarm (optional). Check Enable Reverse Entering Alarm to enable the function. An alarm is enabled when the target leaves the region. Set the arming schedule and linkage method.

Shield Region:

If you don't want to count people of the specific area, you can draw the area as shield region.

Data Uploading:

1) Enter 【VCA】-【People Counting】-【Data Uploading】

2) If you want to upload the real-time data to the platform, select real-time Upload Data as "ON''.

3) If you want to adjust the statistic cycle manually, set data statistics data as required. 1/5/10/15/20/30/60 minutes are optional.

4) We can send the report via email, the data type includes Daily/Weekly/Monthly/Annual report. The report format includes excel/csv/txt/xml.

Overlay & Capture:

1) **OSD Overlay:** It supports display the real-time counting information in the live view image. Enter, Leave, Enter/Leave and None are optional.

2) **Counting Type:** Adult, Child and All are optional.

3) **Daily Reset Time/Rest OSD:** To reset the counter, you can set up a daily reset time. Or you can reset the OSD counter manually by click Manual Reset.

4) **Display VCA Info. on Stream:** It will display the ID number and height information of tracking people on stream after enabling it. The recording file will overlay these information and it can be checked via VS Player. It should enable the function of Display POS Information in the below path: 【configuration】-【Local】if we want to see these information in the live view image.

Display on Stream

☑ Display VCA Info. on Stream

Display on Picture

☐ Display Target Info. on Alarm Picture

☐ Display Rule Info. on Alarm Picture

Advanced Parameter:

1) **Height Filter:** Enable the function and set a height value. Persons and objects shorter than the set value are not counted as a valid target. Also this camera support counting Children.

☑ Enable Height Filter

Height ———○———— 120 cm

☐ Enable Counting Children

Height ———○———— 140 cm

2) **Target Detection Type/Algorithm Validity:**

There are four type of target detection: Detect based on the tracking algorithm only; Depth map only; Tracking algorithm mainly and depth map secondarily; and depth map mainly and tracking algorithm secondarily. It is recommended to use default type.

Algorithm Validity: The bigger the numerical value, the stricter the object detection requirements are. It is recommended to use default values.

Target Detection Type   Detect based on depth map m ⌄

Algorithm Validity   ———○———— 50

3) **Pattern Counting Filtering:** Targets less than the set value of motion displacement and residence time are not counted. It is recommended to use default values.

4) **Counting Status:** It displays the current status of the camera. There are three types optional: Counting, Stopped, Pause counting. You can click Refresh button to refresh the status.

   Counting: Count normally.

   Stopped: Disable people counting function.

   Pause counting: The scene is too dark.

5) **Clear Storage Data:** To clear stored data on camera, you can click the **Clear** button. Always do the operation with caution. Deleted data cannot be restored.

6) **One-touch Export:** Export the device hardware settings, installation settings, people counting settings, rule settings and advanced settings.

7) **Maintenance Mode:** If the function is enabled, certain camera settings will be changed, such as the resolution, frame rate and bit rate. When we need collect the video clip for the issue analyse, it is necessary to enable the maintenance mode.

Chapter 3. Application scenario

The application scenario and the mounting position are very important to the people counting accuracy. Usually the camera is mounted above the passageway and the door. Below shows the mounting position and configuration for two typical examples:

Mounting position and configuration for supermarket

Mounting position and configuration for subway