



safire



## USER MANUAL FOR AI2 CAMERAS

OCT 2020

EN

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## 1. RESUME

This user manual is for AI2 cameras models:

SF-IPB098UWH-4U-AI2

SF-IPB026UWHA-4U-AI2

SF-IPB798ZUWH-4U-AI2

SF-IPT838UWHA-4U-AI2

SF-IPD820UWHA-4U-AI2

SF-IPD825ZUWH-4U-AI2

SF-IPB798CWH-4U-AI2

Truesense 2, People Counting, Face Capture and Mask detect function must be use on this camera, but it can choose one VCA resource only.

### FIRMWARE VERSION

The firmware can download by next links:

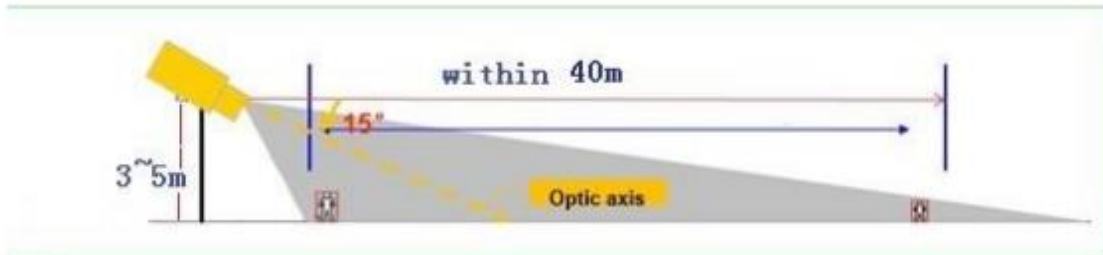
<a href="#">FW-safireCOUNTAI2V5.5.131_build02072020</a>	Intelligent Event (Truesense 2)
	People Count
	Face Capture
<a href="#">FW-safireMASKAI2V5.5.131_build02072020</a>	Mask Detect

## 2.TRUESENSE - SMART EVENT

### 2.1. INSTALLATION

In order to make the whole system more accurate, there're some mounting and rule requirements for cameras. In this chapter, we take several typical scenarios as examples to help you setup a better perimeter system.

#### - Camera installation

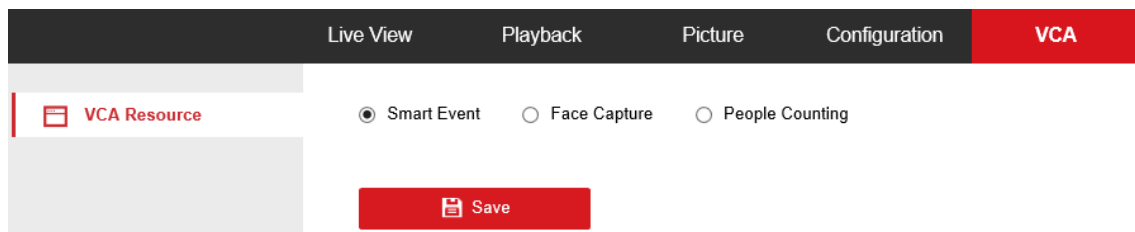


Camera is recommended to be installed 3-5 meters high. If there is fence, the installation height must be higher than the fence.

- Angle between the optic axis and the horizontal line should be larger than 15°.
- The monitoring distance is recommended to be within 40 meters.

### 2.2. TRUESENSE CONFIGURATION

On first time, it must choose the “Smart Event” VCA Resource for use truesense function on the camera.



The Truesense event is available on Motion Detecion, Line Crossing, Intrusion Detection, Regio Entrance Detection, Region Existing Detection.

#### - Area Settings

It can select the Max and Min size for the objective that it want to detect.

Local

System

Network

Video/Audio

Image

Event

Basic Event

Smart Event

Storage

Scene Change Detection

Intrusion Detection

Line Crossing Detection

Region Entrance Detection

Region Exiting Detection

☐ Enable

Area Settings

Arming Schedule

Linkage Method

Region

1

Max. Size

Min. Size

Detection Area

Clear

Detection Target

☒ Human
 ☐ Vehicle

Threshold(s)

0

Sensitivity

50

Save

Then, draw the Rule depending on the "Detection", choose it (Intrusion, Line Crossing, ...).

Finally, it can select the Target (Human, Vehicle or Both).

#### - Arming Schedule

On arming schedule, it can schedule the "Truesense" function on the calendar.

Area Settings

Arming Schedule

Linkage Method

Delete

Delete All

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

Save

#### - Linkage Method

<input type="checkbox"/> Normal Linkage	<input checked="" type="checkbox"/> Trigger Recording
<input type="checkbox"/> Send Email	<input checked="" type="checkbox"/> A1
<input checked="" type="checkbox"/> Notify Surveillance Center	
<input type="checkbox"/> Upload to FTP/Memory Card/...	

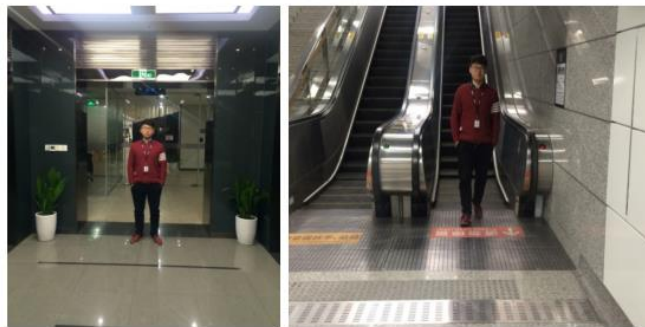
### 3. FACE CAPTURE

#### 3.1. INSTALLATION

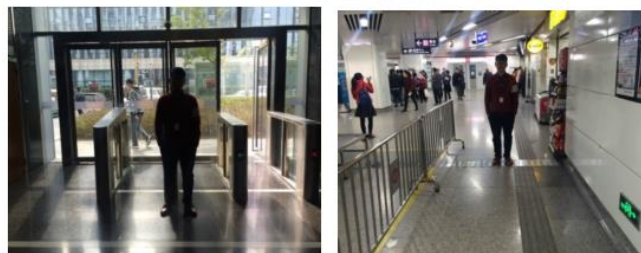
The accuracy rate of face recognition is great involved with installation location, ambient light (such as too dark, too bright) and so on. In order to ensure the better effect, it raises some installation suggestions as follows:

- 1) Installation position should be the standard passageways or the Entrances/ Exits, which insures the direction of traffic is particular and capture the Enter/Leave personnel' faces in the direction.
- 2) Choose the stable lighting condition with adequate illumination. Light compensation is necessary to ensure the facial features are visible under the condition of insufficient light or backlight.

Suitable scenario:



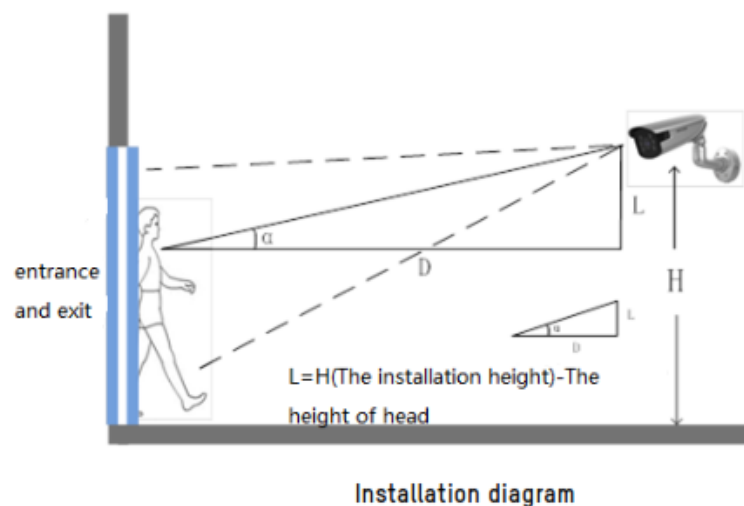
Unsuitable scenario:



Backlight

Lack of light

#### - Camera Installation Requeriments



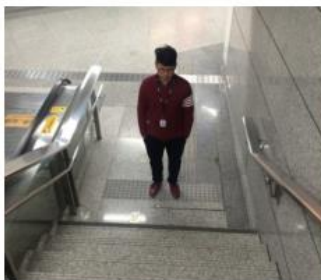
For optimal face capture, the camera installation position should be selected as follows:

- 1) The camera should be installed in front of the desired passageway. The horizontal angle of deflection should be less than  $25^{\circ}$ .
- 2) The camera should be installed at an elevated angle, which prevents partially obscured faces from being undetected when people walk through a passageway behind one another. The vertical elevation angle should meet the following requirement:  $\alpha=15\pm5^{\circ}$ .
- 3) The covered PD (Pupil Distance) pixels need to be larger than 40 pixels in order to distinguish the face details from the captured image. The practical face detection width should be less than or equal to 3 meters, when combined with a 2 MP camera.
- 4) Make sure that there is no obstruction between the camera lens and the passageway.

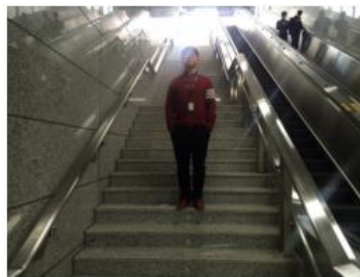
Suitable scenario:



Unsuitable scenarios:



Dip Angle too large



Elevated capture



Scenario too wide



Inclined installation with obstacle



Scenario is too large, resulting in a low face recognition rate

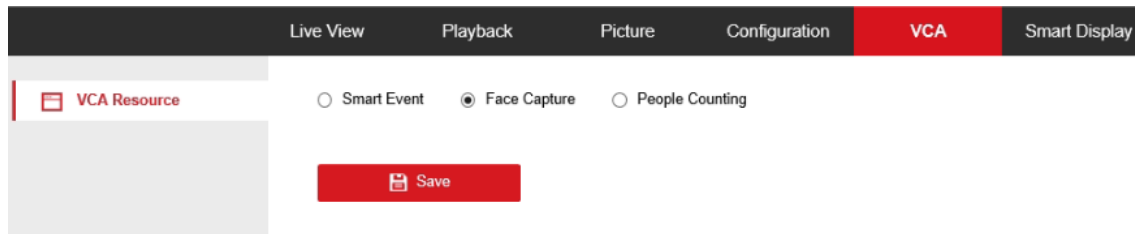
### 3.2. CAMERA LENS SELECTION

- 1) Cameras, focal lengths, and monitoring widths are key points that affect distance and installation location. They can be converted amongst each other, as follows:
- 2) Focal length :  $f = 1.8 \times D$
- 3) The height of the camera :  $H = \tan(\alpha^\circ) \times D + 1.5$
- 4)  $D$  = monitoring distance
- 5) The camera should not be more than 1.5 m above the typical subject's head height.
- 6)  $\alpha$  = elevation angle
- 7) An elevation angle of  $10^\circ$  is recommended, i.e.  $\tan(10^\circ) \approx 0.18$ ,  $\tan(15^\circ) \approx 0.27$ ,  $\tan(20^\circ) \approx 0.36$ .

Monitoring Width W	Lens Focal Length	Monitoring Distance	Installation Height of Camera	Elevation angle $\alpha^\circ$
3.0m	4mm	2.2m	1.9m-2.3m	$15^\circ \pm 5^\circ$
3.0m	8mm	4.4m	2.3m-3.1m	$15^\circ \pm 5^\circ$
3.0m	16mm	8.9m	3.1m-4.7m	$15^\circ \pm 5^\circ$

### 3.3. FACE CAPTURE CONFIGURATION

On first time, it must choose the "Face Capture" VCA Resource for use Face Capture function on the camera.



The face capture function, is good for use with face comparison function on NVR FACE SERIES.

In the Face Capture configuration, we can configure the next features:

Overlay & Capture

Shield Region

Rule

Advanced Configuration



Local

System

Network

Video/Audio

Image

Event

Storage

Face Capture

Overlay & Capture

Shield Region

Rule

Advanced Configuration

Overlay & Capture

Display on Stream

☒ Display VCA Info. on Stream

Display on Picture

☐ Display Target Info. on Alarm Picture

Snapshot Settings

Target Picture Settings

☐ Custom
☒ Head Shot
☐ Half-Body Shot
☐ Full-Body Shot

Target Picture Size

Width: Facial Width × 1.5

Head Height: Facial Height × 1.5

Body Height: Facial Height × 0.5

☐ Fixed Value

Picture Height 100 pixel

Background Picture Settings

Picture Quality Low

Picture Resolution 1080P(1920\*1080)

☒ Background Upload

Camera

Device No. CAMARA 1

Camera Info. ENTRADA

Text Overlay

☒ Camera Info.
☒ Device No.
☒ Capture Time

Type	Sorting
Camera Info.	↑ ↓
Device No.	↑ ↓

## Display on Stream and Picture

- Display VCA info. on Stream: The green frames will be displayed on the target if in a live view or playback.
- Display Target info. on Alarm Picture: There will be a frame on the target on the uploaded alarm picture if the checkbox is checked.

## Snapshot Settings

- Target Picture Settings

1.Set the target picture size. Four types are available: Custom, Head Shot, Half-Body Shot and Full-Body Shot. If it select the Custom, it can customized the width, head height and body height as required.

2.Check the Fixed Value to set the picture height.

- Background Picture Settings

1.Check the Background Upload to upload the background image.

2.Select the Picture Quality and Resolution from the drop-down list.

Note: Background upload is only available for face capture camera.

## Camera Information

Set the Device No. and Camera Info. for the camera, which can be overlaid on captured picture.

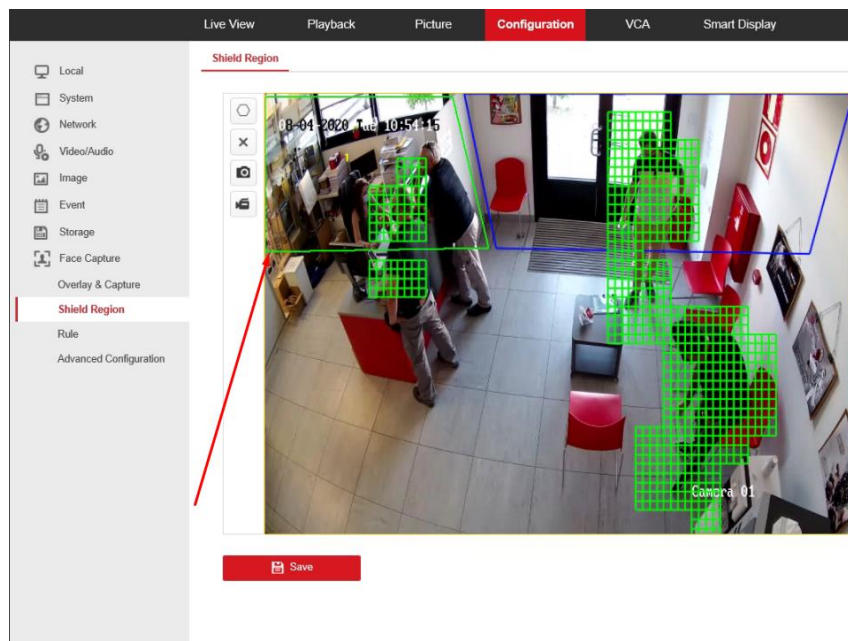
## Text Overlay Information

Check desired items and adjust their order to display on captured pictures.

## Draw the Shield Region

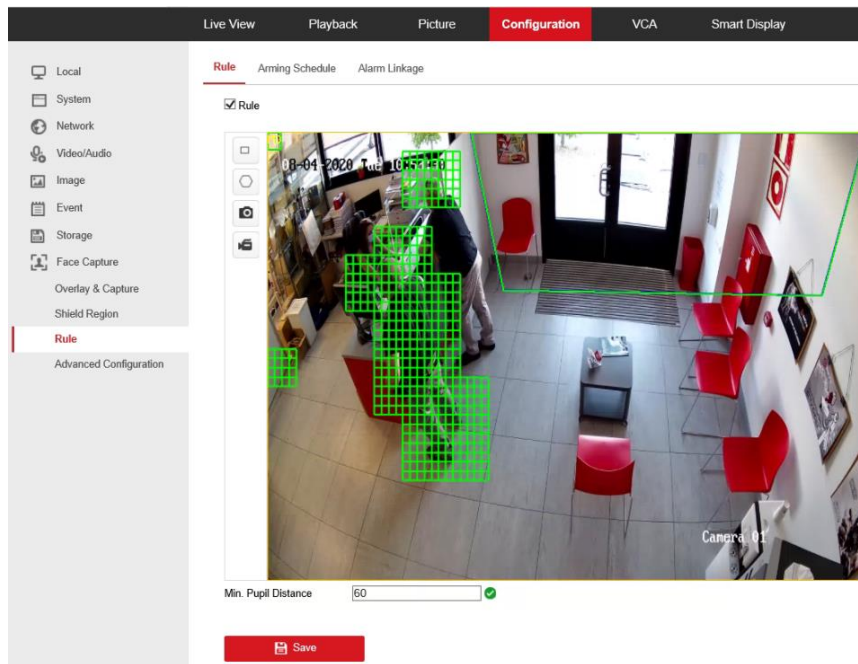
1. Click Shield Region tab to enter the shield region configuration interface
2. Click Draw Area. Draw area by left click end-points in the live view window, and right click to finish the area drawing. Polygon area with up to 10 sides is supported.
3. Click Save to save the settings.

Note: If live view is stopped, the shield regions cannot be drawn.



## Configure the Rules

1. Check the checkbox of Rule to enable rules of face capture.
2. Click Minimize Pupil Distance icon to draw the minimum pupil distance.
3. Click Draw Area icon to draw the area it want the face capture to take effect.
4. Click Save to save the settings.
5. Click Arming Schedule tab, click Edit to set the schedule time for each rule, and click Save to save the settings.
6. Click Alarm Linkage tab, check the checkbox of corresponding linkage method for each rule, and click Save to save the settings.



## Advanced Configuration

- **Face Capture Version:** It lists the current version of the VCA algorithm.
- **Generation Speed:** The speed to identify a target. The higher the value, the fast the target will be recognized. The default value is recommended.
- **Sensitivity:** The sensitivity to identify a target. The higher the value is, the easier a face will be recognized, and the higher possibility of misinformation would be. The default value of 3 is recommended.
- **Capture Times:** Refers to the capture times a face will be captured during its stay in the configured area.
- **Capture Interval:** The frame interval to capture a picture. If it set the value as 1, which is the default value, it means the camera captures the face in every frame.
- **Capture Sensitivity:** The threshold the camera treats the target as a face. The default value is recommended.
- **Face Capture Mode:** Best Shot and Quick Shot are available.
  - **Best Shot:** The best shot after target leave the detection area.

**Capture Times:** Refers to the capture times a face will be captured during its stay in the configured area.

**Capture Interval:** The frame interval to capture a picture. If it set the value as 1, which is the default value, it means the camera captures the face in every frame.

**Capture Threshold:** It stands for the quality of face to trigger capture and alarm. Higher value means better quality should be met to trigger capture and alarm.

- **Quick Shot:** It can define quick shot threshold and max. capture interval.

**Quick Shot Threshold:** It stands for the quality of face to trigger quick shot.

**Note:** If it is necessary generate a event comparison on the NVR, it recommend choose the quick shot on the face capture camera.

- **Face Exposure:** Check the checkbox to enable the face exposure. The device automatically adjusts exposure level when human faces appear in the scene.

**Reference Brightness:** The reference brightness of a face in the face exposure mode. If a face in the actual scene is brighter than the set reference brightness, the device lowers the exposure level. If a face in the actual scene is darker than the set reference, the device increases the exposure level.

**Minimum Duration:** The extra time the device keeps the face exposure level after the face disappears in the scene.

- **Face Filtering Time:** It means the time interval between the camera detecting a face and taking a capture action. If the detected face stays in the scene for less than the set filtering time, capture will not be triggered. For example, if the face filtering time is set as 5 seconds, the camera will capture the detected face when the face keeps staying in the scene for 5 seconds.

**Note:** The face filtering time (longer than 0s) may increase the possibility of the actual capture times less than the set value above.

- **Restore Default:** Click Restore to restore all the settings in advanced configuration to the factory default.
- **Invalid Capture Filter:** Check the checkbox to enable invalid capture filter. The invalid captured face pictures will be filtered if the function is enabled.

## 4. PEOPLE COUNTING

### 4.1. INSTALLATION

This is the relationship between height installation and area of detection:

Height installation: 2.1 m | Area of detection: 1.02 m

Height installation: 2.6 m | Area of detection: 2.30 m

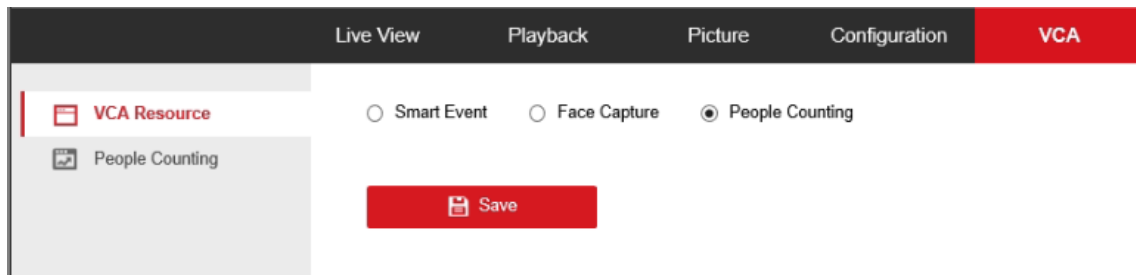
Height installation: 3.1 m | Area of detection: 3.58 m

Height installation: 3.6 m | Area of detection: 4.86 m

Height installation: 4.1 m | Area of detection: 5.50 m

### 4.2. CONFIGURATION

On first time, it must choose the “Face Capture” VCA Resource for use Face Capture function on the camera.



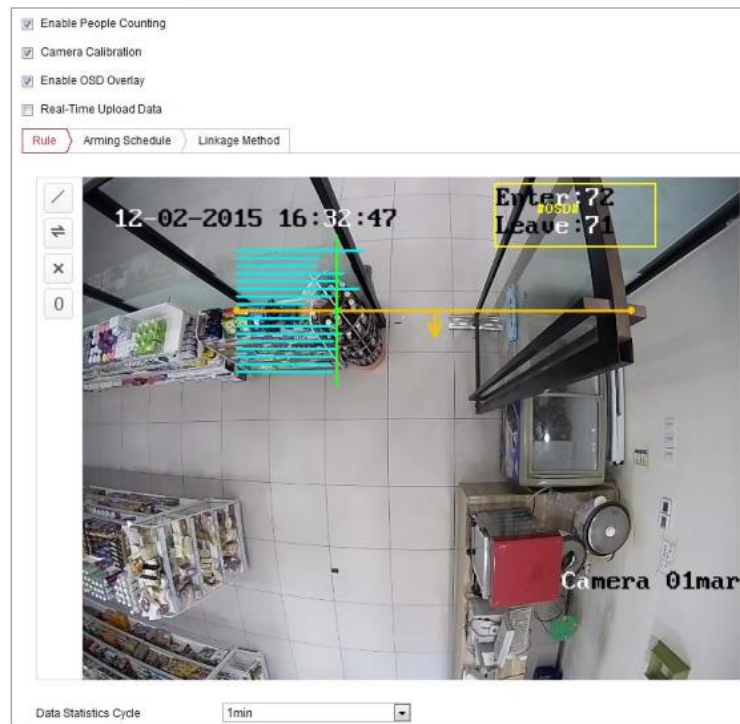
Counting function helps to calculate the number of people entered or exited a certain configured area and is widely applied to the entrances or exits.

Compared with the people counting function supported by People count cameras with dual lens, this counting function needs no camera calibration.

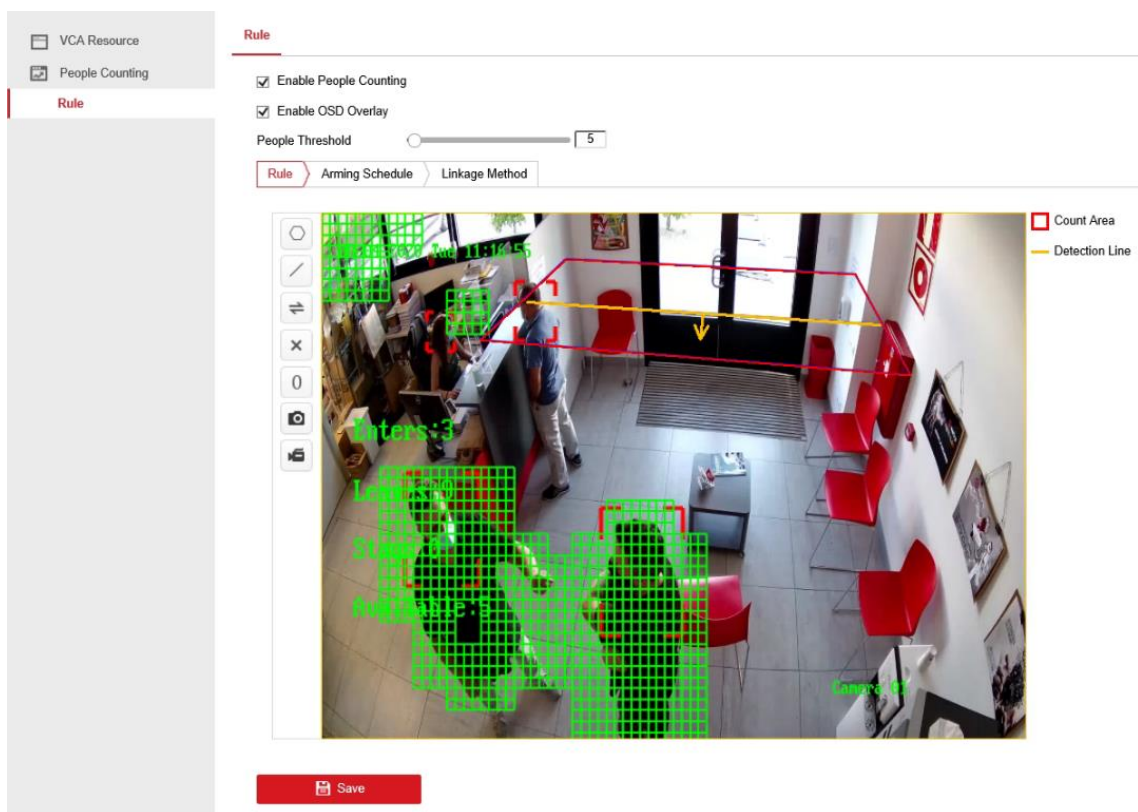
Notes: It is recommended to install the camera as right above the entrance/exit as possible, and make sure it is horizontal to improve the counting accuracy.

Steps:Steps:

1. Enter the Counting Configuration interface: Configuration > People Counting.



High accuracy



Low Accuracy

NOTE: For the greatest possible precision in counting people, we recommend installing the camera on an entrance with the lowest possible lens tilt angle.

2. Check Enable People Counting checkbox to enable the function. Check the Enable OSD overlay for see the counts result on the principal image.

- The camera has people flow function, so use the slider bar to set the maximum people available inside.



- Set the detection line.

An orange line, named as detection line can be set on the live video, and the object entering or exiting through the line will be detected and counted.

- Click button and draw the Count Area. Then, click button on the left of the live view image. An orange line will appear on the image.
- Drag the detection line to adjust its position.
- Drag the yellow end points of the detection line to adjust its length.

Note:

- The detection line should be drawn at the position right below the camera, and it should cover the whole entrance/exit.

- Don't draw the line at the place where people may linger.

- It can click to delete the detection line.
- It can click to change the direction. The yellow arrow indicates the direction of entering.
- It can click to reset the counters.

Note: If it apply some change on the count area, the counters will be reset it.

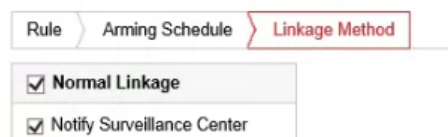
#### - Arming schedule

Set the schedule in which people counting will be activated.



#### - Linkage Method

Select the notification when the people flow threshold is complete.





## 5. MASK DETECTION

Mask detection function is support for FW-safireMASKAI2V5.5.131\_build02072020 firmware version. (Is not the same that People count, face capture or truesense 2 version).

### 5.1. INSTALLATION



The configuration requeriments are the same as at Face Capture function on 3.1 point.

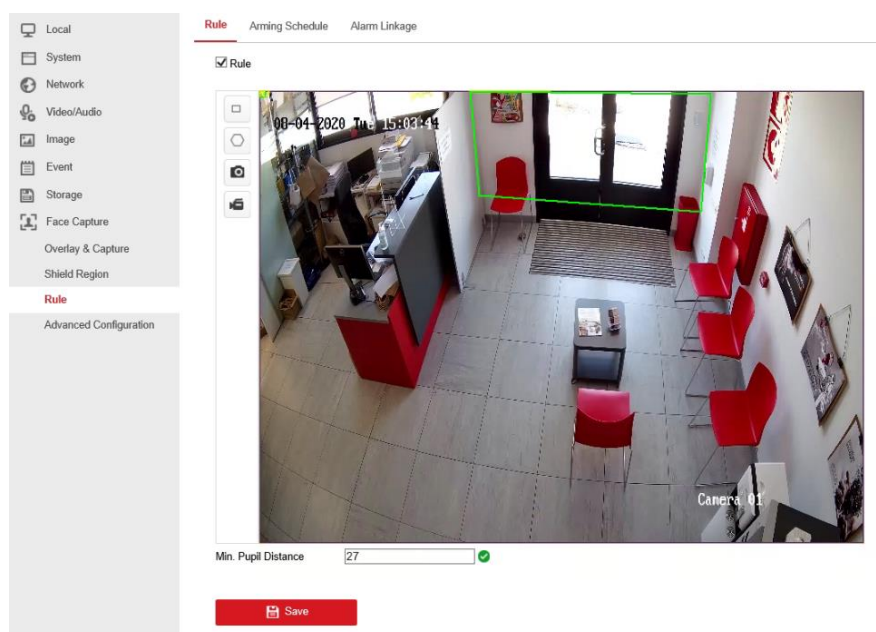
### 5.2. CONFIGURATION

The configuration is the same as at Face Capture function on 3.2 point.

For notify to Safire Control Center, is neccessary to configure the alarm linkage.

- Rule settings

Draw the area of detection  and select the Minimum Pupil Distance .



- Enable Mask Detection

Enable the Mask Detection check, on advanced configuration.

The rest configuration is the same as at Face Capture function on 3.2 point.



Local

System

Network

Video/Audio

Image

Event

Storage

Face Capture

Overlay & Capture

Shield Region

Rule

Advanced Configuration

Parameters

Face Capture Version

V4.3.2build190611

Face GradingVersion

V4.3.2build190611

Detection Parameters

Generation Speed

4

Sensitivity

4

Capture Parameters

☒ Upload Feature

Face Capture Mode

Best Shot

Quick Shot

Capture Times

1

Capture Threshold

28

☐ Face Exposure

Reference Brightness

50

Min. Duration

20 minute(s)

Face Filtering Time

0 s

The Filtering Time only works in Best Shot mode. If the Filtering Time is change

Restore Parameters

Restore Defaults

Restore

Mask Detection

☒ Enable Mask Detection

Save

## - Linkage Method

Select the notification when the people flow threshold is complete.

Rule

Arming Schedule

Linkage Method

☒ Normal Linkage

☒ Notify Surveillance Center

## - Safire Control Center

It can to search events by device on safire control center and export the results on CSV file.

Safire Control Center

Event Center

Real-time Event

Event Search

Security Control Panel

Time

2020-08-04 00:00:00-2020-08-04 23:59:59

Search by

Device

Group

Device Type

All

Device

Search

☒ Include Sub-Node

☒ All

☐ NVIR\_FACE

☒ AI2\_COUNT

☐ NVIR\_COUNT

☐ IPCOUNT\_255N

☐ RUVA\_NVR

Priority

☒ High

☒ Medium

☒ Normal

Status

All

Search

Acknowledge In Batch

Export

	Index	Device Name	Event Type	Event Time	Device Type	Group Name	Object Name	Object ...	Priority	Event Details
<input type="checkbox"/>	1	AI2_COUNT	Face Capture Ala...	2020-08-04 15:03:04	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 15:03:04
<input type="checkbox"/>	2	AI2_COUNT	Face Capture Ala...	2020-08-04 15:02:54	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 15:02:54
<input type="checkbox"/>	3	AI2_COUNT	Face Capture Ala...	2020-08-04 14:59:48	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:59:48
<input type="checkbox"/>	4	AI2_COUNT	Face Capture Ala...	2020-08-04 14:59:27	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:59:27
<input type="checkbox"/>	5	AI2_COUNT	Face Capture Ala...	2020-08-04 14:58:35	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:58:35
<input type="checkbox"/>	6	AI2_COUNT	Face Capture Ala...	2020-08-04 14:58:28	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:58:28
<input type="checkbox"/>	7	AI2_COUNT	Face Capture Ala...	2020-08-04 14:58:01	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:58:01
<input type="checkbox"/>	8	AI2_COUNT	Face Capture Ala...	2020-08-04 14:50:19	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:50:19
<input type="checkbox"/>	9	AI2_COUNT	Face Capture Ala...	2020-08-04 14:34:06	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:34:06
<input type="checkbox"/>	10	AI2_COUNT	Face Capture Ala...	2020-08-04 14:24:23	Encoding De...	AI2_COUNT	Camera1_AI2_COUNT	Camera	Processing	Linked Camera Camera1_AI2_COUNT Capture Time:2020-8-4 14:24:23

Total 77 Records

100

1 / 1 Page(s)

Event Details

Picture

Handling records

No handling record.

