

FoV Calculator Tool

User's Manual






V1.0.0

General

This user's manual (hereinafter referred to be "the Manual") introduces the functions and operations of the FoV Calculator Tool (hereinafter referred to be "the Tool").

Safety Instructions

The following categorized signal words with defined meaning might appear in the Manual.

Signal Words	Meaning
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, may result in property damage, data loss, lower performance, or unpredictable result.
 TIPS	Provides methods to help you solve a problem or save you time.
 NOTE	Provides additional information as the emphasis and supplement to the text.

Revision History

No.	Version	Revision Content	Release Time
1	V1.0.0	First Release.	January 08, 2018

About the Manual

- The Manual is for reference only. If there is inconsistency between the Manual and the actual product, the actual product shall govern.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the Manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation between the actual value of some data and the value provided, if there is any doubt or dispute, please refer to our final explanation.
- Please contact the supplier or customer service if there is any problem occurred when using the device.
- We are not liable for any loss caused by the operations that do not comply with the Manual.

- All trademarks, registered trademarks and the company names in the Manual are the properties of their respective owners.
- Please visit our website or contact your local service engineer for more information.
- If there is any uncertainty or controversy, please refer to our final explanation.

Table of Contents

Foreword	I
1 Introduction.....	1
2 Basic Operations.....	2
2.1 Entrance Interface	2
2.2 IPC FoV Calculator	3
2.2.1 Main Interface	3
2.2.2 Calculating Steps.....	4
2.2.3 Adjusting Parameters	6
2.3 Fisheye FoV Calculator	7
2.3.1 Main Interface	7
2.3.2 Calculating Steps.....	9
2.3.3 Adjusting Parameters	10
2.4 Pixel Density	12

The FoV Calculator Tool calculates the pixel density of monitored objects for IPC and fisheye cameras under different installation conditions by simulating the actual usage scenarios. The calculation result can provide reference data for product selection and installation.

2 Basic Operations

2.1 Entrance Interface

The entrance interface of the Tool is shown in Figure 2-1.

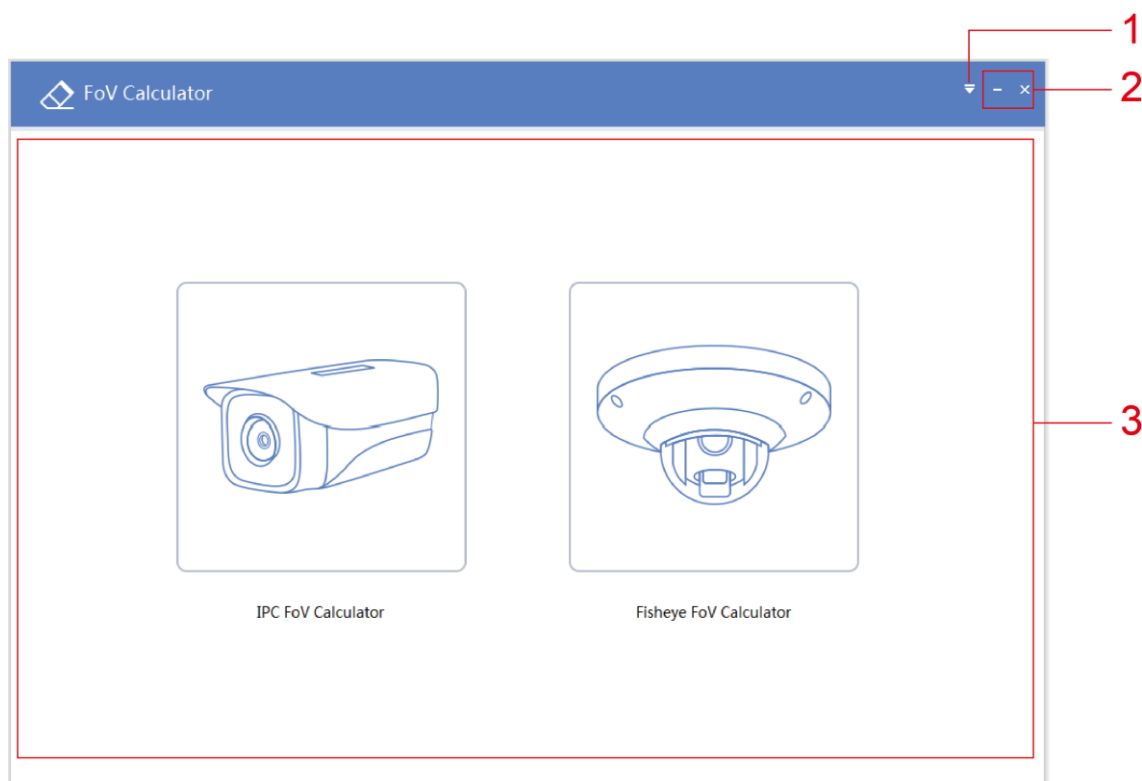


Figure 2-1

For the parameter description of the entrance interface, see Table 2-1.


No.	Parameter	Description
1	Setting	<ul style="list-style-type: none">Language: Select the language.Help: View the user's manual of the Tool.About: View the tool version.
2	Window Control Button	Minimize and close the Tool.
3	Tool Entry Options	Includes two calculators: IPC FoV Calculator and Fisheye FoV Calculator. Click to enter the corresponding FoV Calculator interface.

Table 2-1


2.2 IPC FoV Calculator

2.2.1 Main Interface



On the entrance interface, click . The main interface of IPC FoV Calculator is displayed. See Figure 2-2.

 NOTE

On the main interface of Fisheye FoV Calculator, click  to switch to the main interface of IPC FoV Calculator.

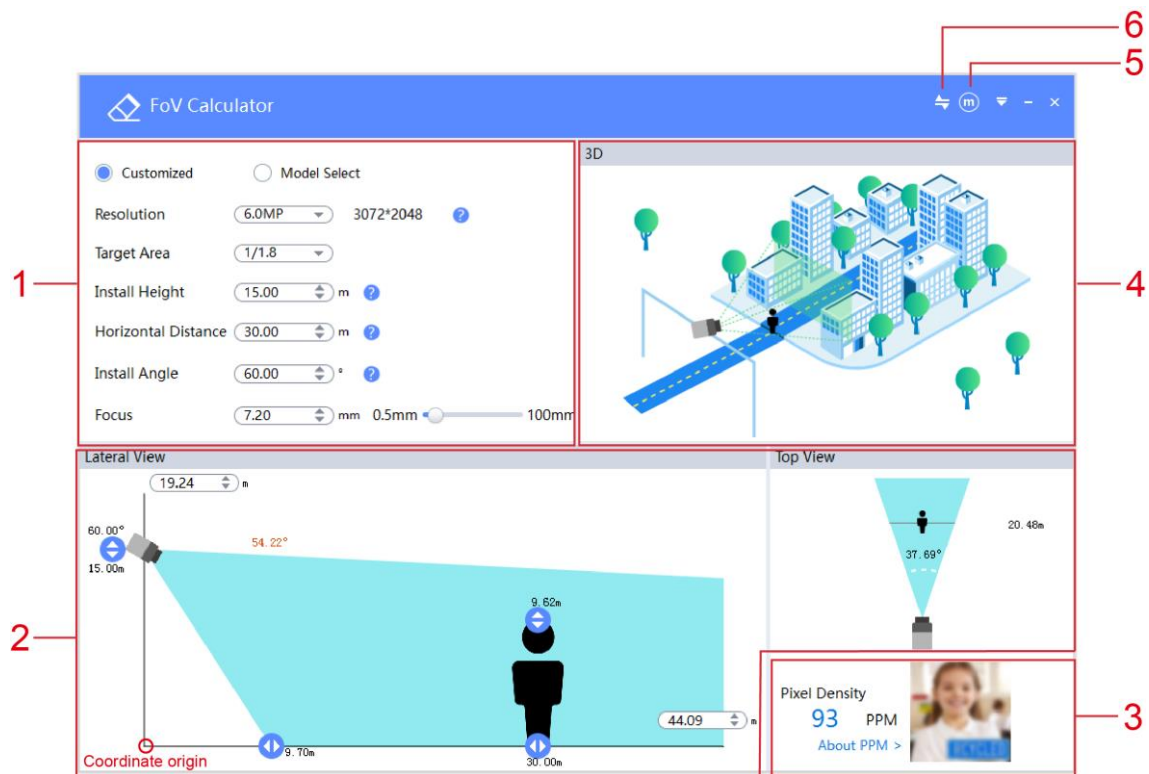


Figure 2-2

For the parameter description of the main interface, see Table 2-2.

No.	Parameter	Description
1	Installation Parameters	<ul style="list-style-type: none"> Select Customized, and then set the parameters such as resolution, target area, install height, and install angel. Select Model Select, the Model Select interface is displayed. Select the target model, the camera resolution and target area parameters are displayed automatically. Then manually enter other parameters.
2	Lateral View	<ul style="list-style-type: none"> See the lateral view and top view of the camera under current installation condition.
	Top View	<ul style="list-style-type: none"> Adjust the camera installation parameters. For details, see "2.2.3 Adjusting Parameters."

No.	Parameter	Description
3	Pixel Density	Real-time display the pixel density value and sketch map of the camera under current installation condition. Click About PPM to see the image effect of different pixel values. For details, see "2.4 Pixel Density."
4	3D	3D sketch map of the camera usage scenario.
5	Switch Unit	Switch unit between metre and feet.
6	Switch Tool	Switch the main interface between IPC FoV Calculator and Fisheye FoV Calculator.

Table 2-2

2.2.2 Calculating Steps

Step 1 On the main interface, select **Customized** or **Model Select**.

- If you select **Customized**, directly set lens parameters.
- If you select **Model Select**, the **Model Select** interface is displayed, see Figure 2-3. Select the target model and then click **OK**.

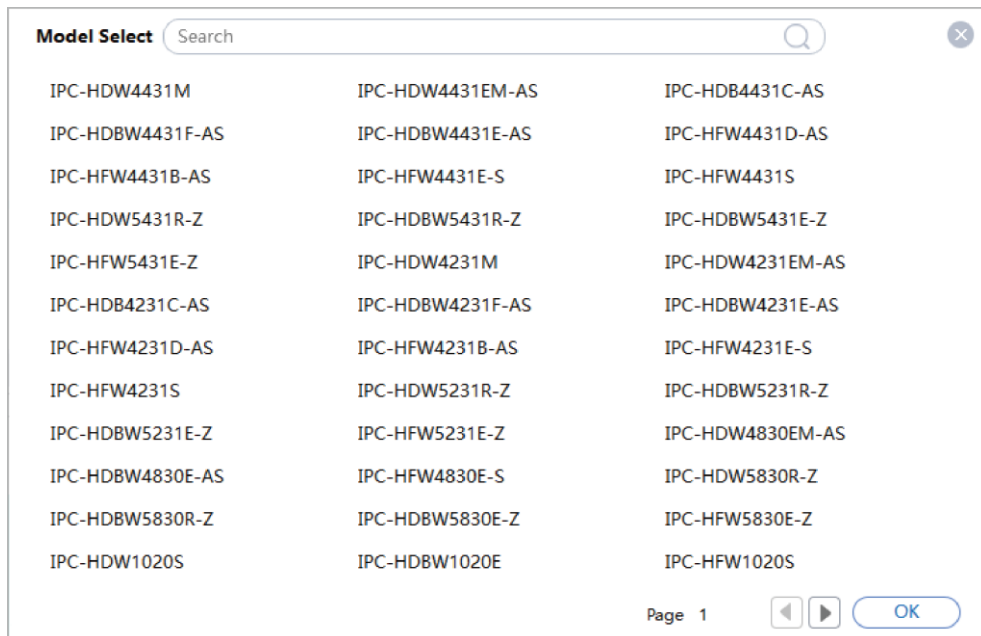




Figure 2-3

Step 2 Configure the settings for lens parameters, see Table 2-3.

Parameter	Description
Resolution	<p>Set the camera resolution, such as 6.0MP.</p> <p> NOTE</p> <p>If the model has been selected, the camera resolution will be displayed automatically.</p>
Target Area	<p>The target area size of the image sensor. According to the resolution, the corresponding target area value which may be one or more options is automatically displayed. If there are multiple options, you can select the required target area value, such as 1/1.8.</p> <p> NOTE</p> <p>If the model has been selected, the camera target area will be displayed automatically.</p>


Parameter	Description
Install Height	<p>The distance from the camera to the coordinate origin. Select or directly enter the installation height, such as 7. The value cannot be greater than the maximum installation height set in Lateral View area.</p> <p> NOTE If the value is not in the normal range, it can be automatically adjusted.</p>
Horizontal Distance	<p>The horizontal distance from the monitored object to the coordinate origin. Set the horizontal distance of the snapshot, such as 10. The value cannot be greater than the maximum horizontal distance set in Lateral View area.</p>
Install Angle	<p>The angle between the camera lens and the Y axis. The value cannot be 0. Select or directly enter the installation angle value, such as 65.</p>
Focus	<p>There are two situations for the settings for focus.</p> <ul style="list-style-type: none"> If you select Customized, select or directly enter the lens focus value, such as 8. The value range is 0.5mm-100mm. You can also select the focus length by dragging the adjusting lever (0.5mm — 100mm). If you select Model Select, use one of the following methods depending on the selected model. <ul style="list-style-type: none"> ◇ Select the lens focus value in the Focus list. ◇ Set the lens focus by selecting or directly entering the lens focus value.

Table 2-3

When the setting is completed, the setting results are displayed immediately in the **Lateral View** area and the **Top View** area, and you can see the real-time image effect in the **Pixel Density** area. See Figure 2-4.

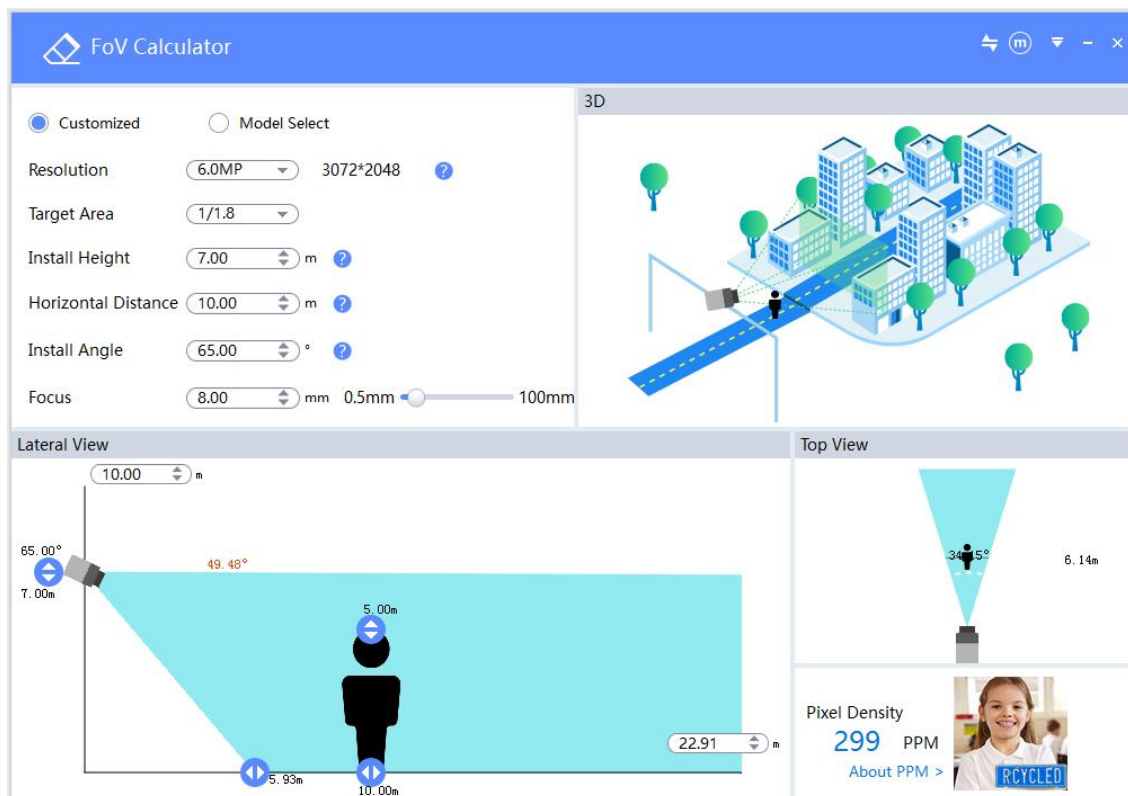



Figure 2-4

Click  , the position of each parameter is displayed in the **3D** area. See Figure 2-5.

- **HW**: Resolution
- **H**: Installation height
- **D**: Horizontal distance
- **A**: Installation angle



Figure 2-5

2.2.3 Adjusting Parameters

After the calculation is completed, you can adjust the camera installation parameters in the **Lateral View** area if the results do not meet the requirements. See Figure 2-6. After adjustment, the real-time image effect is displayed in the **Pixel Density** area.

TIPS

You can click **About PPM** to see the definition of pixel density and understand the image effect that can be achieved by different pixel density, which can provide reference for parameter adjustment. For details, see "2.4 Pixel Density."

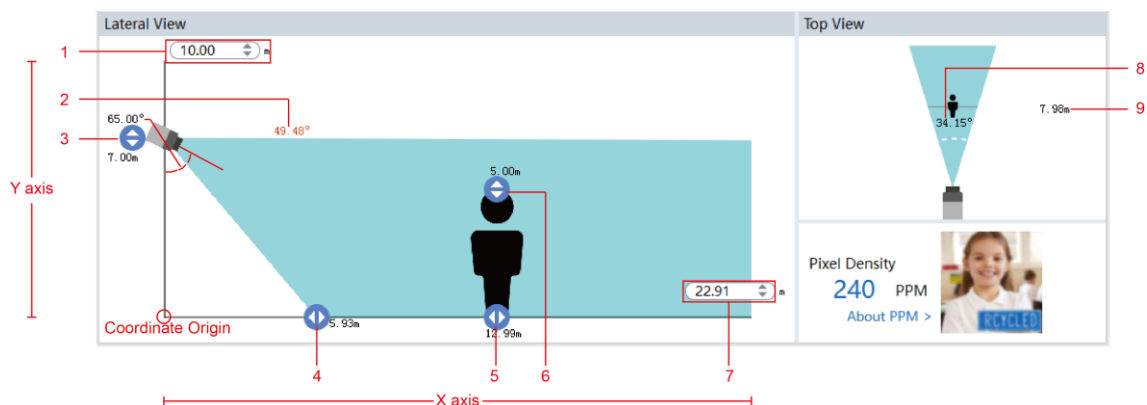


Figure 2-6

For the parameter description of the **Lateral View** area and the **Top View** area, see Table 2-4.




No.	Parameter	Description
1	Maximum installation height	Select or enter the maximum installation height.  NOTE If the value is not in the normal range, it can be automatically adjusted.
2	Lens vertical angle	Display the lens vertical angle, which varies according to the camera resolution, target area, and focus.
3	Installation height and angle adjustment button	Drag the button upwards or downwards to adjust the installation height and angle (such as 65.00° shown in Figure 2-6).
4	View display adjustment button	Drag the button leftwards or rightwards to adjust the display effect of the object in the angle of view. The maximum value is the maximum horizontal distance of the object.
5	Horizontal distance adjustment button	The horizontal distance from the object to the coordinate origin. Drag the button leftwards or rightwards to adjust the horizontal distance.
6	Object height adjustment button.	Drag the button upwards or downwards to adjust the object height. The pixel density varies according to the object height.  NOTE The maximum object height is half of the Y axis.
7	Maximum object horizontal distance	Select or enter the maximum horizontal distance between the object and the coordinate origin.  NOTE If the value is not in the normal range, it can be automatically adjusted.
8	Lens horizontal angle	Display the lens horizontal angle, which varies according to the resolution, target area, and focus.
9	Width of lens horizontal angle	The width of lens horizontal angle that the object is located.


Table 2-4

2.3 Fisheye FoV Calculator

2.3.1 Main Interface



On the tool entrance interface, click  , the main interface of Fisheye FoV Calculator is displayed. See Figure 2-7 and Figure 2-8.

On the main interface of IPC FoV Calculator, click  to switch to the main interface of Fisheye FoV Calculator.

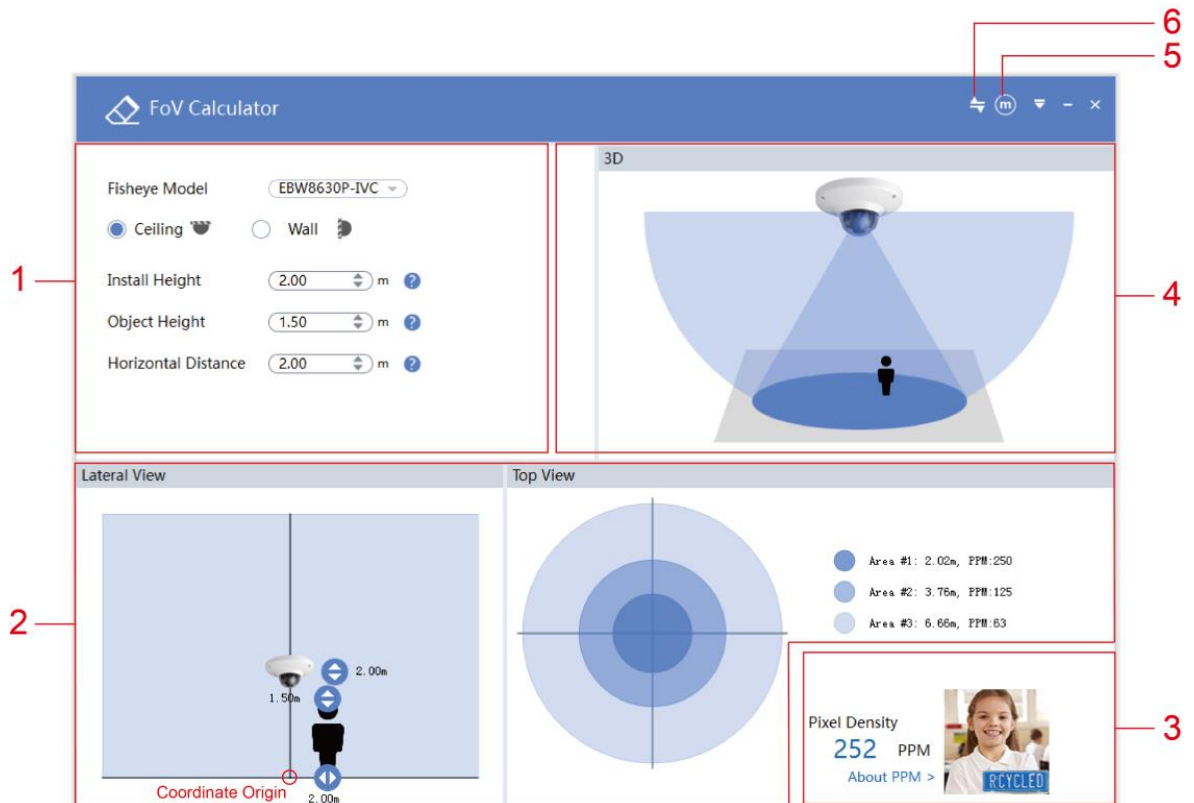


Figure 2-7

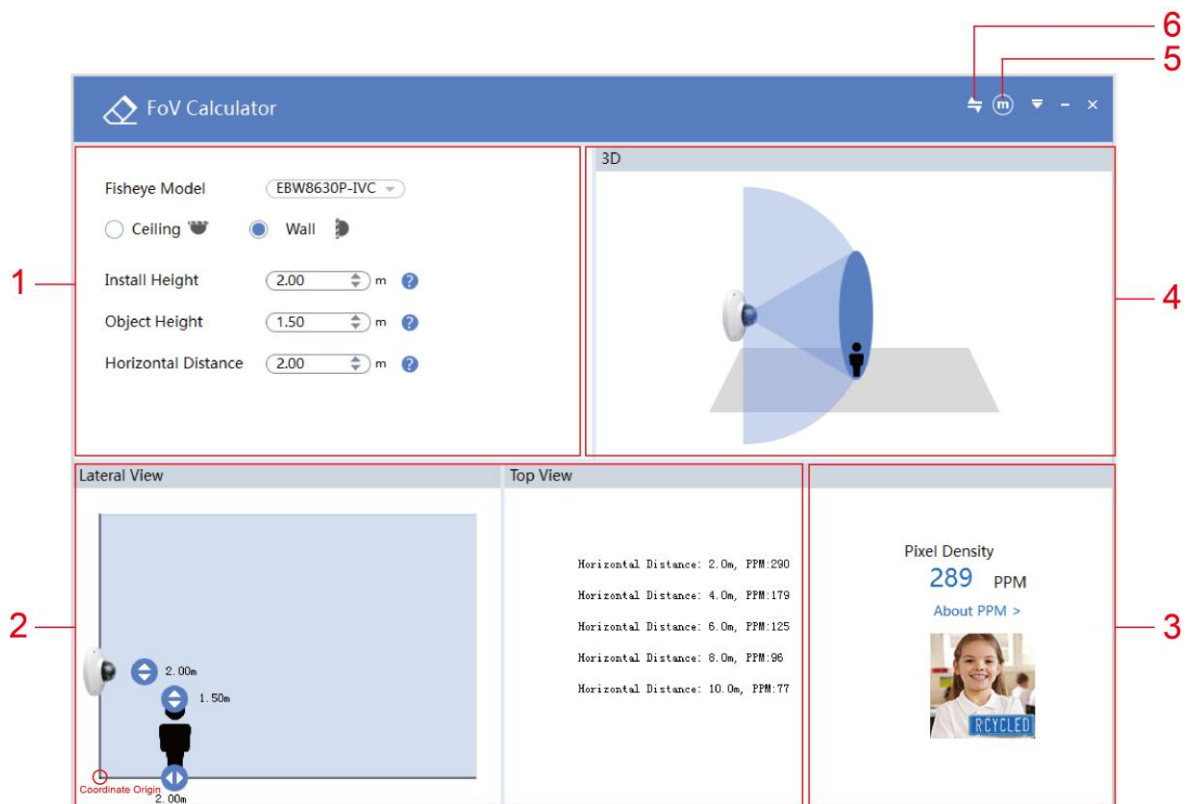


Figure 2-8

For the parameter description of the main interface, see Table 2-5.

No.	Parameter	Description
1	Installation Parameters	Set the installation parameters such as fisheye model, installation method and install height.
2	Lateral View	See the lateral view and top view of the camera under current installation condition.
	Top View	Adjust the camera installation parameters. For details, see "2.3.3 Adjusting Parameters."
3	Pixel Density	Real-time display the pixel density value and sketch map of the camera under current installation condition. Click About PPM to see the image effect of different pixel values. For details, see "2.4 Pixel Density."
4	3D	3D sketch map of the camera usage scenario.
5	Switch Unit	Switch unit between metre and feet.
6	Switch Tool	Switch the main interface between IPC FoV Calculator and Fisheye FoV Calculator.

Table 2-5

2.3.2 Calculating Steps

Step 1 On the main interface, select fisheye model such as **EBW8630P**.

Step 2 Select the installation method such as **Ceiling**.

Step 3 Select or enter the values of **Install Height**, **Object Height**, and **Horizontal Distance** respectively. For example set the **Install Height** to **3.68**, set the **Object Height** to **1.8**, and set the **Horizontal Distance** to **5**.

When the setting is completed, the setting results are displayed immediately in the **Lateral View** area and the **Top View** area, and you can see the real time image effect in the **Pixel Density** area. See Figure 2-9.

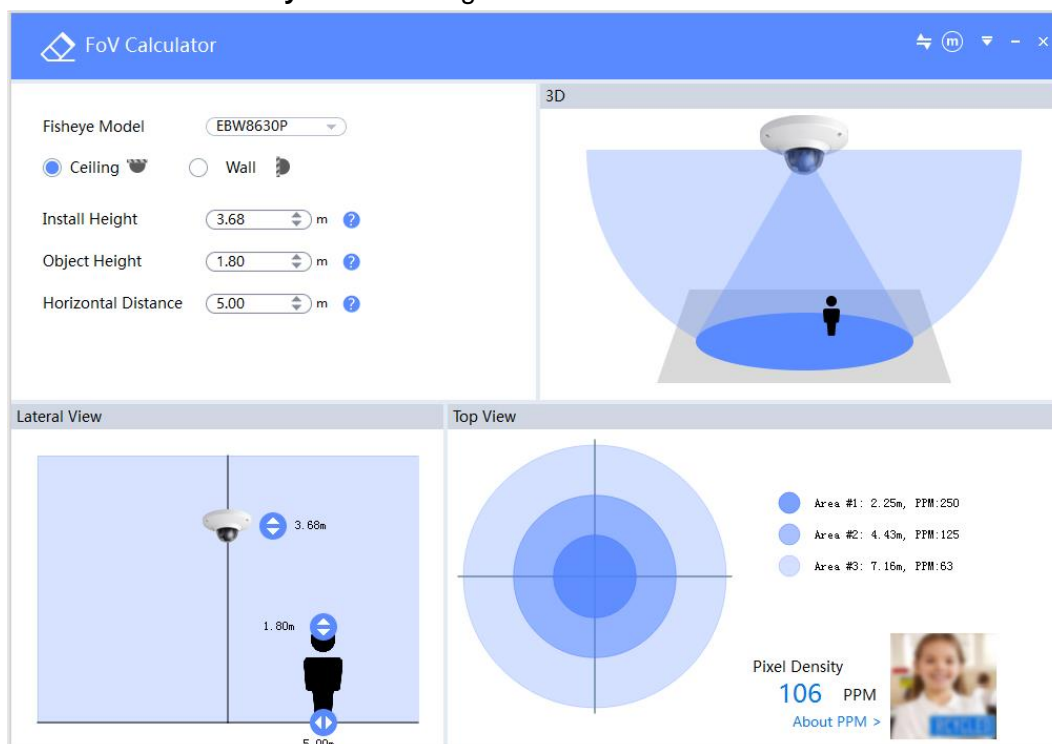



Figure 2-9

Click , the position of each parameter is displayed in the **3D** area. See Figure 2-10.

- **H**: Object height
- **H**: Install height
- **D**: Object horizontal distance

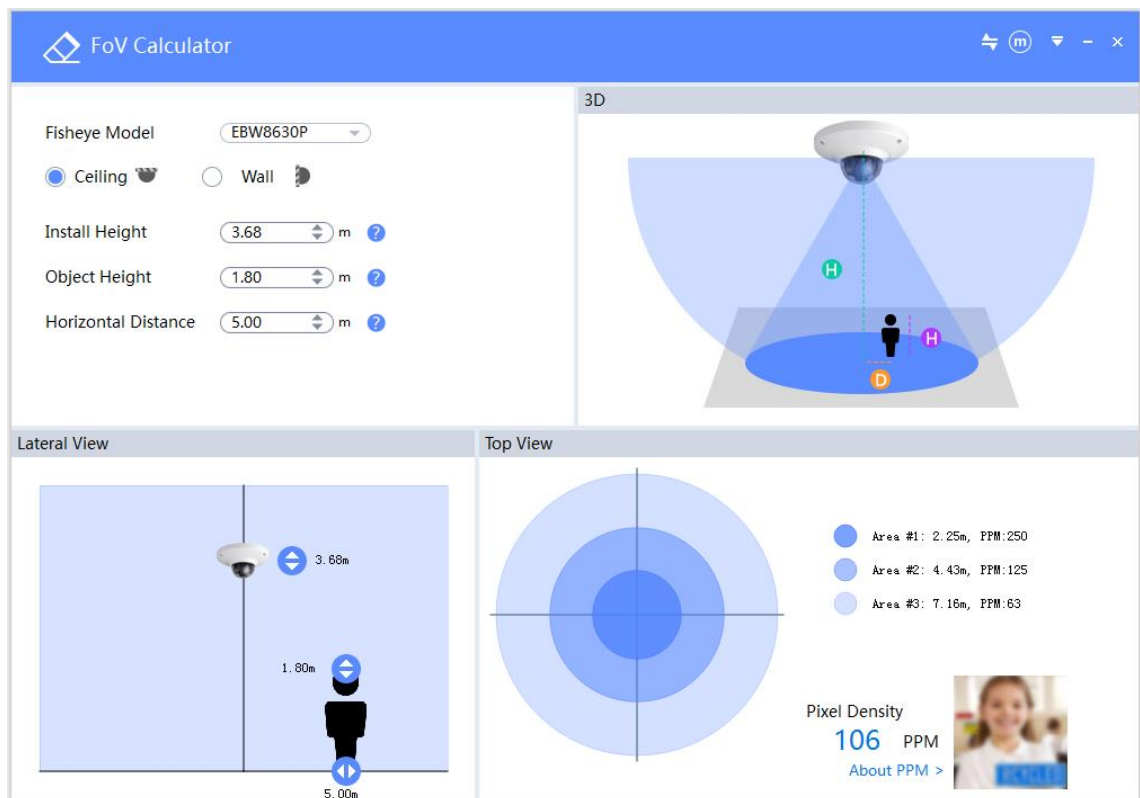


Figure 2-10

2.3.3 Adjusting Parameters

After the calculation is completed, you can adjust the camera installation parameters in the **Lateral View** area if the results do not meet the requirements. See Figure 2-11 and Figure 2-12.

After adjustment, the real-time pixel density and image effect are displayed in the **Pixel Density** area.

TIPS

You can click **About PPM** to see the definition of pixel density and understand the image effect that can be achieved by different pixel density, which can provide reference for parameter adjustment. For details, see "2.4 Pixel Density."

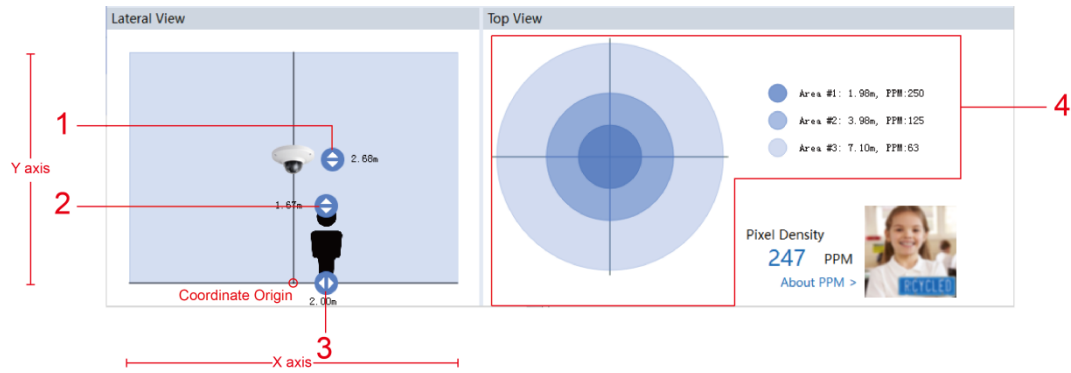


Figure 2-11

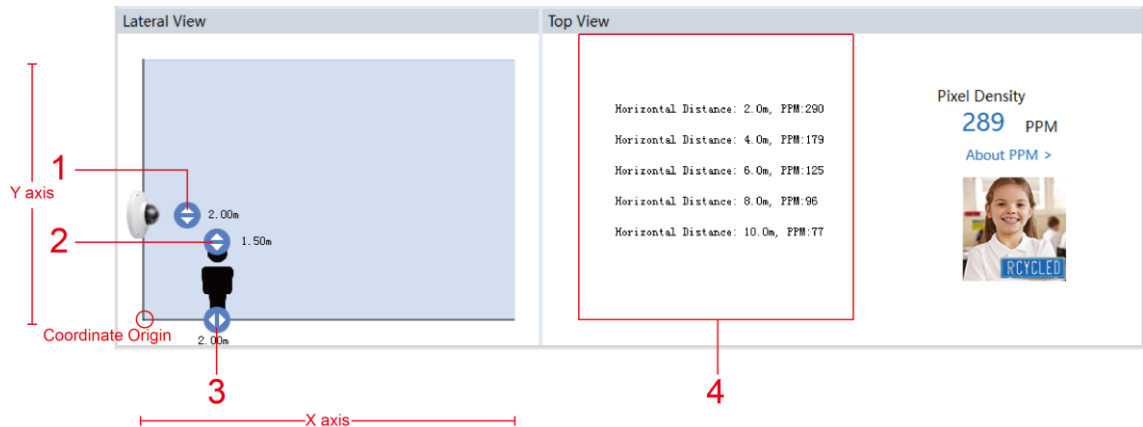


Figure 2-12

For the parameter description of the **Lateral View** area and the **Top View** area, see Figure 2-6.

No.	Parameter	Description
1	Installation height	Drag the button upwards or downwards to adjust the installation height. The maximum installation height is 5m.
2	Object height	Drag the button upwards or downwards to adjust the object height. The maximum object height is 5m.
3	Horizontal distance	The horizontal distance refers to distance between the monitored object and coordinate origin. The maximum horizontal distance is 5m. Drag the button leftwards or rightwards to adjust the horizontal distance.
4	Ceiling mounting trend chart	The radius distance of each region to the coordinate origin and the corresponding pixel density values. The lighter the color, the smaller the pixel density.
	Wall mounting trend table	The radius distance of each region to the coordinate origin and the corresponding pixel density values. The lighter the color, the smaller the pixel density.

Table 2-6

2.4 Pixel Density

The image display in pixel density area can help you understand the image effect under current installation conditions. You can also see the pixel density definition to understand image recognition range of different pixel density.

NOTE

For the PPM value displayed in the main interface, "NA" indicates that the object is not in the camera angle range. "0" indicates that the object is in the camera angle range, but the calculation is close to 0 or 0.

- Real-time display: In the lower right corner of the main interface, the image effect of the pixel density area varies in real-time according to the parameters setting.
- View pixel density definition: Click **About PPM**, the pixel density interface is displayed. See Figure 2-13.

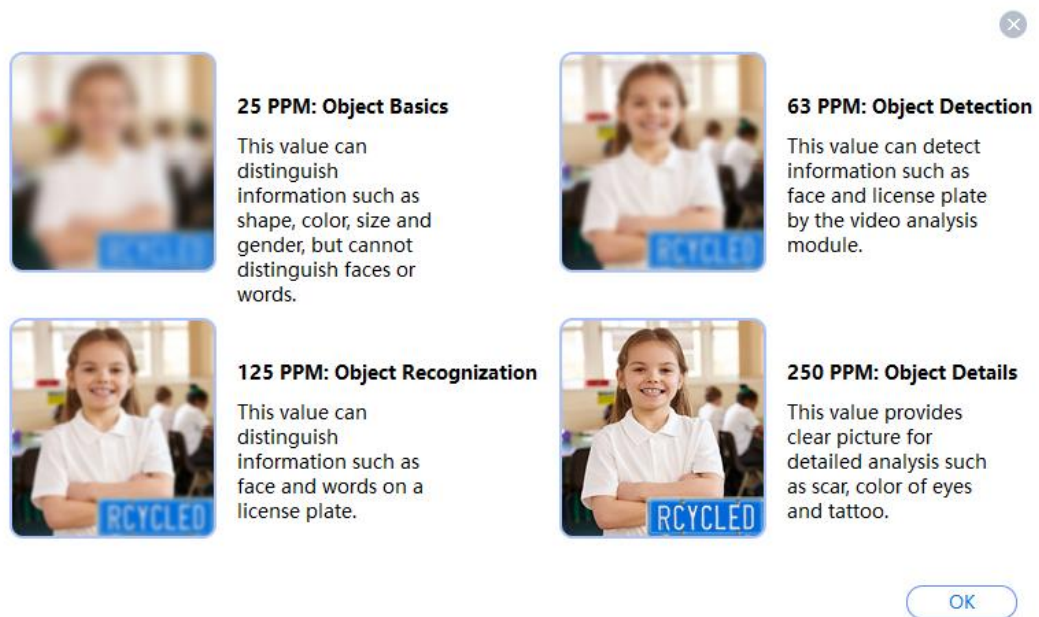



Figure 2-13

Click **OK** or  to close the pixel density interface.