

Installation Guidance

Camera module

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Document Revision History

Rev	Date	Description	Author
V1.0	2023.4.13	First edition release	R&D

1. Camera Product Introduction

Product Name	Picture	Remarks
<p>Camera A</p> <p>[3030 standard product]</p>		<p>Size: 30mm * 30mm</p> <p>Cameras such as GMSL/FPDLink all use this type of appearance</p>
<p>Camera B</p> <p>[4040 standard product]</p>		<p>Size: 40mm * 40mm</p> <p>Cameras such as GMSL/FPDLink all adopt this type of appearance</p>
<p>Camera C</p> <p>[2525 standard product]</p>		<p>Size: 25mm * 25mm</p> <p>Cameras such as GMSL/FPDLink all adopt this type of appearance</p>
<p>OMS Camera D</p>		<p>Size: 44.2mm * 28.8mm</p> <p>OMS cameras all adopt this type of appearance</p>
<p>DMS Camera E</p>		<p>Size: 43.62mm * 35.27mm</p> <p>DMS cameras all adopt this type of appearance</p>

2. Camera Installation Guidance

(1) Camera A [3030 standard product]

Step 1: Installation and fixation

The camera shell is made of metal and needs to be fixed with two M2.5 standard screws at the back of the camera. After fixation, it cannot be shaken. The structural dimensions and hole positions are shown in Figure 1.

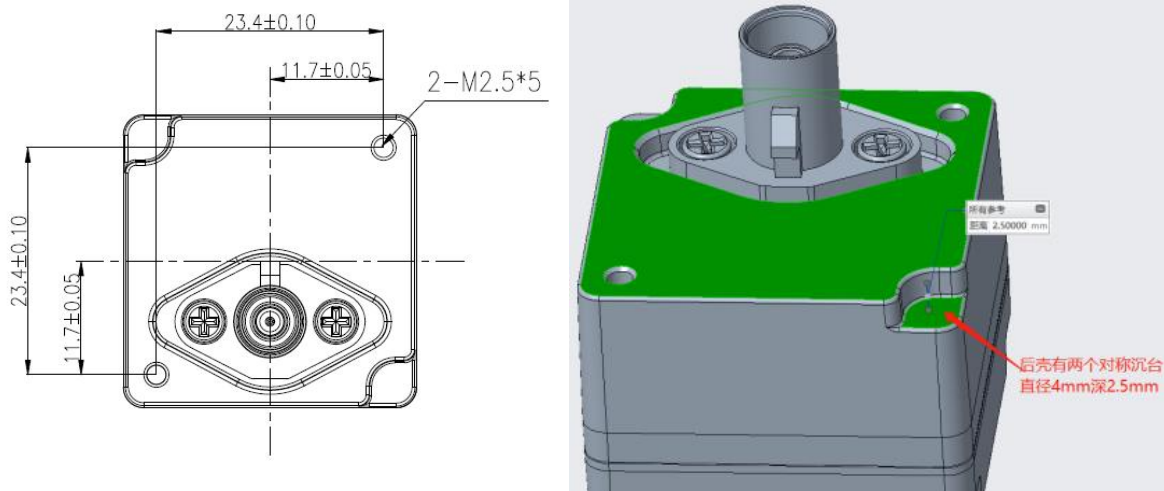


Figure 1

Step 2: Suggestions for camera installation and protection

- For camera modules with a waterproof grade below IP67, it is required that the modules cannot be exposed. For camera modules with a waterproof grade of IP67 or above, the lens can be exposed, but protection is still recommended to avoid dust and raindrops from adhering to the lens and affecting imaging.
- Design cleaning devices as much as possible, regularly clean the lens surface to remove mud and water.
- Try to avoid the possibility of the lens colliding with other objects after installation, and also avoid the lens being hit by flying stones or hard objects.
- In order to prevent light outside the edge of the lens field of view from entering the camera module, resulting in glare, it is recommended to block light outside the field of view from entering the lens as much as possible without affecting the field of view.

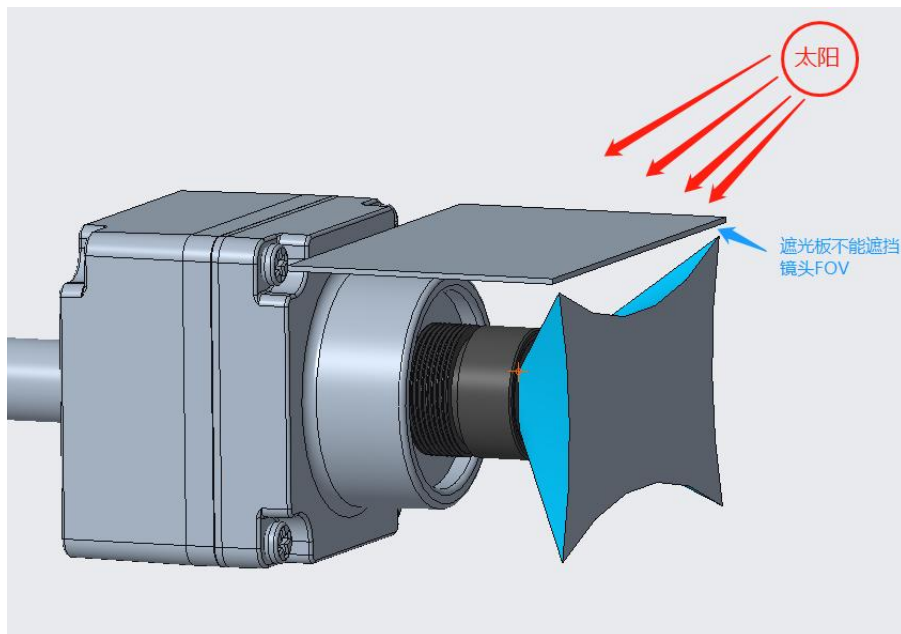


Figure 2 Blackout Reference Diagram

The function of the light shield is to prevent light from directly hitting the lens. The length design of the light shield can be adjusted according to the actual FOV and installation position of the lens, to ensure that light outside of the FOV does not enter the lens as much as possible.

Step 3: Be sure to pay attention to the imaging direction during installation

- SENSING standard cameras have different imaging directions for different models. Please pay special attention when designing the bracket. It is recommended to design a compatible installation structure to avoid the need for a redesign due to model replacement.
- For specific imaging directions, please refer to the datasheet:



This icon indicates that the imaging direction is forward direction.

Step 4: 3030 standard camera, differences in field of view angles between different lenses

- The installation method and peripheral dimensions of the SENSING SG series standard products (30mm*30mm) are the same.
- Different focal distance use different lenses, and different lenses correspond to different protrusion heights of the lens base. There are two types of heights: short focal distance in Figure 7 and long focal distance in Figure 8, as shown in Figure 3.

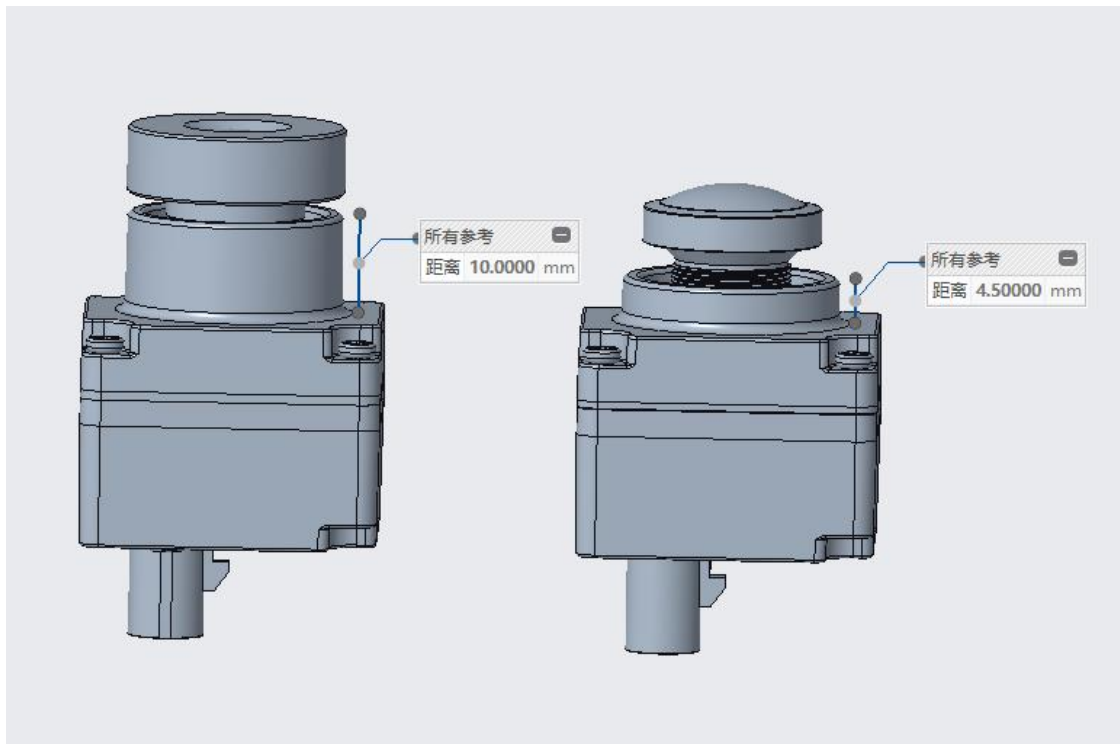


Figure 3 Long focal distance appearance: (protruding part as shown in Figure, 10mm)

Short focal distance appearance: (protruding part as shown in Figure, 4.5mm)

- AA lenses have different flange rear focal heights for different AA lenses. The specific protrusion height of the lens base should refer to 3D data, as shown in Figure 4. The height (7.035mm) is uncertain and needs to be determined based on the position of the AA lens flange.

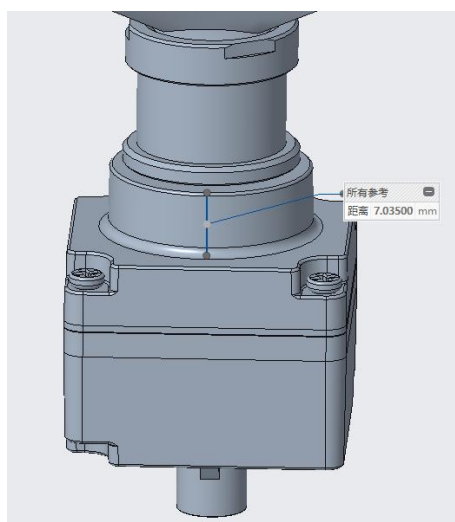


Figure 4

- Some sizes of the lens varies depending on the angle and model. Please refer to the detailed 3D data of the camera for details.

Step 5: During the installation process, avoid the following situations.

- The lens cannot be subjected to force, as shown in Figure 5.

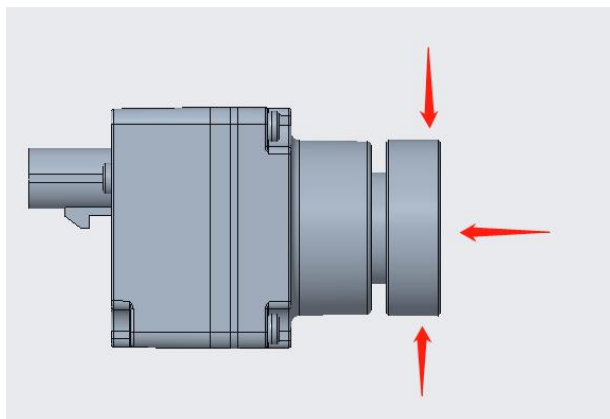


Figure 5

Attention: During the installation process, as shown by the arrow in the figure, the lens should not be subjected to force in these directions.

Step 6: Coaxial connector model

The camera module adopts coaxial connectors:

brand	model
Amphenol	FKMZ-SPCF001-3GT30G-50

(2) Camera B [4040 standard product]

Step 1: Fixed installation

The camera shell is made of metal and needs to be fixed position with two 1.8mm diameter pillars at the back of the camera, and fixed with four M2.5 screws. After fixation, it cannot be shaken. The structural dimensions and hole positions are shown in Figure 6.

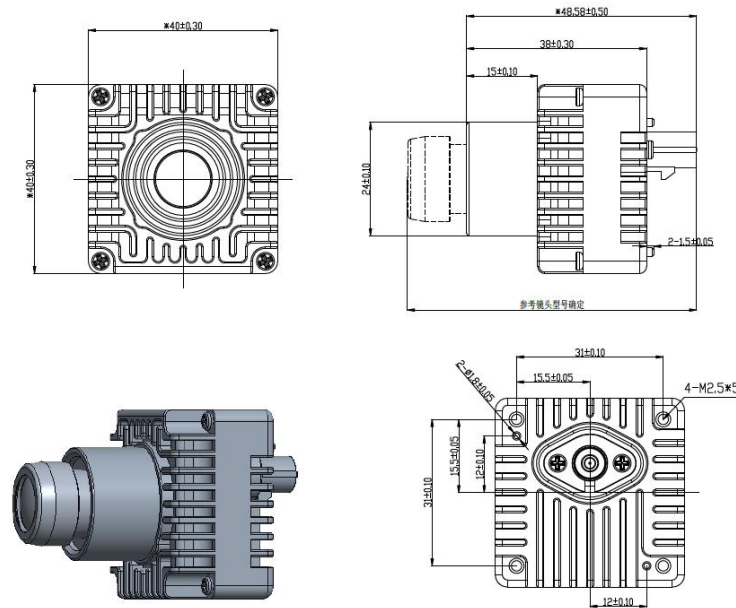


Figure 6

Step 2: Suggestions for camera installation and protection

- For camera modules with a waterproof grade below IP67, it is required that the modules cannot be exposed. For camera modules with a waterproof grade of IP67 or above, the lens can be exposed, but protection is still recommended to avoid dust and raindrops from adhering to the lens and affecting imaging.
- In order to prevent light outside the edge of the lens field of view from entering the camera module, resulting in glare, it is recommended to block light outside the field of view from entering the lens as much as possible without affecting the field of view.
- Design cleaning devices as much as possible, regularly clean the lens surface to remove mud and water.

Step 3: Be sure to pay attention to the imaging direction during installation

- SENSING standard cameras have different imaging directions for different models. Please pay special attention when designing the bracket. It is recommended to design a compatible installation structure to avoid the need for a redesign due to model replacement.
- For specific imaging directions, please refer to the datasheet:



This icon indicates that the imaging direction is forward direction.

Step 4: Differences in SG series 40*40mm standard products

- The installation method and peripheral dimensions of the SENSING SG series standard products (40mm*40mm) are the same.
- Different focal distance use different lenses, and different lenses correspond to different protrusion heights of the lens holder. Currently, the ones that have been mass-produced include the long focal distance shown in Figure 3, as shown in Figure 7.

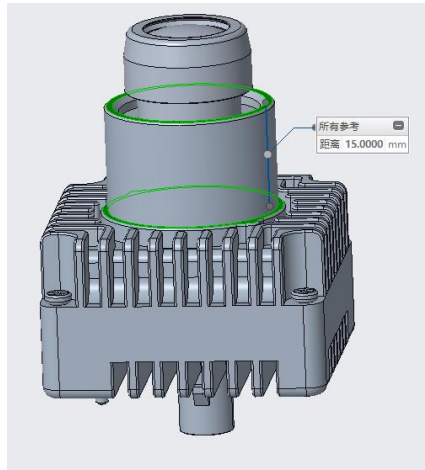


Figure 7: The height of the protruding part is 15MM as shown in the figure

- AA lenses have different flange rear focal heights for different AA lenses, and the protrusion height of the lens base is different. Please refer to 3D data for details, as shown in Figure 14. The height (7.8mm) is uncertain and needs to be determined based on the position of the AA lens flange.

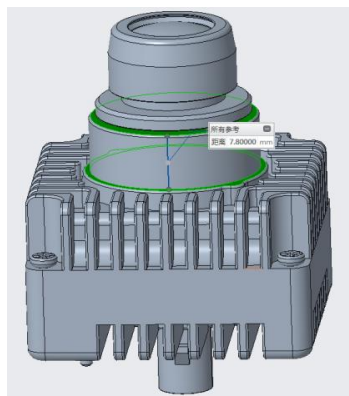


Figure 8

- Some sizes of the lens varies depending on the angle and model. Please refer to 3D data for details.

Step 5: Coaxial connector model

Brand	Model
Amphenol	FKMZ-SPCF001-3GT30G-50

(3) Camera C 【 2525 standard 】

Step 1: Fixed installation

The camera shell is made of metal and needs to be fixed with two M2.5 standard screws at the back of the camera. After fixation, it cannot be shaken. The structural dimensions and hole positions are shown in Figure 9.

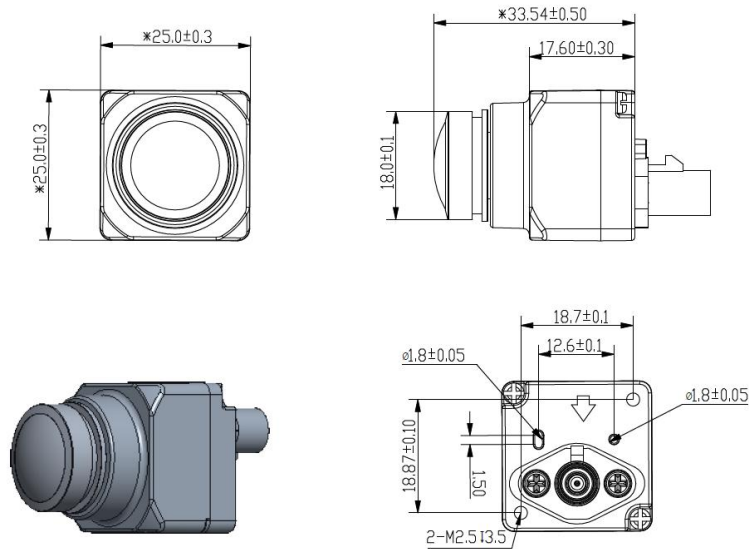


Figure 9

Step 2: Suggestions for camera installation and protection

- For camera modules with a waterproof grade below IP67, it is required that the modules cannot be exposed. For camera modules with a waterproof grade of IP67 or above, the lens can be exposed, but protection is still recommended to avoid dust and raindrops from adhering to the lens and affecting imaging.
- In order to prevent light outside the edge of the lens field of view from entering the camera module, resulting in glare, it is recommended to block light outside the field of view from entering the lens as much as possible without affecting the field of view.
- Design cleaning devices as much as possible, regularly clean the lens surface to remove mud and water.

Step 3: Be sure to pay attention to the imaging direction during installation

- SENSING standard cameras have different imaging directions for different models. Please pay special attention when designing the bracket. It is recommended to design a compatible installation structure to avoid the need for a redesign due to model replacement.
- For specific imaging directions, please refer to the datasheet:



This icon indicates that the imaging direction is forward direction.

Step 4: Differences in SG series 25*25mm standard products

- The installation method and peripheral dimensions of the SENSING SG series standard products (25mm*25mm) are the same.
- Different focal distance use different lenses, and different lenses correspond to different of lens holder height protrusions, as shown in Figure 10.
- Please refer to 3D data for details.

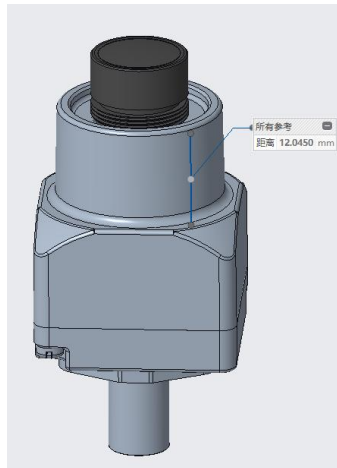


Figure 10 (The height of the protruding part is 12MM as shown in the figure)

- AA lenses have different flange rear focal heights for different AA lenses, and the protrusion height of the lens holder is different. Please refer to 3D data for details, as shown in Figure 11. The height (6.53mm) is uncertain and needs to be determined based on the position of the AA lens flange.

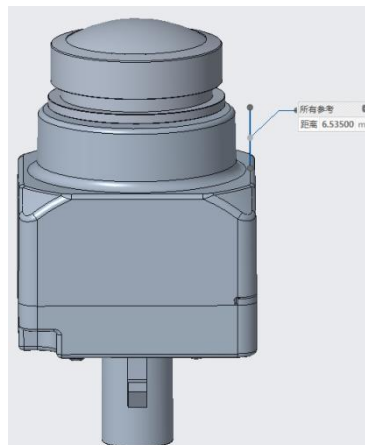


Figure 11

- Some sizes of the lens varies depending on the angle and model. Please refer to 3D data for details.

Step 5: Coaxial connector model

Brand	Model
Amphenol	FKMZ-SPCF001-3GT30G-50

(4) OMS Camera D

Step 1: Fixed installation

The camera shell is made of metal and needs to be fixed with two M2.5 screws at the back of the camera. After fixation, it cannot be shaken. The structural dimensions and hole positions are shown in Figure 12.

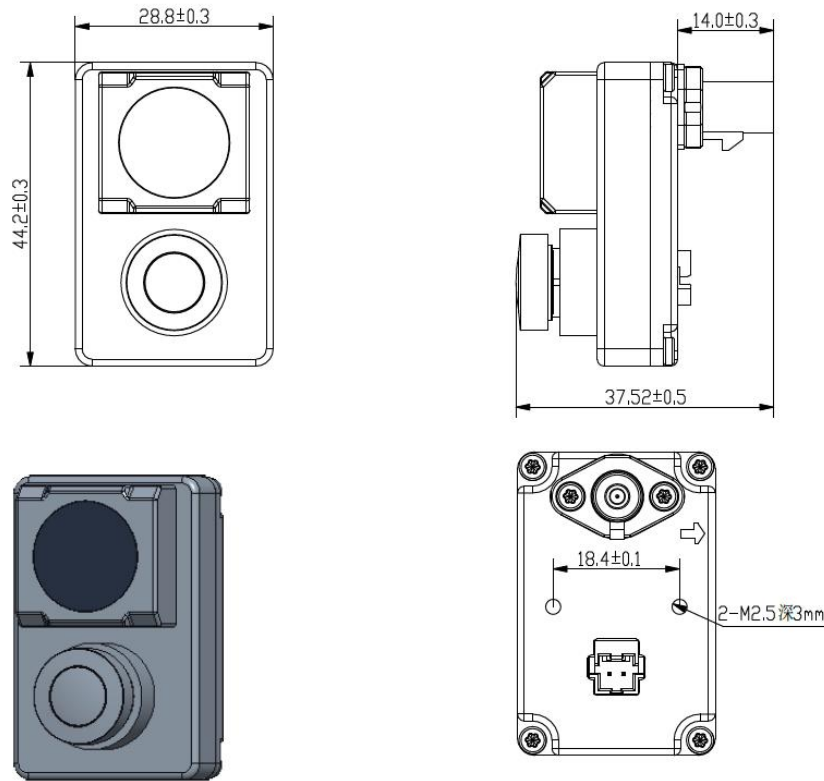


Figure 12

Step 2: Suggestions for camera installation and protection

- For camera modules with a waterproof grade below IP67, it is required that the modules cannot be exposed. For camera modules with a waterproof grade of IP67 or above, the lens can be exposed, but protection is still recommended to avoid dust and raindrops from adhering to the lens and affecting imaging.
- In order to prevent light outside the edge of the lens field of view from entering the camera module, resulting in glare, it is recommended to block light outside the field of view from entering the lens as much as possible without affecting the field of view.
- Design cleaning devices as much as possible, regularly clean the lens surface to remove mud and water.

Step 3: Be sure to pay attention to the imaging direction during installation

- The camera module is positioned in the direction indicated by the arrow in Figure 13, and the imaging is in the forward direction.

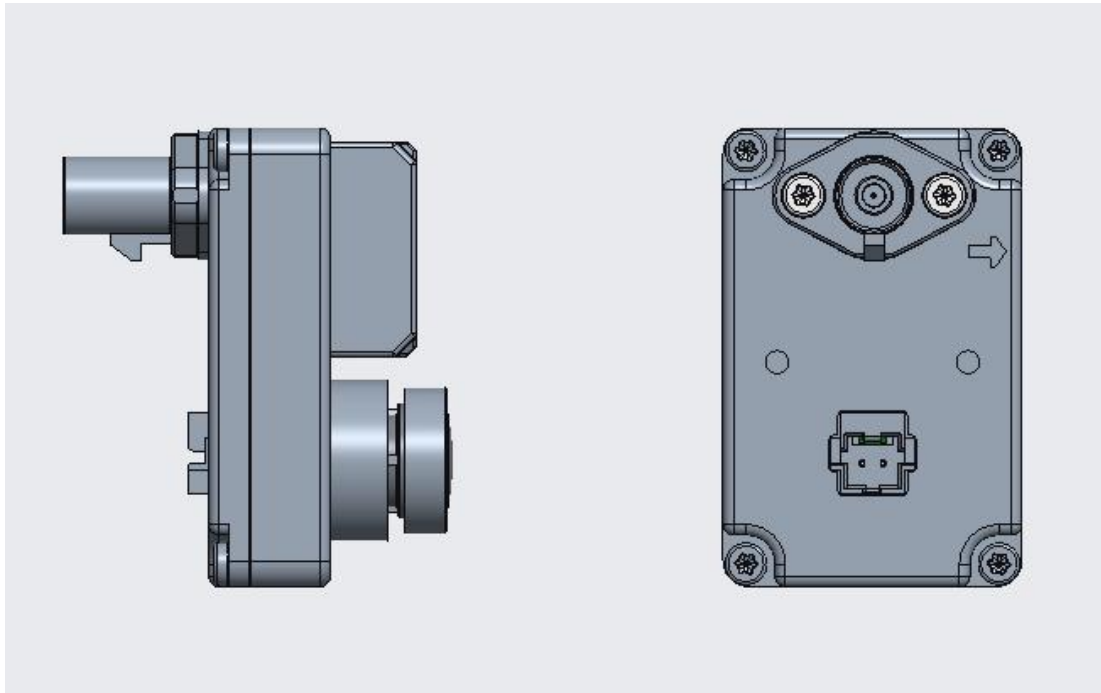


Figure 13

Step 4: Coaxial connector model

Brand	Model
Amphenol	FKMZ-SPCF001-3GT30G-50

(4) DMS camera E

Step 1: Fixed installation

The camera shell is made of metal and requires two 2mm diameter positioning columns at the back of the camera for positioning and three M2.5 screws for fixation. After fixation, it cannot be shaken. The structural dimensions and hole positions are shown in Figure 14.

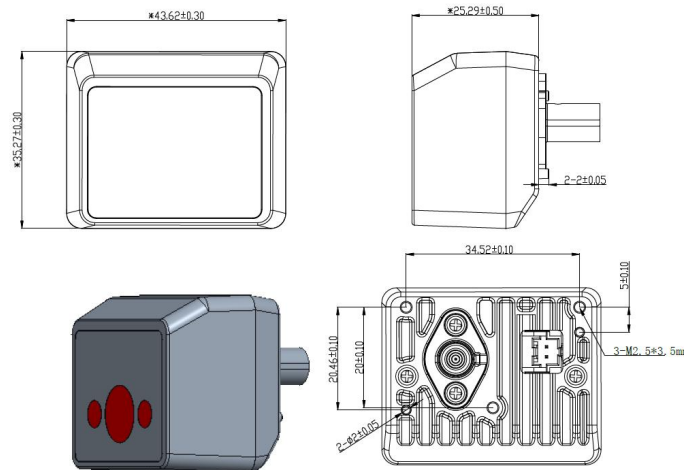


Figure 14

Step 2: Suggestions for camera installation and protection

- For camera modules with a waterproof grade below IP67, it is required that the modules cannot be exposed. For camera modules with a waterproof grade of IP67 or above, the lens can be exposed, but protection is still recommended to avoid dust and raindrops from adhering to the lens and affecting imaging.
- In order to prevent light outside the edge of the lens field of view from entering the camera module, resulting in glare, it is recommended to block light outside the field of view from entering the lens as much as possible without affecting the field of view.
- Design cleaning devices as much as possible, regularly clean the lens surface to remove mud and water.

Step 3: Be sure to pay attention to the imaging direction during installation

- The camera module is positioned in the direction shown in Figure 15, with the Fakra on the left side, it will be image in the forward direction.

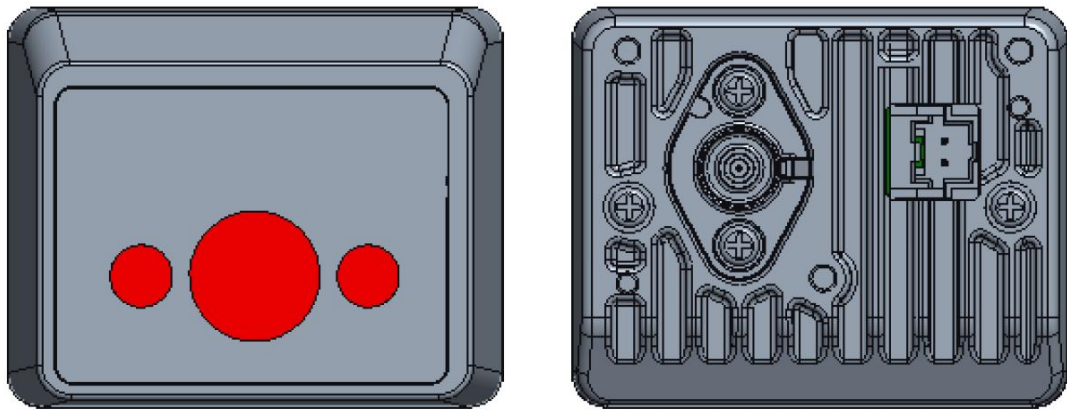


Figure 15

Step 4: Coaxial connector model

Brand	Model
Amphenol	FKMZ-SPCF001-3GT30G-50

