

12.3 inch Commercial Vehicle Mirror replacement Systems

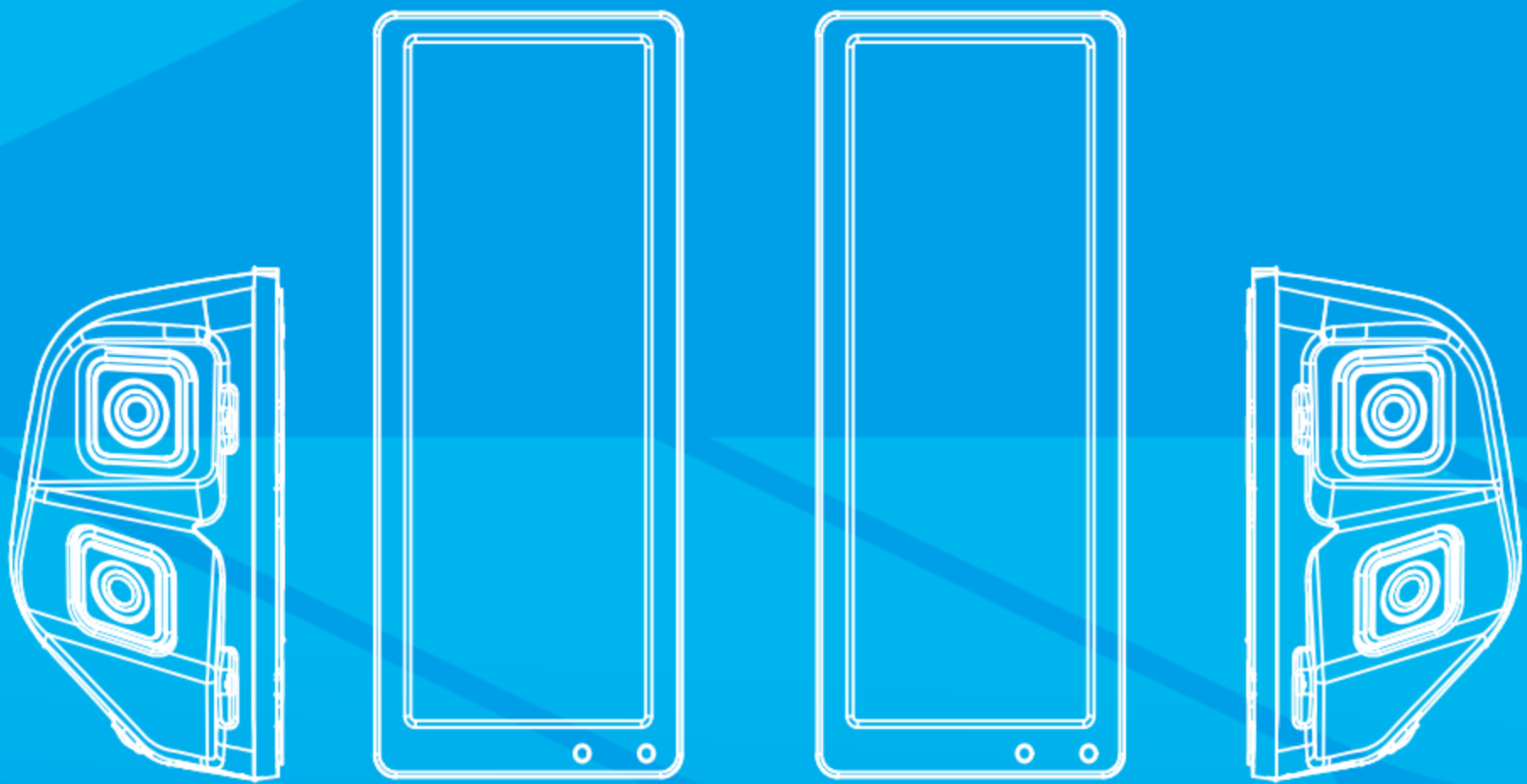


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1. UNECE R46 Regulation

For legal requirements see:

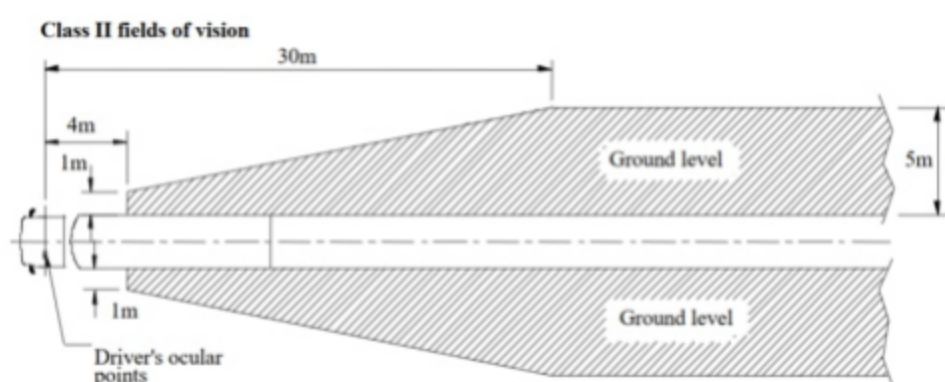
<https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29regs/2018/R046r6am4e.pdf>

The positioning and placement of the cameras and monitors is essential for a proper use of the system. Without a correct installation the installation approval is not possible

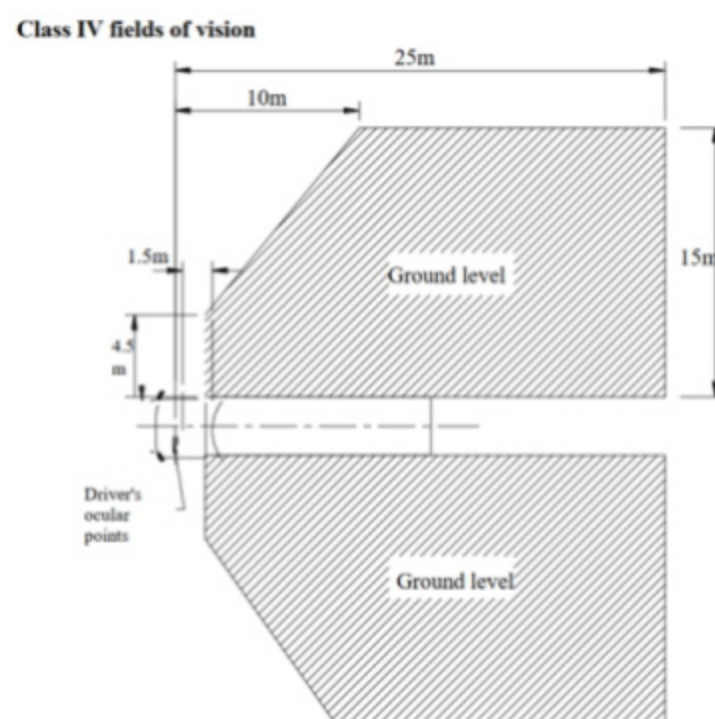
2. Product Introduction

SideVis SV888 is an indirect vision device designed to completely replace the traditional rearview mirror Class II, Class IV and Class V. This system complies with R46 regulations.

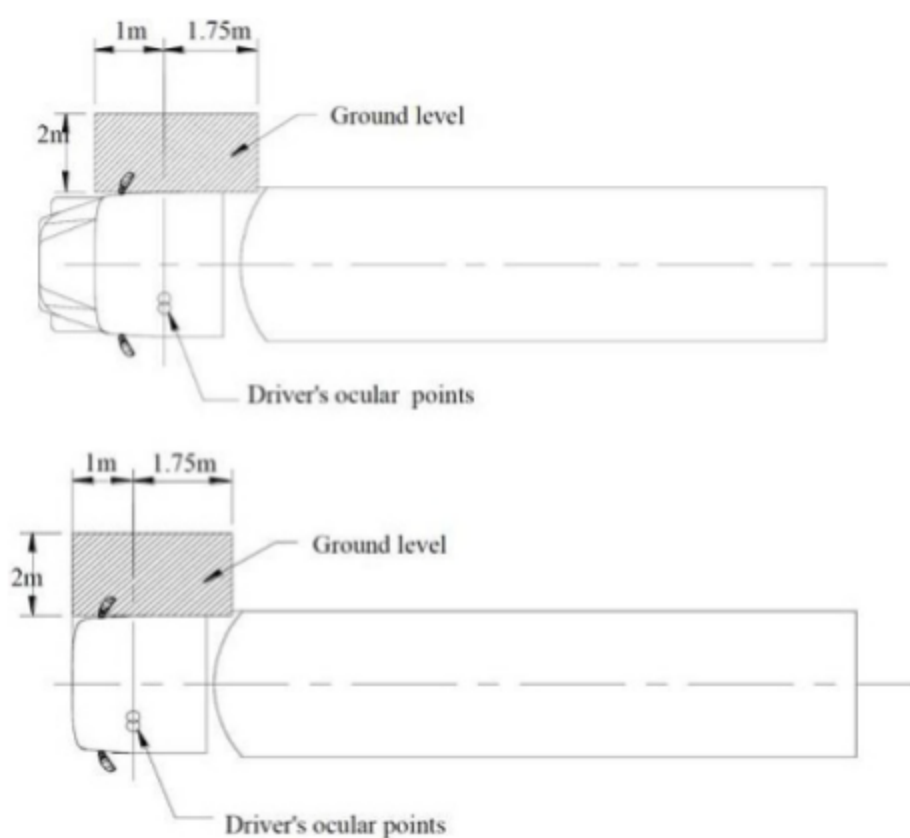
SideVis SV888 provides the Class II, Class IV and Class V effective visual range of the driver according to the R46 regulation.



Class II



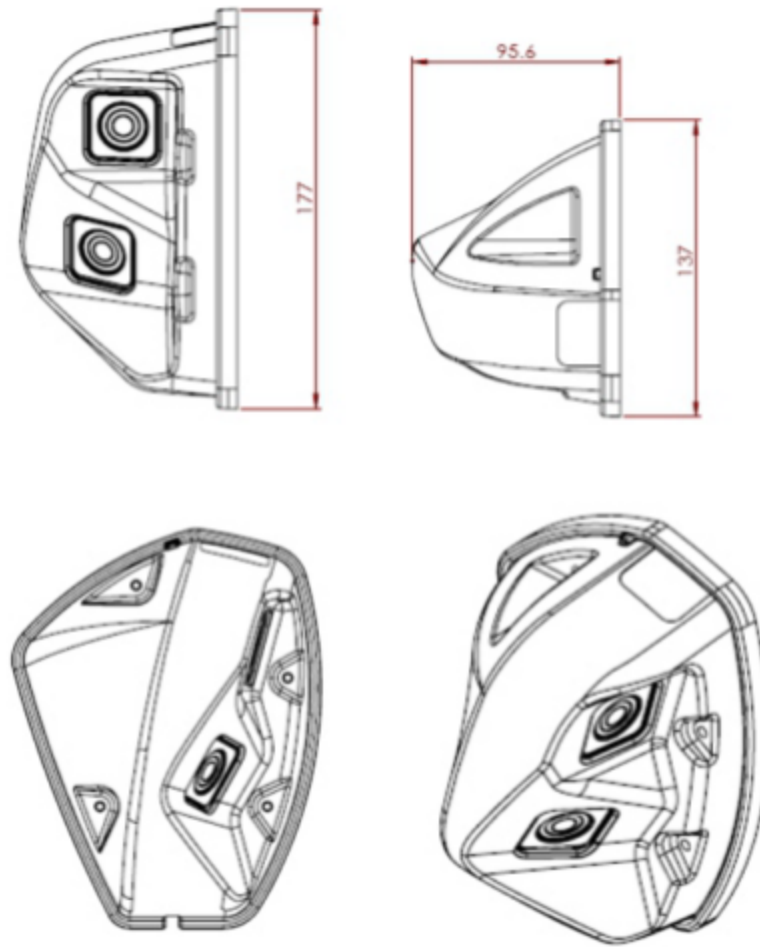
Class IV



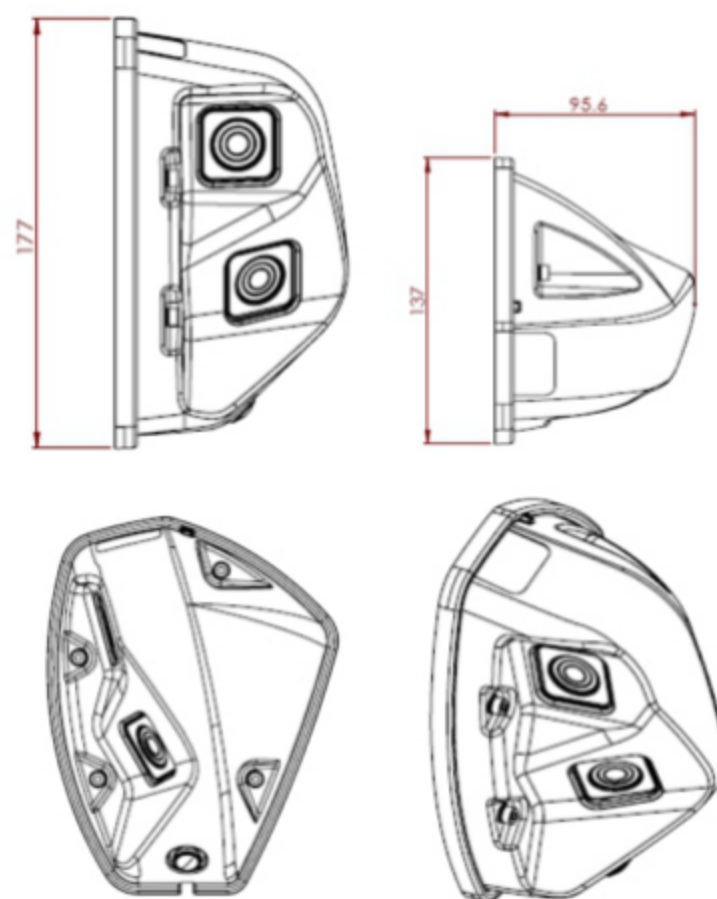
Class V

2.1. Blind area Surveillance camera (option)

DBC-SV88-L



DBC-SV88-R



3. System Specifications

SideVis SV888

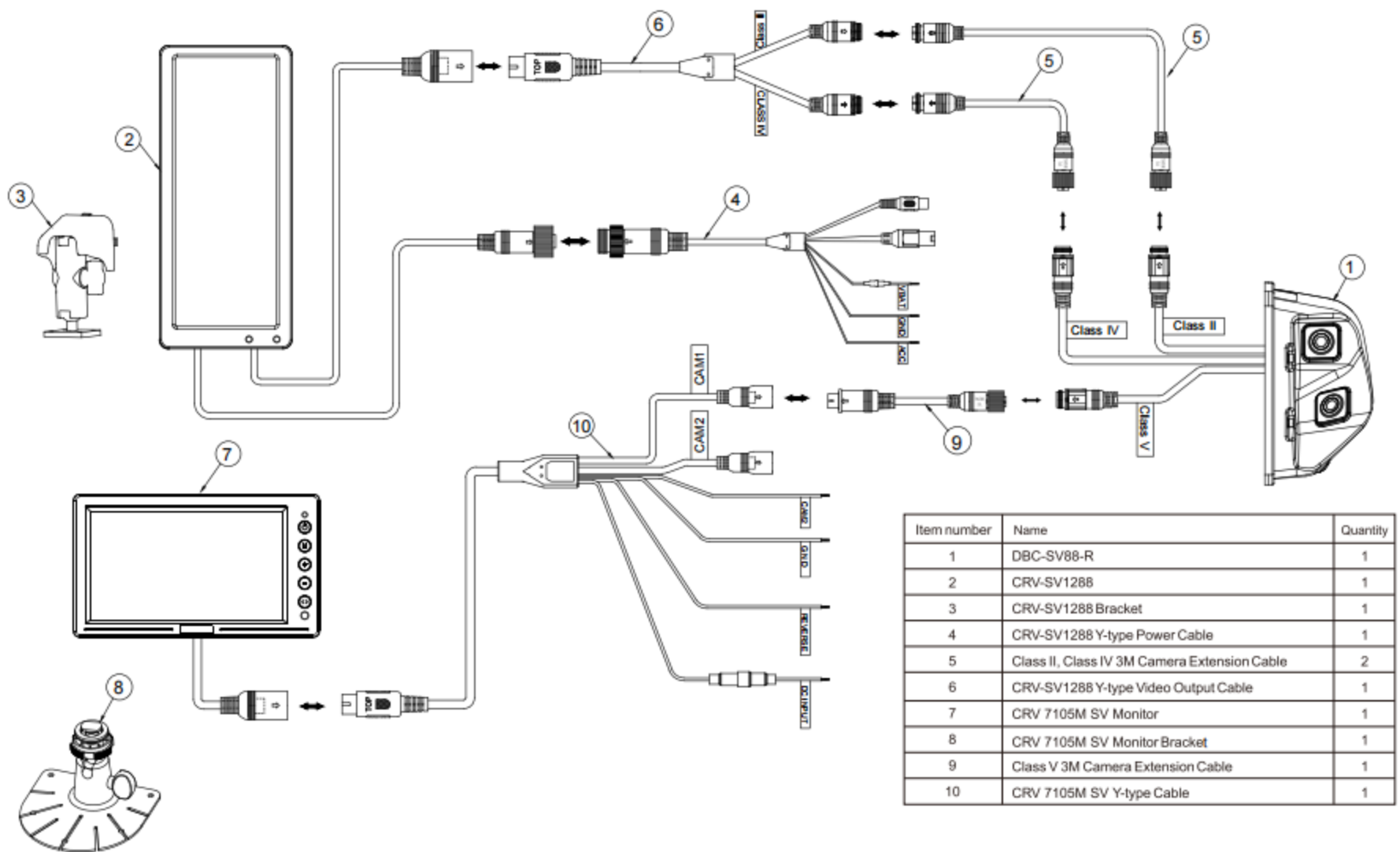
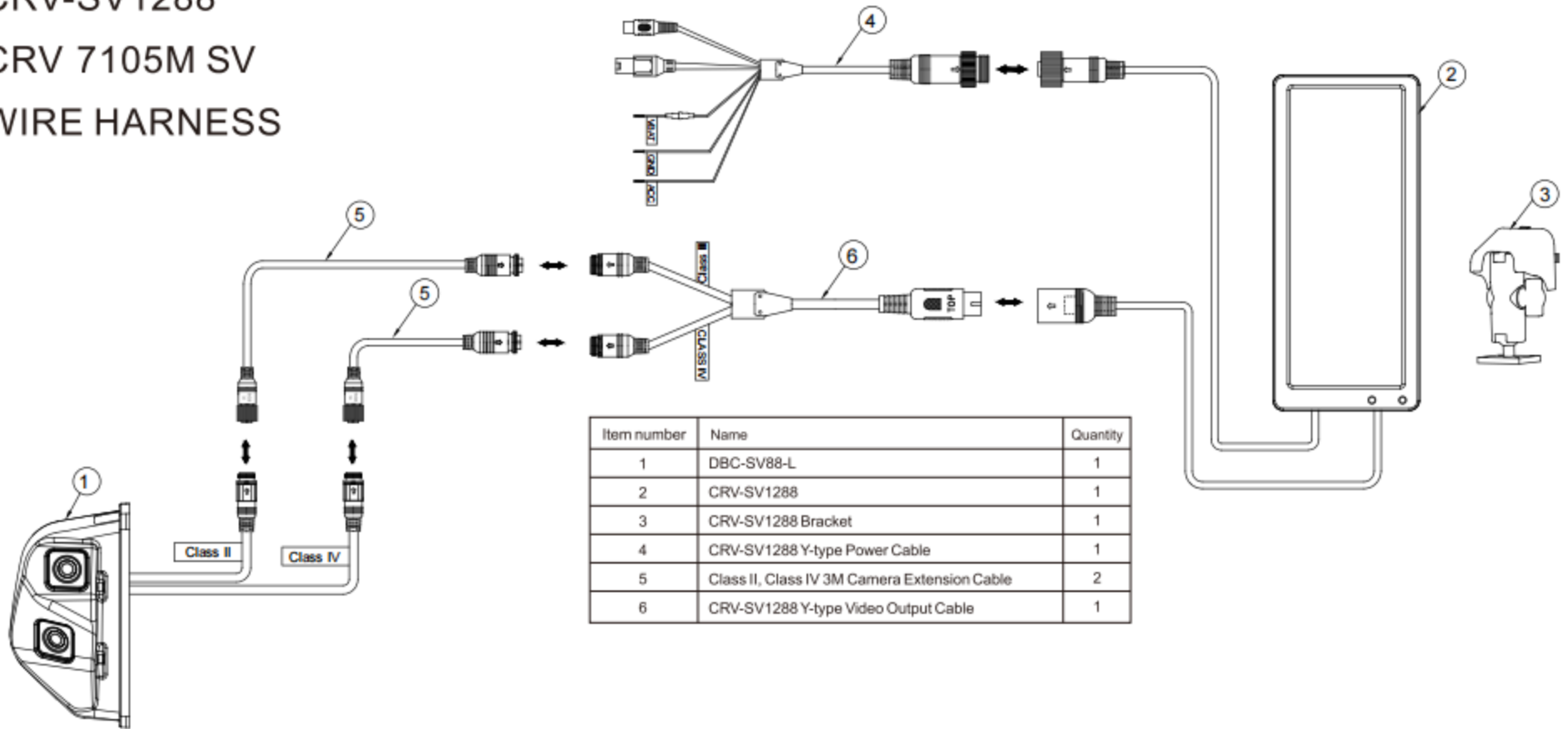
DBC-SV88-L

DBC-SV88-R

CRV-SV1288

CRV 7105M SV

WIRE HARNESS



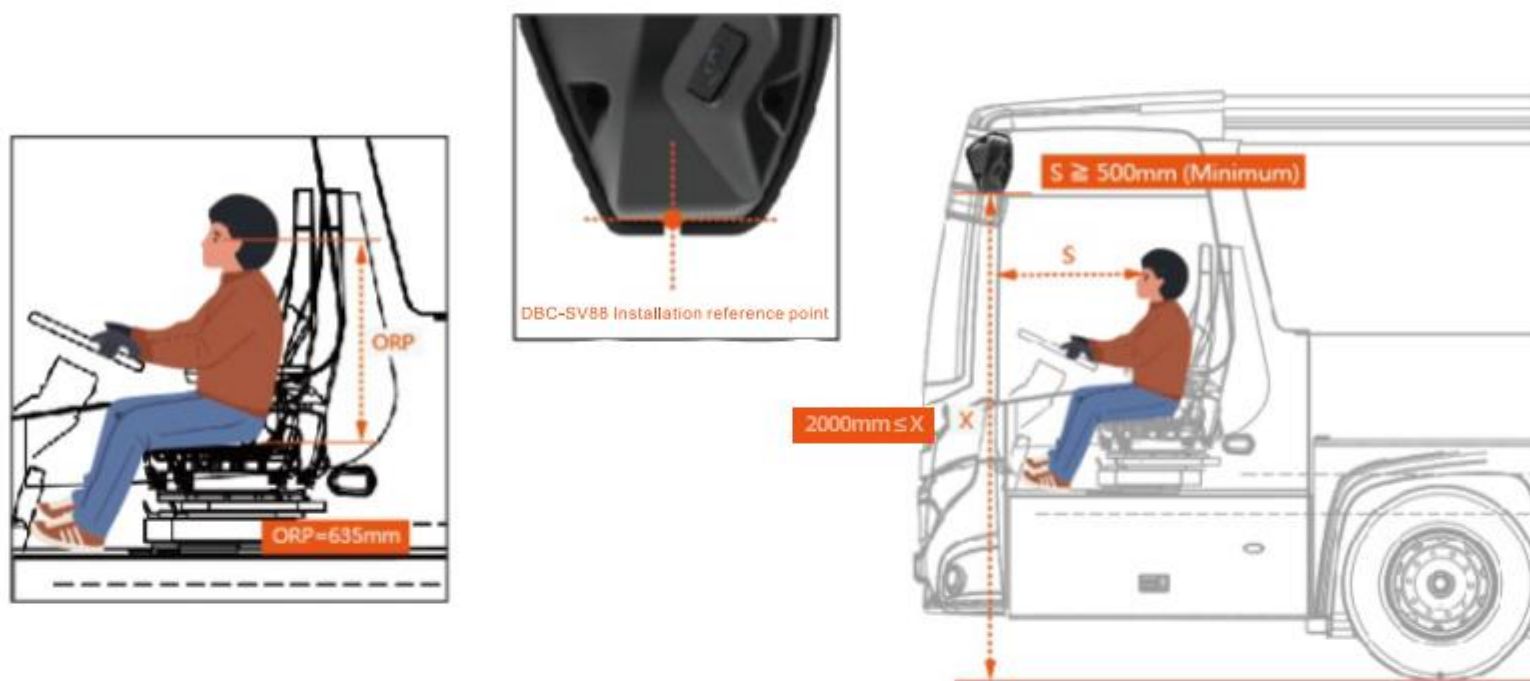
System view set consists of:

- Two sets of camera modules, including ClassII and ClassIV indirect vision devices that can replace traditional rear-view mirror. The camera has an automatic heating function.
- Two sets of 12.3-inch monitors have the left and right labels, and simultaneously display Class II and Class IV visual field indirect device images. And comply with UNECE R46 regulation requirements. The built-in monitoring chip can receive vehicle CAN signals, diagnose product failures in real time, and give driving warnings.
- Two sets of system wiring harnesses, except for connecting the camera. It can also receive CAN communication function.
- DBC-SV88-R (Surveillance Class V Camera): Compatible with standard displays of the group-approved UNECE R46 series.

4. System Installation Instructions

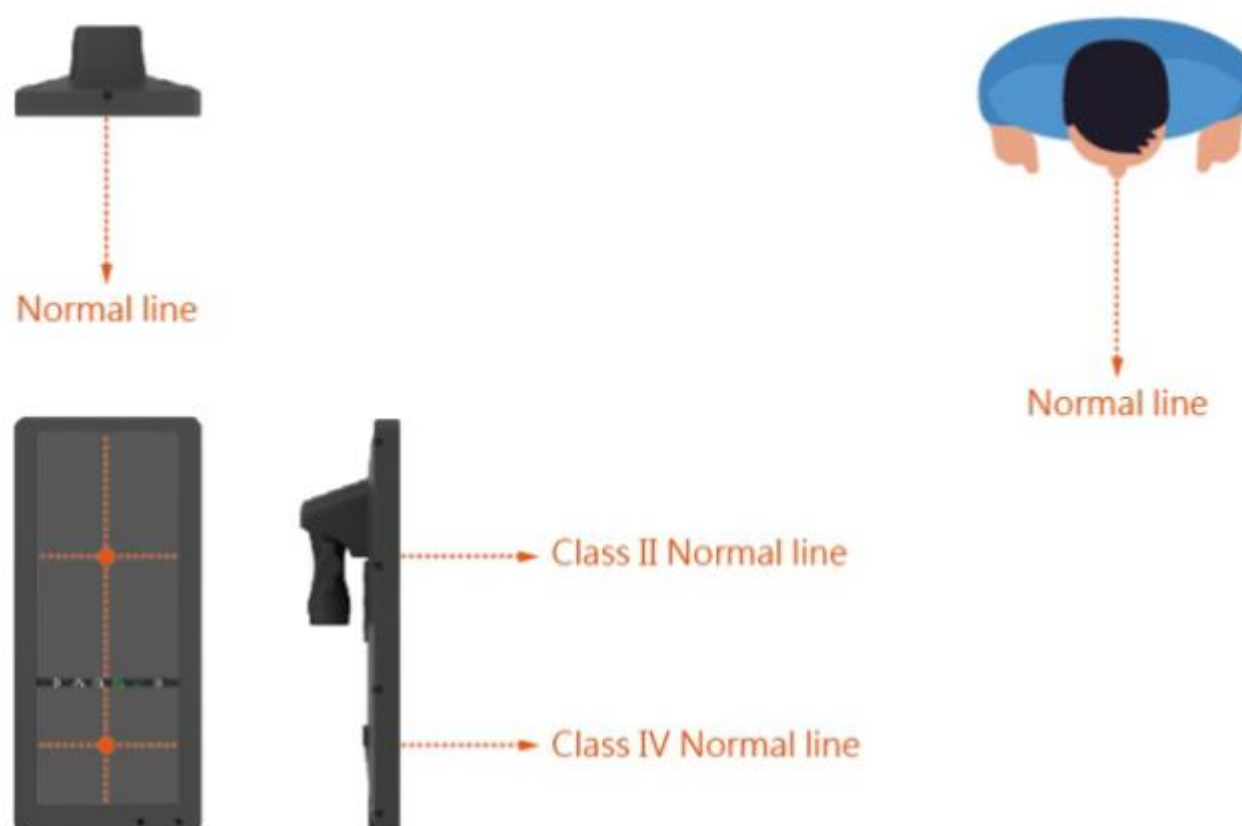
4.1. SideVis SV888 installation

1. The installation positions of the horizontal distance and height of the camera are shown in the figure:



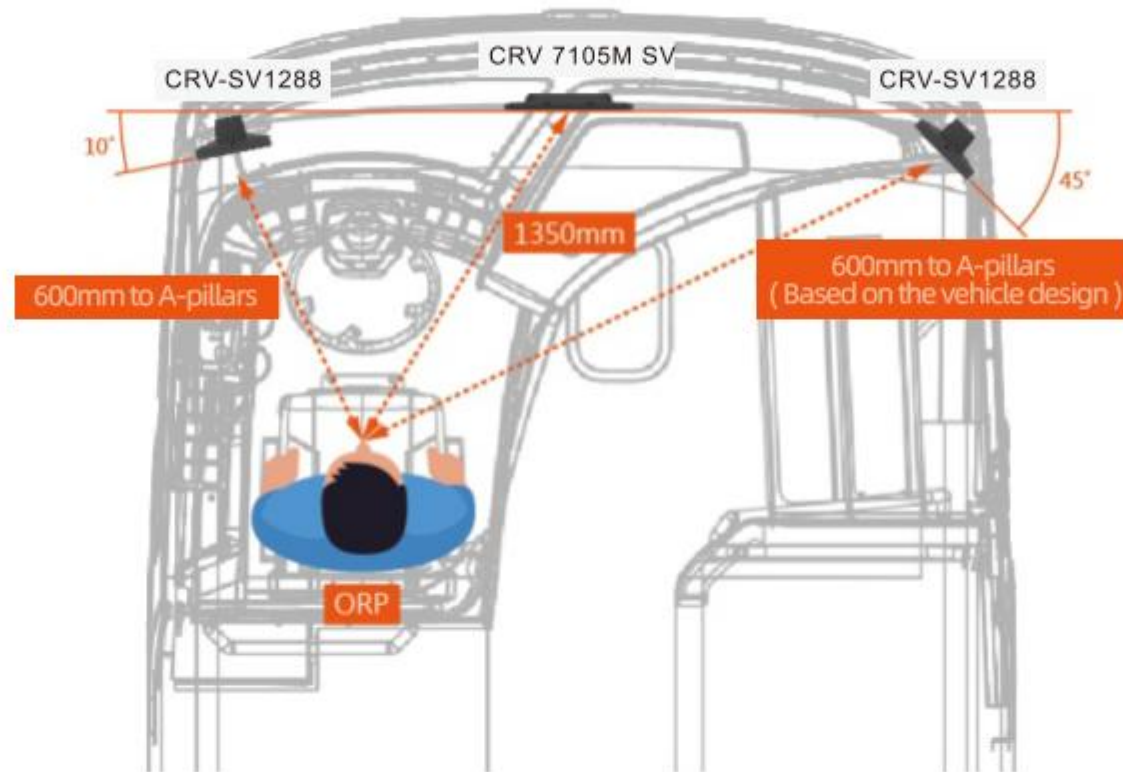
2. Display installation

- 2.1. As shown in the figure, the line perpendicular to the display plane is the normal line of the display screen, and the line perpendicular to the eye field plane is the normal line of OPR; (A normal is a straight line that is always perpendicular to a plane.)

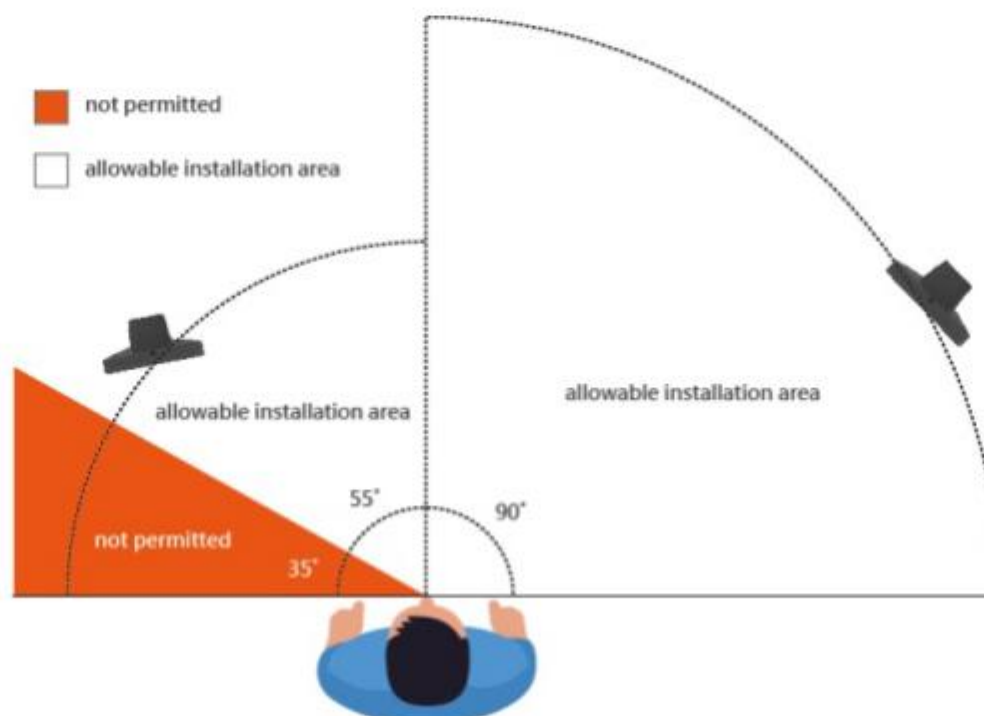


2.2. Installation range of display and OPR horizontal position:

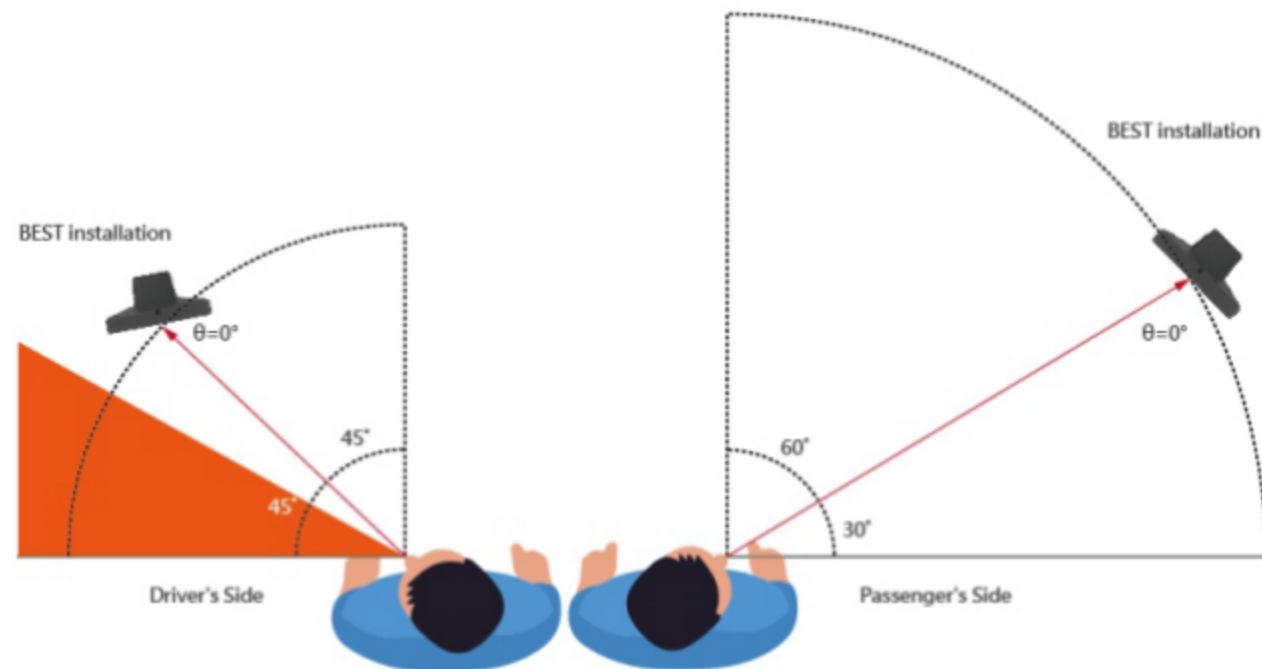
Horizontal distance between driver's side display and OPR at two points; Horizontal distance between the passenger side display screen and OPR at two points.



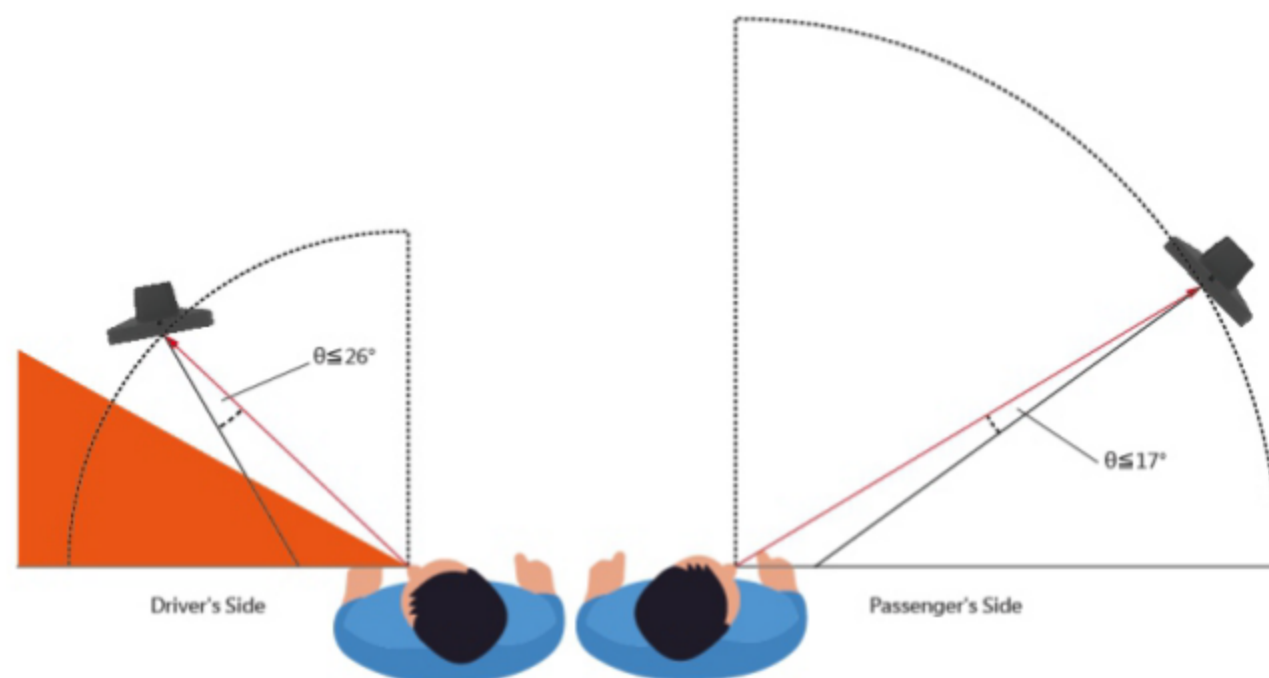
3. Display installation Angle range:



3.1 The optimal installation position for the horizontal Angle of the display screen is shown in the figure:

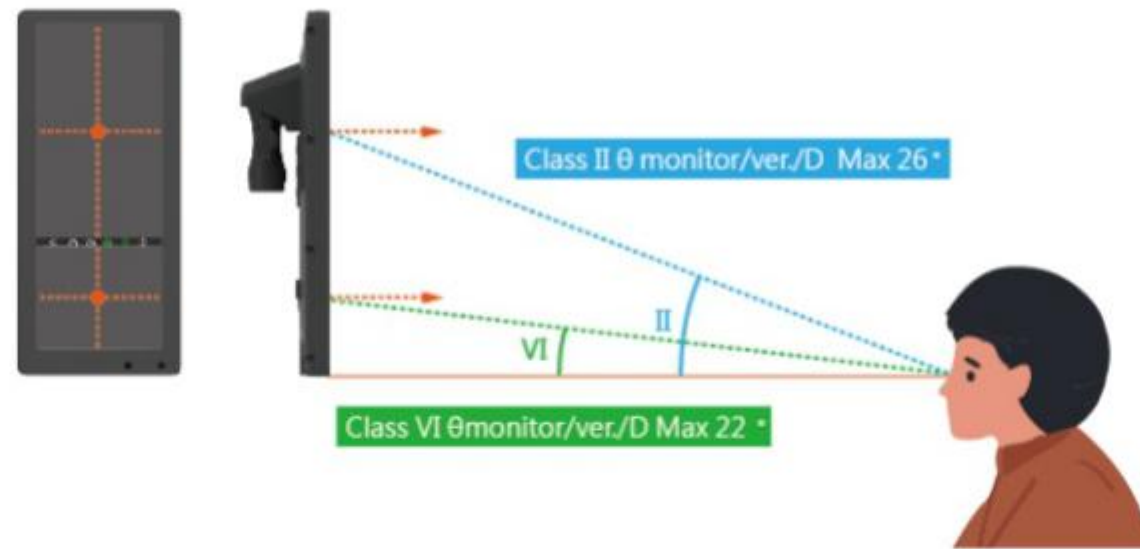


3.2 The maximum allowable deviation between the display screen and ORP normal is shown in the figure:

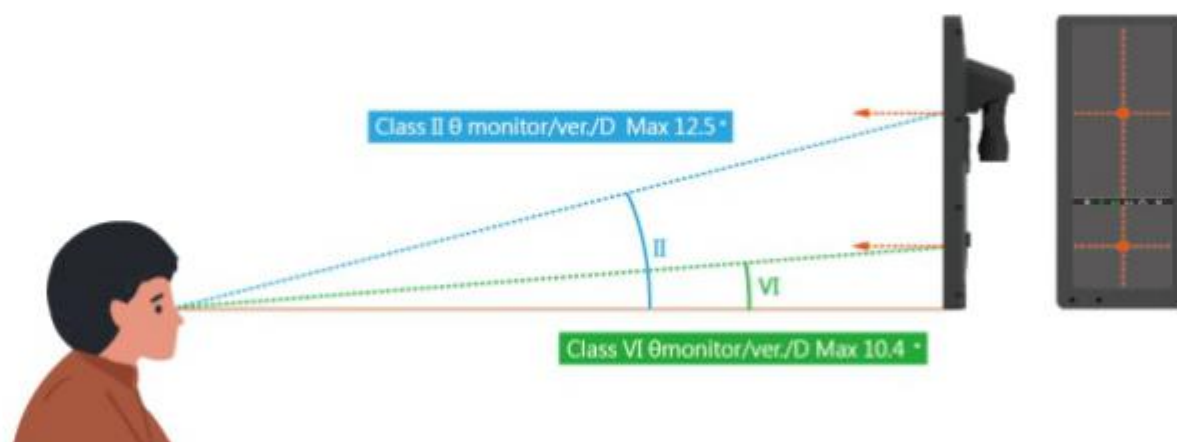


4. The maximum inclination range and recommended installation requirements for vertical display installation are shown in the following figure (the bottom of Monitor extends horizontally to ORP) :

Driver's Side.



Passenger's Side.



Note: The vertical Angle θ between the Monitor Class II and Class IV cannot be greater than the installation specification. The following table:

Location	Camera	Monitor	ORP to C-center	$\theta_{\text{monitor/ver./D}}$	$\theta_{\text{monitor/ver./D}}$
Driver	Class II	12.3" CRV-SV1288	Min 500mm	0° Max 26°	Max 22.8°
	Class IV				
Passenger-1	Class II	12.3" CRV-SV1288		0° Max 17°	Max 10°
	Class IV				

4.2. Monitor Correction and Distance Assist Line Setting

4.2.1. Distance Assist line

Distance Assist line can help the driver and co-pilot with monitoring. It can be adjusted according to the self-declared value, and can assist the driver to know the distance from other vehicles and to change lanes safely.

4.2.2. Distance Assist line A, B, C, D can be selected.

Please deals calibrate the distance assist line correctly. AXION is not responsible for errors and accidents in distance assist line calibration. During the vehicle installation process, please be cautious to declare.

— A:Rear axle

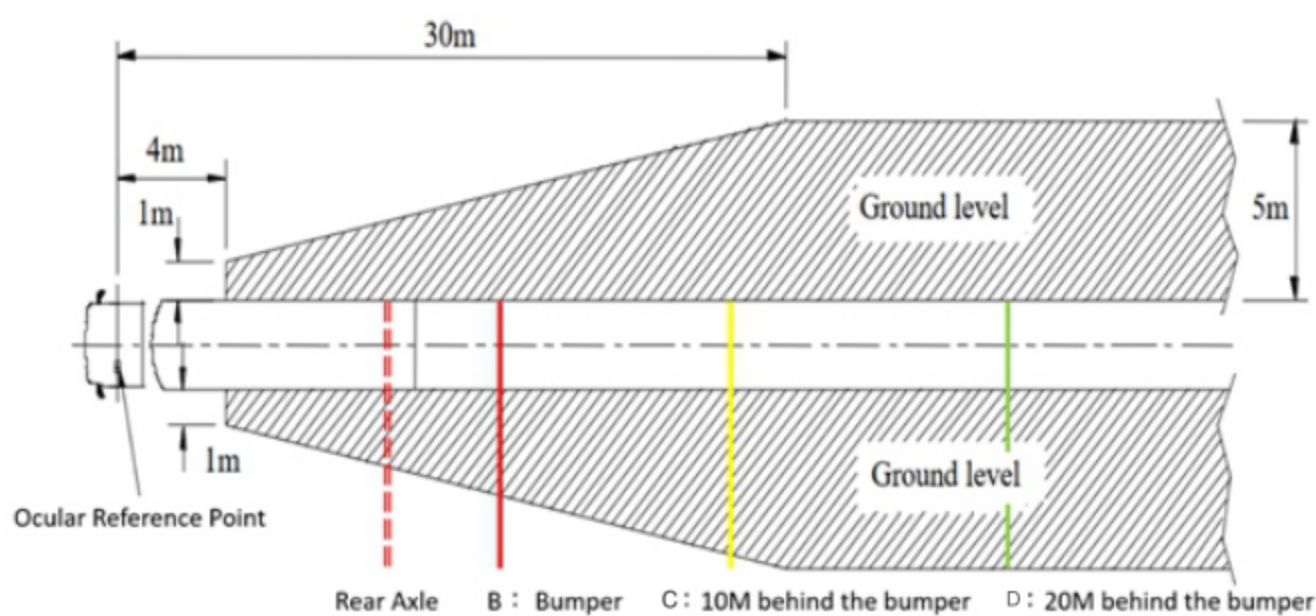
— B:Bumper

— C:10 meters behind the bumper

— D:20 meters behind the bumper

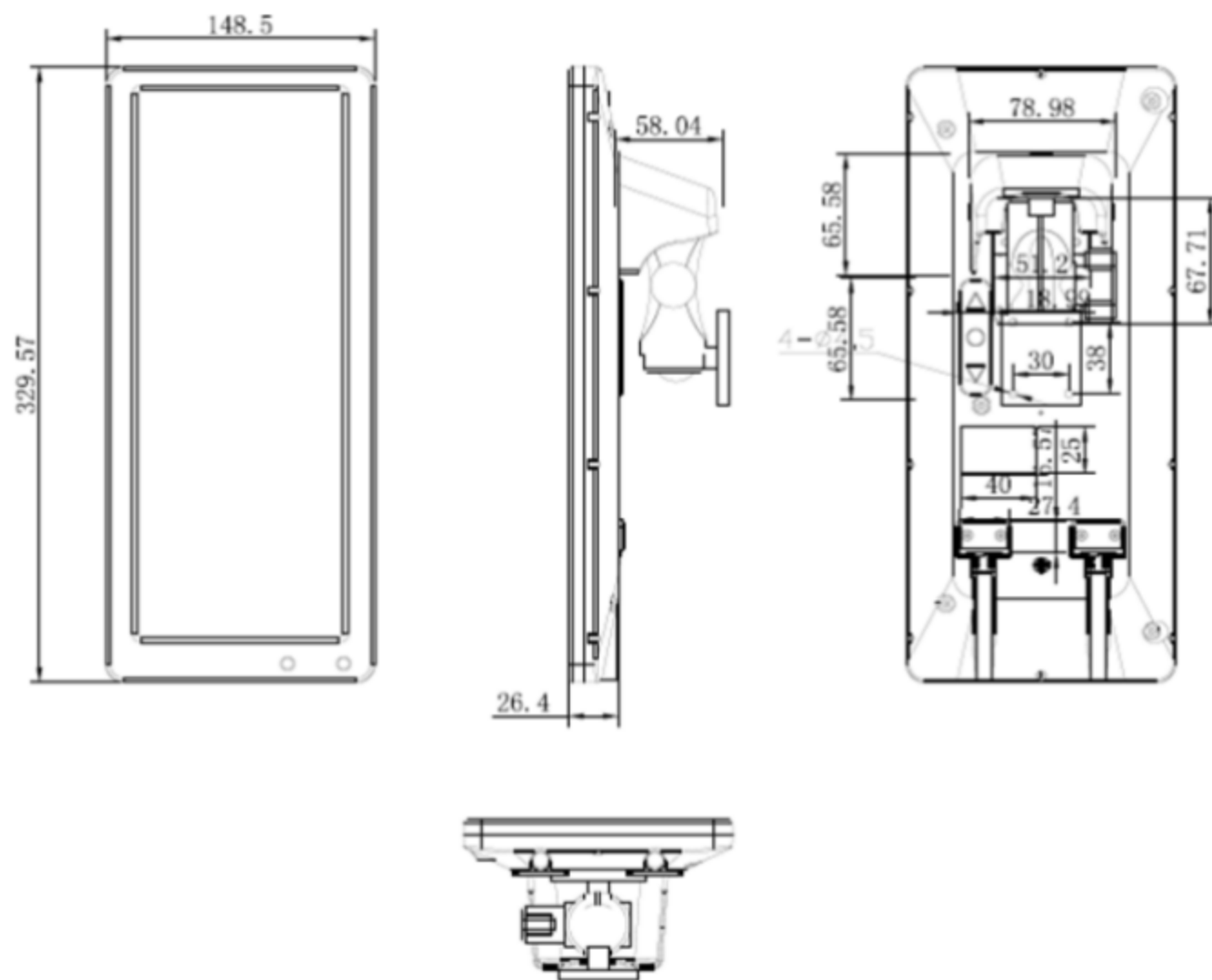
4.2.3. Maintenance confirmation:

AXION strongly recommends to drivers and dealers to confirm the declared distance at the inspection station on a regular basis, and to obtain calibration standard operating procedures from the relevant dealers

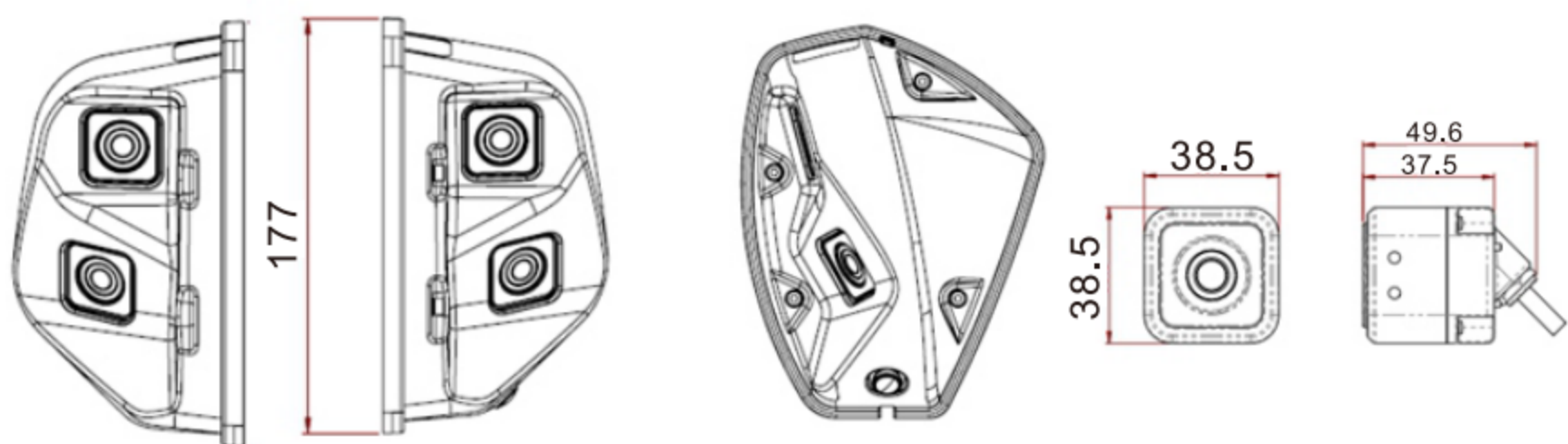


5.Product size

5.1.SideVis SV888 Monitor 12.3" CRV-SV1288



5.2.SideVis SV888 Camera DBC-SV88



6.Specification

CRV-SV1288 (720P) Series

12.3" digital AHD monitor	
Wide view angle(CR>10):	(up/ down): 85 / 85 (left/right): 85 / 85
High brightness (cd /m ²):	750
Contrast Ratio :	1000
Resolution :	1280*3 (RGB) *720P
Color system:	PAL / NTSC (AUTO)
Video input format:	AHD
Video input definition:	720P
Power voltage:	12/24V
Operating voltage:	9V - 32V
Power consumption:	≤1.17A / 18W
Operating temperature:	- 30°C ~ 70°C
Storage temperature:	- 40°C ~ 85°C
Dimensions:	148(W)*330(H)*26(D)mm
Weight:	980g

DBC-SV88(720P) Series

Image type:	1/3" CMOS image sensor
Resolution(pixels):	1280*3 (RGB) *720P
Color system:	PAL/ NTSC(AUTO)
FOV:	Based on UNECE R46 regulations
Class II:	18° (H) / 36° (V)
Class IV:	63° (H) / 54° (V)
Class V:	190° (H) / 140° (V)
Video output format:	AHD 720P 25/30FPS
Minimum illumination:	0.01 lux
Power supply:	DC 12 V

Waterproof & Dust proof:	IP69K
Operating temperature:	-40°C ~ 85°C
Storage temperature:	-40°C ~ 85°C
Dimensions:	163(W)*93(H)*118(D)mm

7. Failure mode and declaration

7.1. Product failure description :

- 7.1.1. Class-II and Class-IV indirect vision device : when a single camera fails, the system automatically recognizes and switches to full-screen assistance, accompanied by failure messages and sound and light warnings.
- 7.1.2. Class-II and Class-IV indirect vision device : if the input images are all invalid, the system will automatically restart. If the failure status is still maintained, a blue screen will be displayed, accompanied by failure messages and sound and light warnings.
- 7.1.3. When Class-II and Class-IV cameras' temperature sensor fails, and the heating display icon is red.
- 7.1.4. The SideVis SV888 system will automatically restart if internal operation or external communication is abnormal due to system failure. If the failure status is still maintained, the monitor will display a system failure message.

Note: When the system is abnormal or the image fails, the monitor will display a "System Failure" message.



Image in system's normal mode



Single camera failed



Two cameras failed

7.2.Common failure conditions:

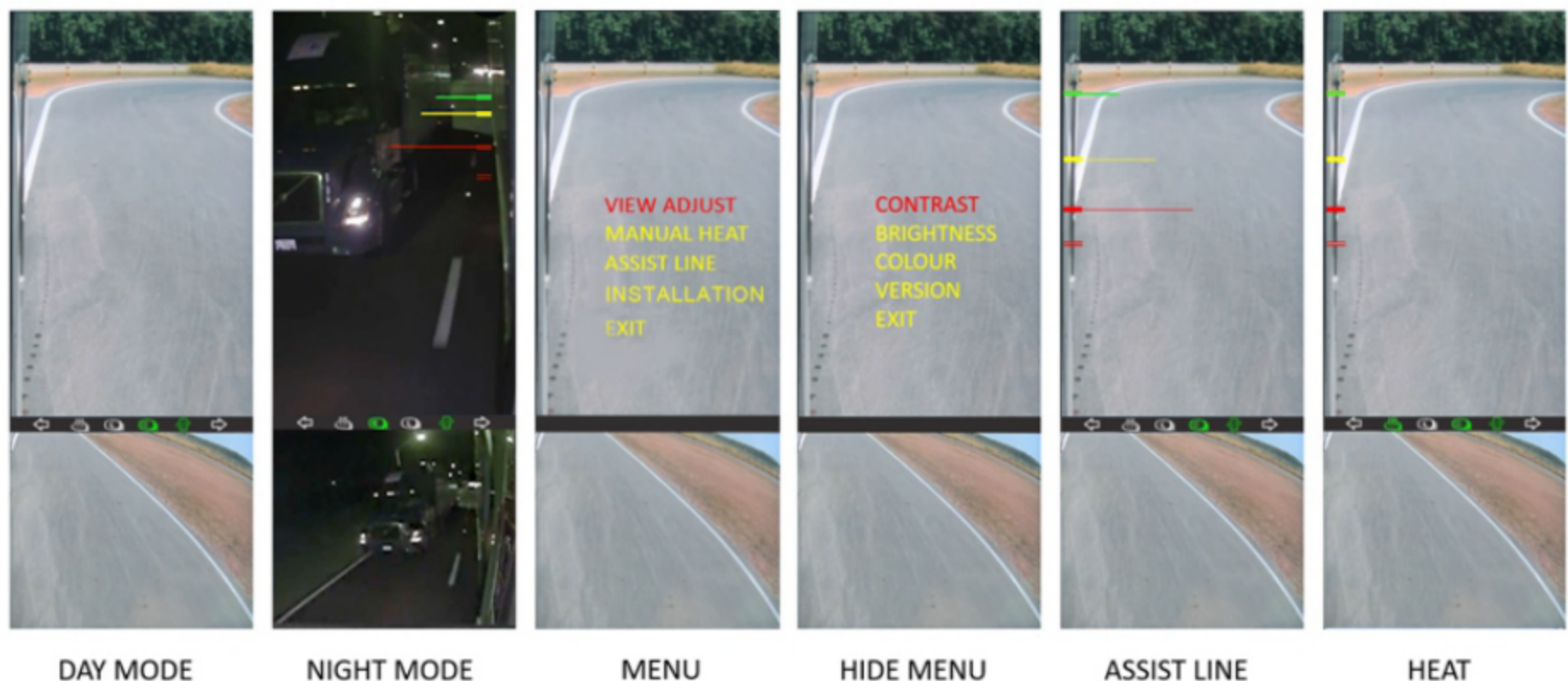
Symptom	Action driver
Black / blue screen	Driver should stop the vehicle in a safe manner
Full in screen deformation of image	Driver should assess the problem and stop vehicle if necessary
Partly in screen deformation of image	Driver should assess the problem and stop vehicle if necessary
Color representation of image wrong	Driver should assess the problem and stop vehicle if necessary
Incorrect image cropping and scaling	Driver should assess the problem and stop vehicle if necessary
Incorrect image sharpness	Driver should assess the problem and stop vehicle if necessary
Corrupted image stream due to Electric Magnetic Interference(EMI)	Driver should stop the vehicle in a safe manner
Wrong placement of camera views on monitor	Driver should assess the problem and stop vehicle if necessary
Image too bright	Driver should assess the problem and stop vehicle if necessary
Image too dark	Driver should assess the problem and stop vehicle if necessary

8. Product Description and Settings

Product features:

- A. The field of view image that meets the requirements of UNECE R46 regulation.
Can completely replace traditional rearview mirrors
- B. The system often displays status icons to easily understand the system status.
- C. The backlight brightness is automatically detected and adjusted, which is more conducive to the use situation.
- D. Humanized operation buttons can be used to adjust the display parameters.
- E. The vehicle power is turned off, and the screen will be turned off after a delay of 2 minutes. It can achieve accident protection before opening the door.
- F. Conforming to UNECE R46 and R10, Taiwan VSCC 27-0, 23-2 and 56-3 certifications.
- G. Realize Class II and Class IV field of view translation function.
- H. Provide driving distance assistance line and reference for lane change assistance line.
- I. The camera provides automatic heating and manual opening functions.
- J. System failure judgment, and status and communication function indicator lights.

SideVis SV888 (CRV-SV1288) Status and Icons Description:



8.1. Icon description

8.1.1.

Left and right turn indicators can be displayed according to vehicle status.

8.1.2.

Day and night mode indicator lights, display the day and night status according to the ambient light source.

8.1.1.

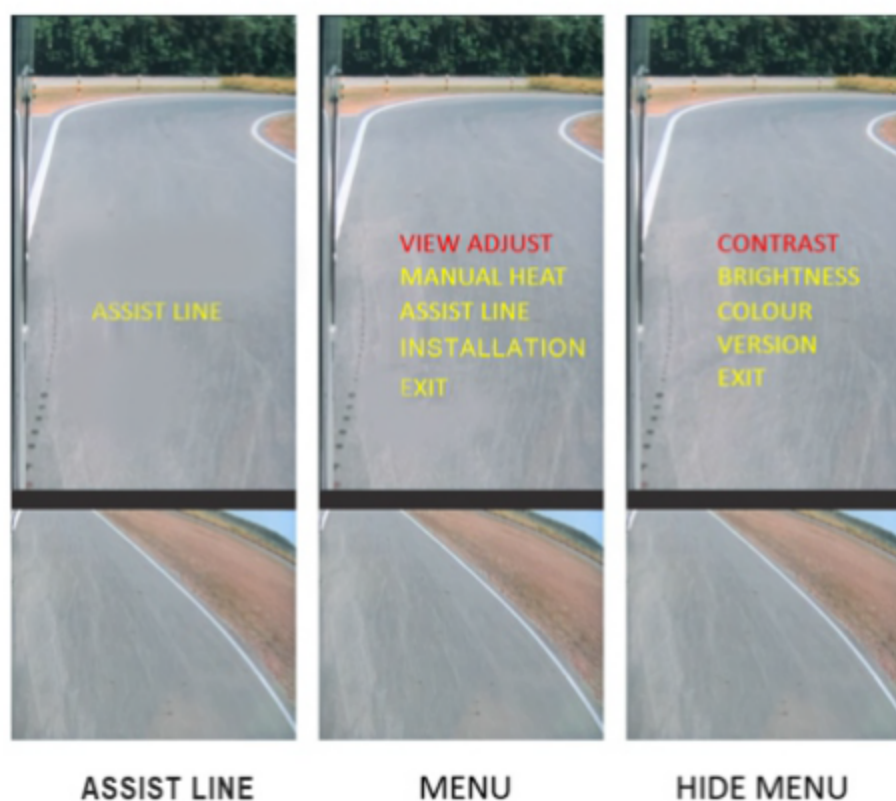
The heating indicator light shows the heating status of the camera.

8.1.2.

The communication indicator shows the system status.

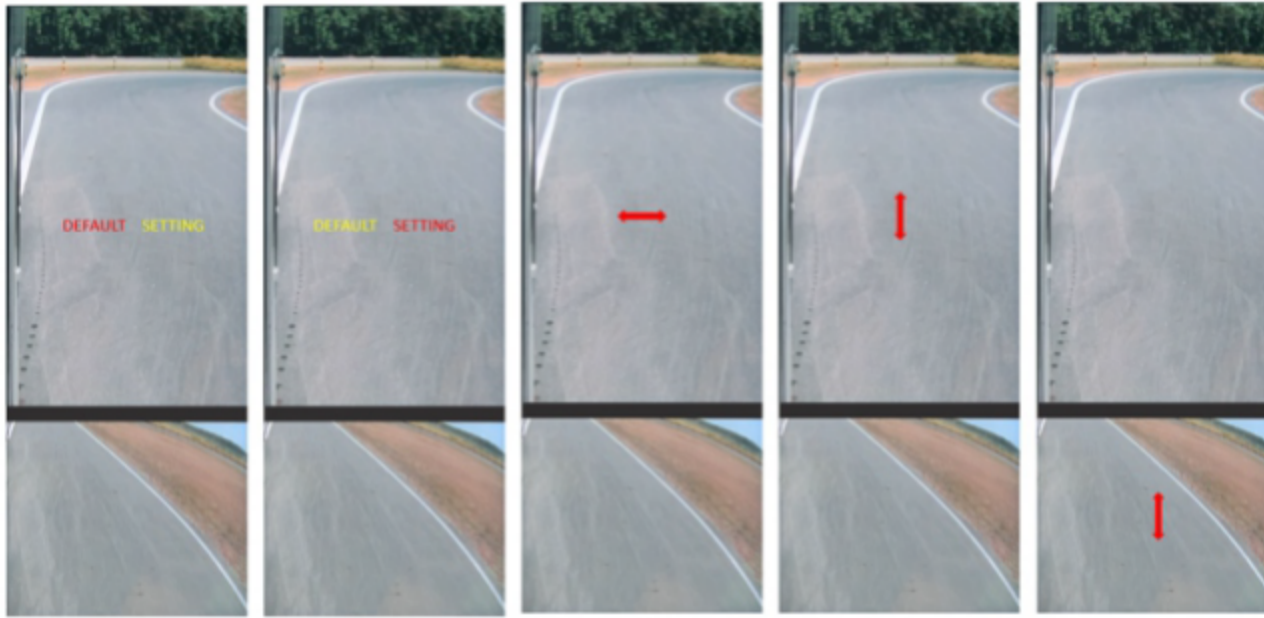
8.2. MAIN MENU

When the system is running, press the confirm button on the backplane to switch the display or disable lane change assistance. Long press the confirm button to bring up the general menu screen, which has five options: camera field adjustment, manual heating, distance and lane change auxiliary line function, setting, exit; Press and hold again in the general menu interface to bring up the hidden menu. adjustment, manual heating, distance and lane change auxiliary line functions:



8.2.1.VIEW ADJUST:

After selecting to execute this function on the function menu interface, first choose to use the preset range or setting options, and after selecting to enter the setting adjustment range, first set the vertical view range of the Class II screen, and then set the horizontal Field of view, and finally adjust the vertical field of view of Class IV. After finishing, press the confirm key to exit and save automatically.



8.2.2.MANUAL HEAT:

1.Manual heating start function:

The internal temperature of the camera is lower than 50°C (about 30°C outdoor normal temperature).

2.Manual heating stop condition:

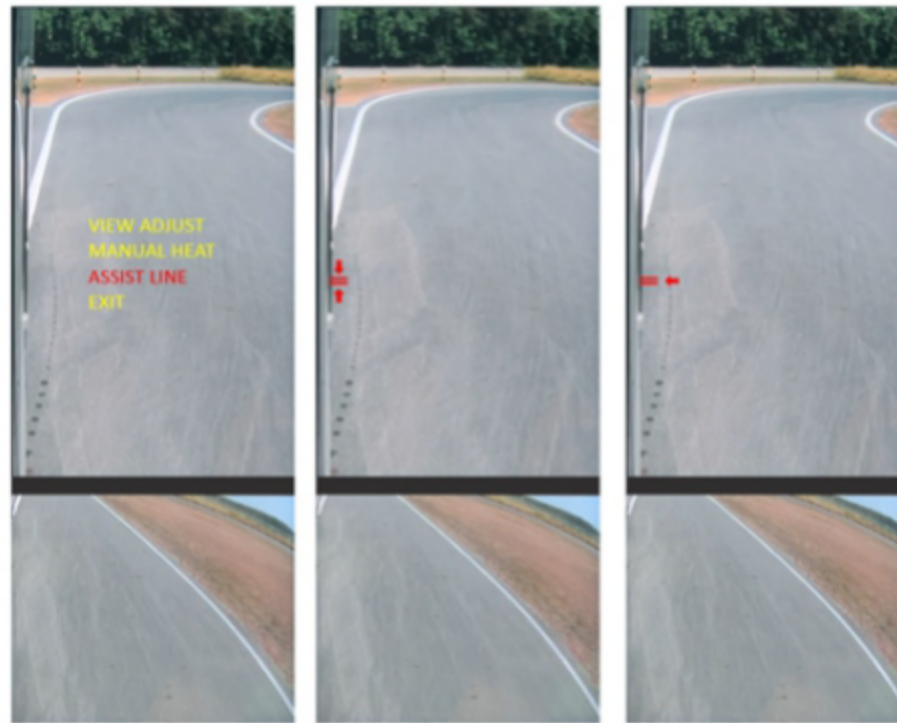
After heating for one minute or when the internal temperature exceeds 60°C, the product will stop heating (as long as one of them is satisfied, it will stop).

※Starting conditions for automatic heating: the system is initially started, and the heating function is started when the internal temperature of the camera is lower than 0°C.

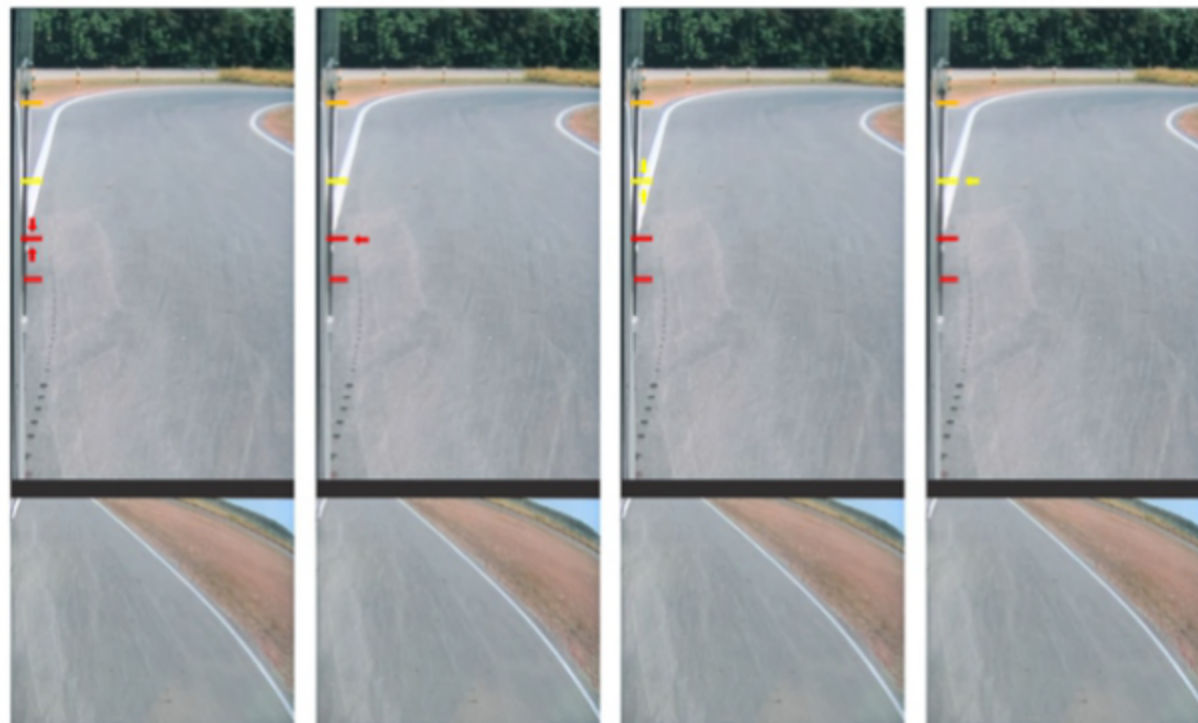


8.2.3.ASSIST LINE:

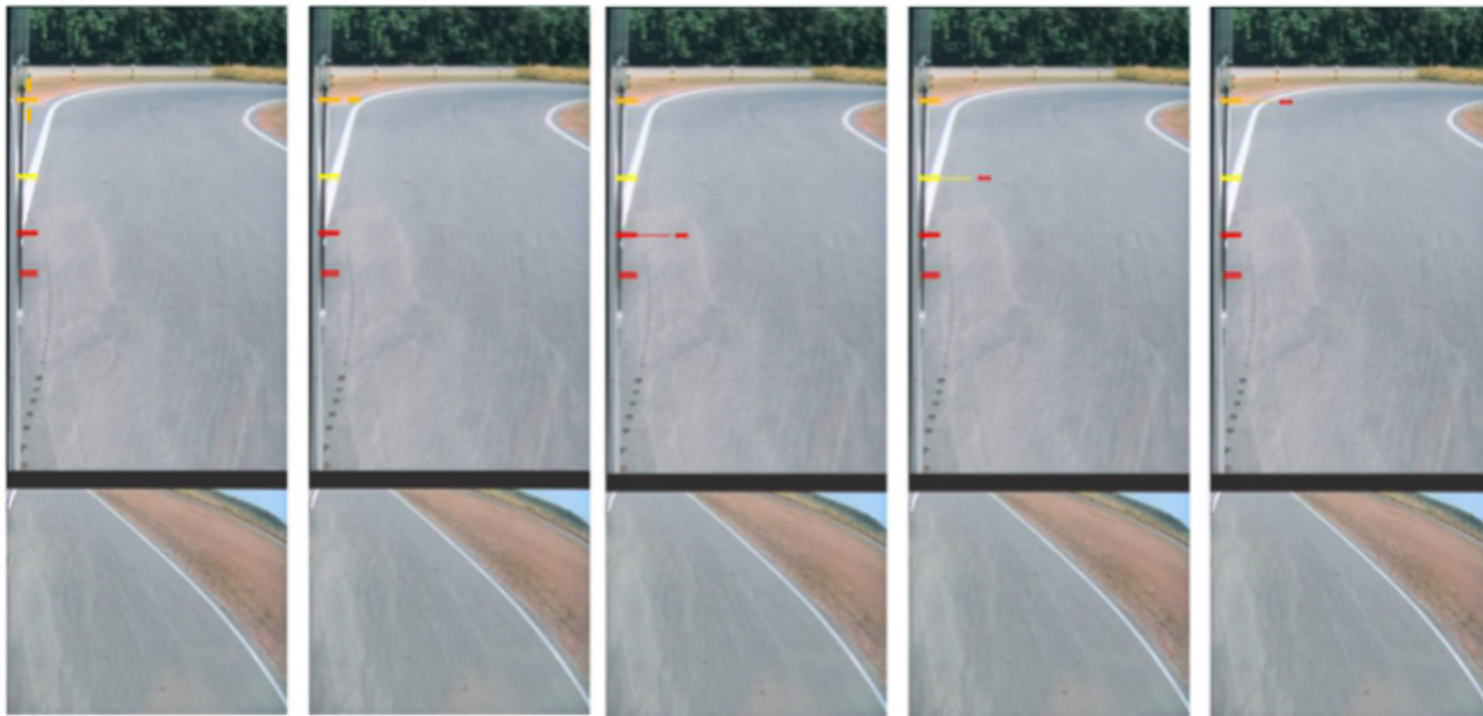
To execute distance and lane change auxiliary line in the menu, you need to select the preset range. Enter the setting options; there are a total of four reference lines A, B, C, D, reference A is the rear axle auxiliary line and B bumper extension line, C and D preset the rear 10M and 20M. After the auxiliary line is set, set the width of the lane change auxiliary, which can be set according to the desired width. After completing the setting, press OK to automatically exit and save.



Auxiliary line of rear axle



Bumper extension line and preset 10M reference line at the rear of the car



Preset the 20M reference line behind the car and the auxiliary line for changing lanes

Note: distance Assist line B, C, D can be selected. Please deals calibrate the distance assist line correctly. AXION is not responsible for errors and accidents in distance assist line calibration. During the vehicle installation process, please be cautious to declare.

8.3.HIDE MENU:

When the main function MENU is displayed, long press the confirm key to call up the parameter menu of the display screen. The menu includes: Contrast, Brightness, chroma parameters adjustment, and display the software version and other functions:

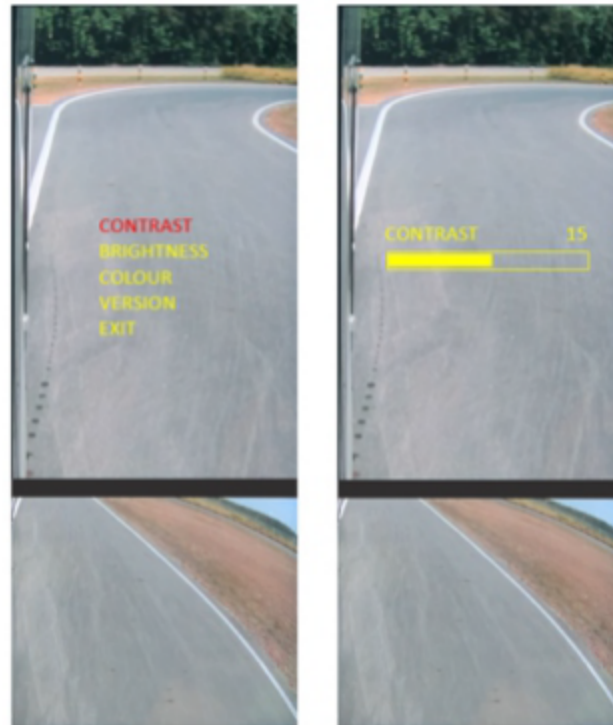


MENU

HIDE MENU

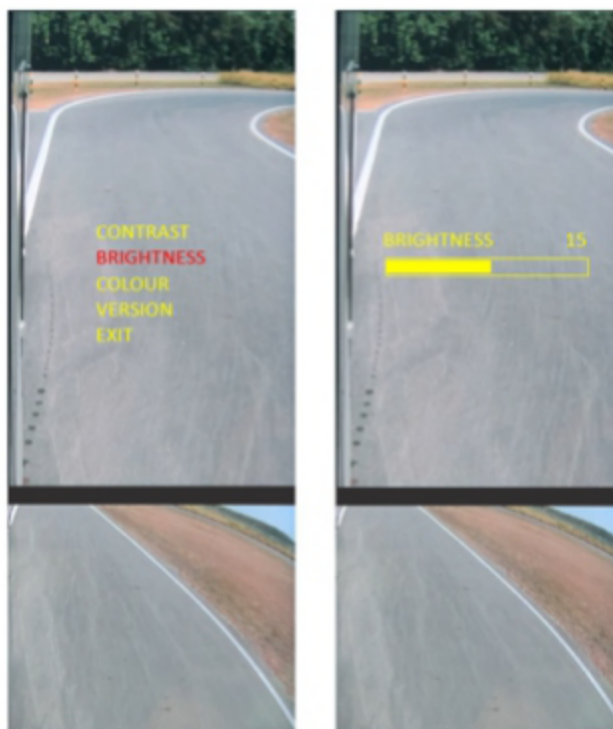
8.3.1.CONTRAST:

The preset value is 15, which can be set by pressing the button. The interval is 0-30 threshold.



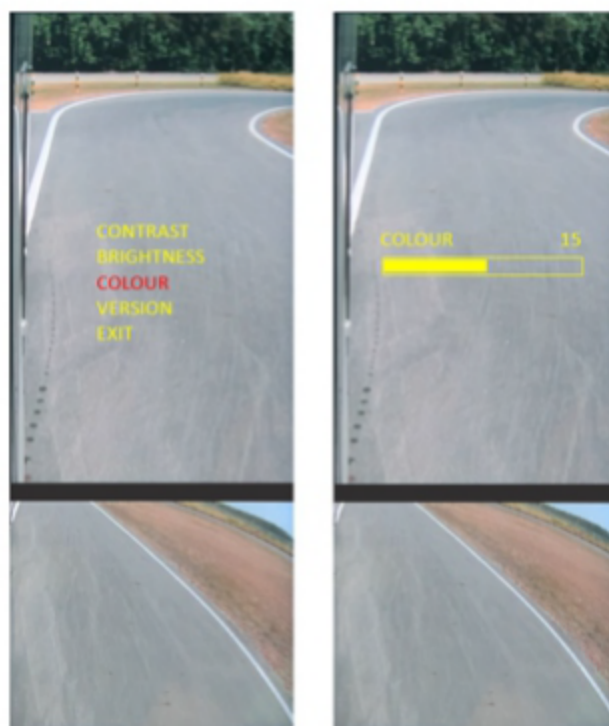
8.3.2.BRIGHTNESS:

The preset value is 15, which can be set by pressing the button. The interval is 0-30 threshold.



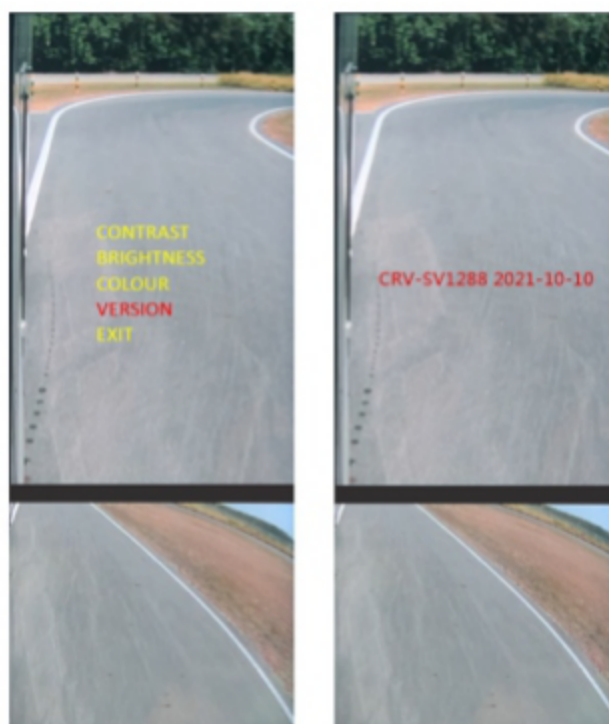
8.3.3.COLOUR:

The preset value is 15, which can be set by pressing the button. The interval is 0-30 threshold.



8.3.4.VERSION:

After opening, the product software version and serial number can be displayed



8.3.5.EXIT: exit the MENU.

9.Maintenance and Cleaning

Regular cleaning can ensure that the camera lens remains clean. Use high-quality, safe cleaners and soft cloths to remove dirt, debris and dirt on the lens.

Automatic heating to confirm the camera lens can effectively evaporate the fog on the front of the camera lens.

Note: Do not clean this product using aggressive chemicals or abrasive cleaning agents.

Lens cleaning steps (display screen surface cleaning can also be performed by analogy)

Steps	Project	Job content	tool	note
1	Remove surface dust and grit	Remove dust, gravel or other foreign matter from the surface of the lens with high pressure air	High pressure air gun or clean blown balloon	Surface dust, gravel will cause lens scratches, must preferentially remove with high pressure air.
2	Remove water and oil stains from the surface	1) Roll the swab paper into a rod with a diameter of 2~3mm. 2) Clean the surface of the lens by circling outward from the center of the lens. 3) Repeat the above steps until it is clean	Wet wipe lens paper	Wet lens wipes can be purchased from the Internet in single-piece package. The wet wiping paper can be replaced with "cotton swab and wiping solution".
3	Confirm cleaning effect	Observe whether the image of the display screen is bright and clear	visual	

Note: The purchase reference information of wet lens wiping paper is as follows

<https://www.costco.com.tw/Household-Pet-Supplies/Cleaning-Laundry-Products/Cleaning-Products/Zeiss-Lens-Wipes-200-Sheets/p/114286>

https://24h.pchome.com.tw/prod/DGBH4Y-A900EVY5U?gclid=CjwKCAjw-8qVBhANEiwAfjXLrj0wjpmTI1JctfKhhy3DJajo7U30kXHS6FKKxAVoygdNhyF4xyFCSBoCMRsQAvD_BwE

<https://detail.tmall.com/item.htm?spm=a230r.1.14.24.e2b217f8wh5Y1s&id=654361820154&ns=1&abbucket=16>

<https://item.taobao.com/item.htm?spm=a230r.1.14.31.64c22051Srb9uf&id=560139169389&ns=1&abbucket=16#detail>

Lens cleaning time:

1. After the vehicle passes through the dust-contaminated area.
2. After the rainy day, the car body is cleaned
3. The driver found that the image appeared abnormal halo, glare.
4. In addition to the above situation, it is recommended to clean once a week.

10. General Terms and Conditions

AXION does not assume any responsibility for personal damage caused by the driver's error in his own judgment. Improper maintenance, improper use, and do not assume any loss.

Warning:

Note that sunlight or light from other intense light source upon the monitor reduces the luminance contrast which may require the driver to be particularly alert and attentive.

Artefacts and their impact on the partial occlusion of the field of view and of the objects which may require the driver to be particularly alert and attentive.

4. System Installation Instructions

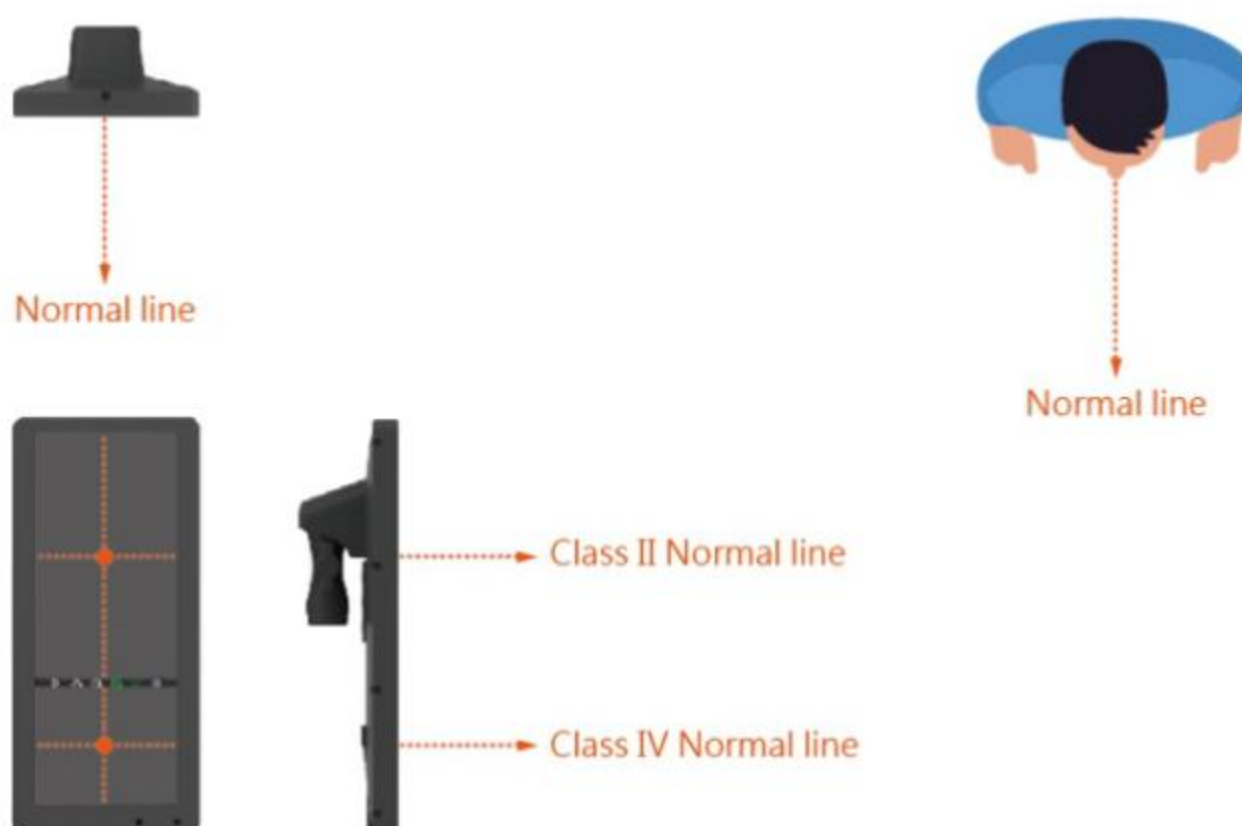
4.1. SideVis SV888 installation

1. The installation positions of the horizontal distance and height of the camera are shown in the figure:



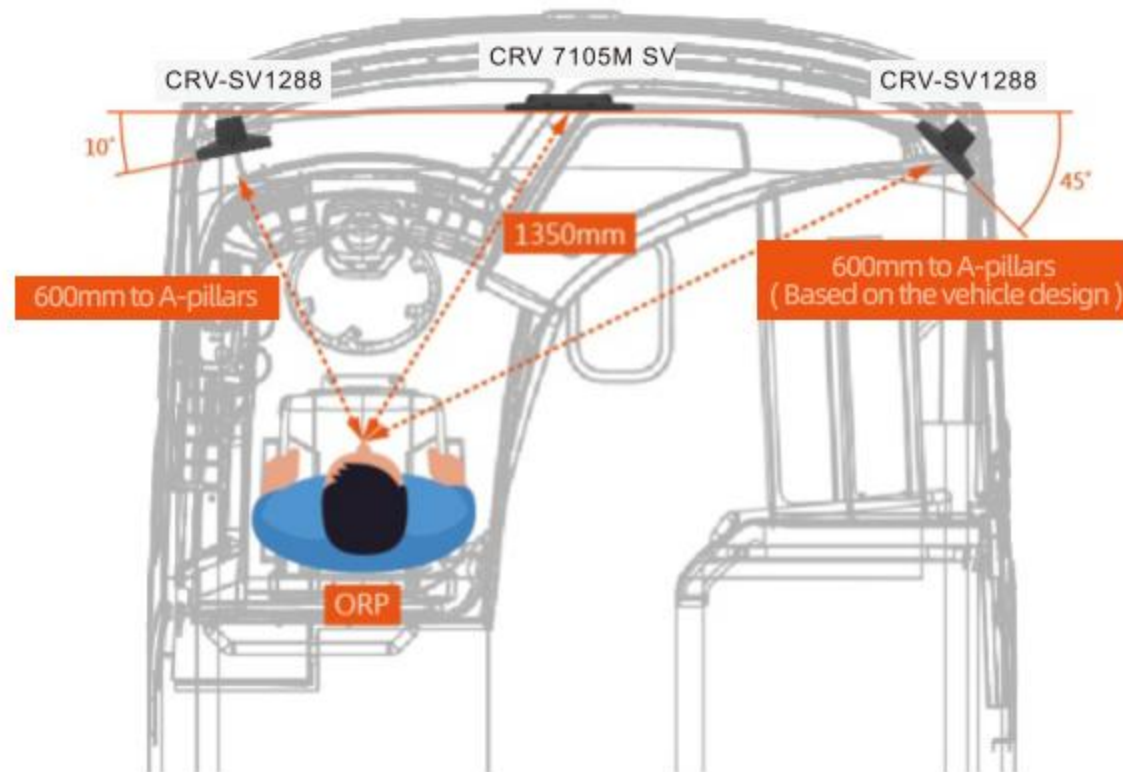
2. Display installation

- 2.1. As shown in the figure, the line perpendicular to the display plane is the normal line of the display screen, and the line perpendicular to the eye field plane is the normal line of OPR; (A normal is a straight line that is always perpendicular to a plane.)

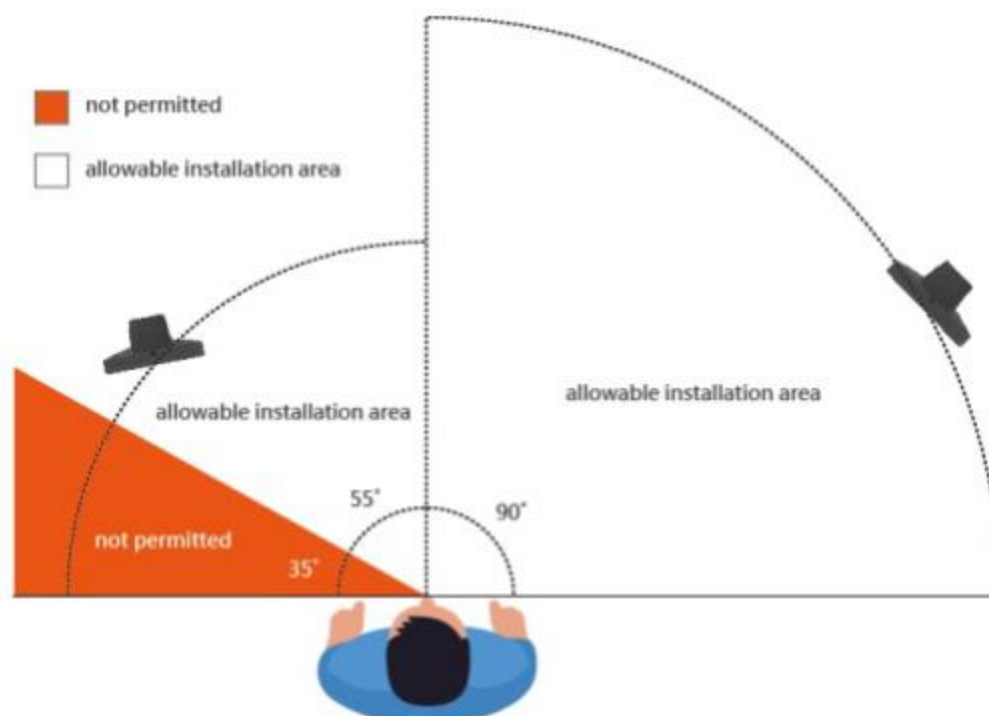


2.2. Installation range of display and OPR horizontal position:

Horizontal distance between driver's side display and OPR at two points; Horizontal distance between the passenger side display screen and OPR at two points.

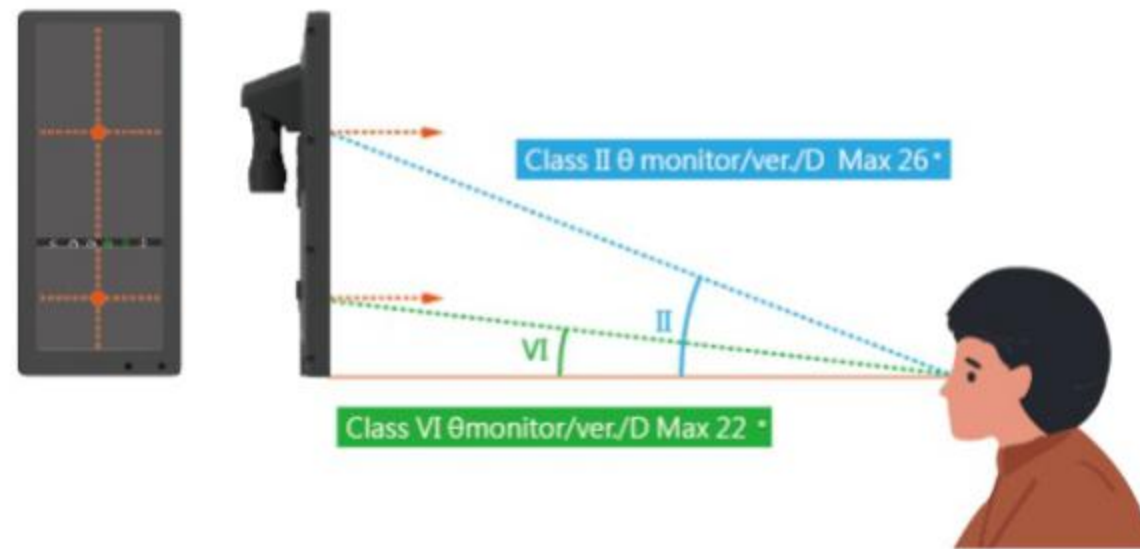


3. Display installation Angle range:

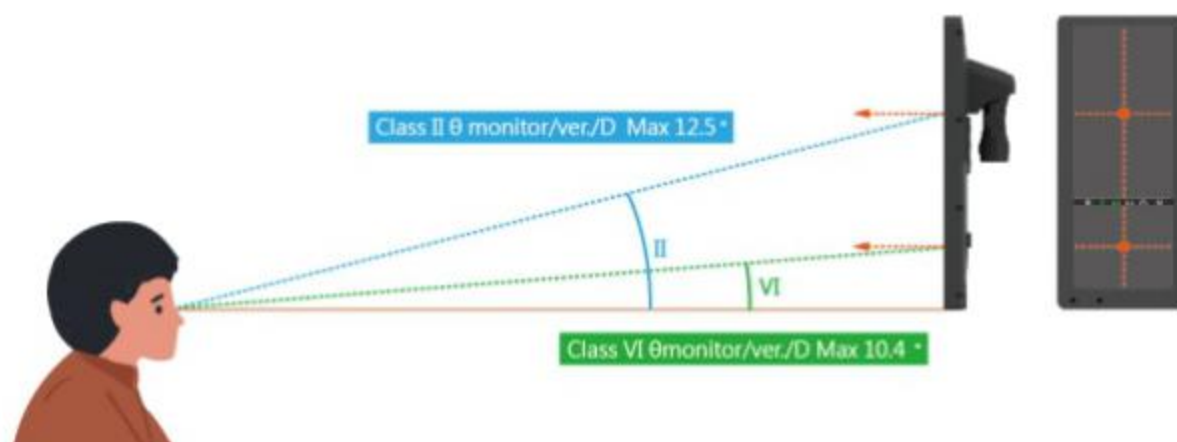


4. The maximum inclination range and recommended installation requirements for vertical display installation are shown in the following figure (the bottom of Monitor extends horizontally to ORP) :

Driver's Side.



Passenger's Side.



Note: The vertical Angle θ between the Monitor Class II and Class IV cannot be greater than the installation specification. The following table:

Location	Camera	Monitor	ORP to C-center	$\theta_{\text{monitor/ver./D}}$	$\theta_{\text{monitor/ver./D}}$
Driver	Class II	12.3" CRV-SV1288	Min 500mm	0° Max 26°	Max 22.8°
	Class IV				
Passenger-1	Class II	12.3" CRV-SV1288		0° Max 17°	Max 10°
	Class IV				