MAVM Installation Guide

Contents

Foreword

To better guide engineering personnel to correctly and quickly install the AVM and its accompanying products, and improve installation efficiency, this *AVM Installation Guide* is compiled.

This document mainly includes the following parts: preface, system overview, preparation for installation, introduction to installation, and acceptance and cleaning.

This document is applicable to installation engineering personnel.

Streamax reserves the right to the final interpretation of this document and the right to modify this document or the information and descriptions therein. The contents of the manual are subject to change without further notice.

Important Notice

1. Before installation, please park the vehicle on the horizontal ground and shut down the engine (do not park the vehicle on a ramp or an inclined road).

2. Please read the section of packing list carefully and check carefully at the time of unpacking.

3. Please read the section of tool list carefully and provide installation tools before product installation.

4. Before installation, please observe the vehicle environment and follow the principles below:

a. The installation position and cabling of the product shall neither affect the driver's view nor affect the adjustment of the rearview mirror and sun visor.

b. The installation position should be convenient for Micro SD card replacement and maintenance.

c. Choose a flat site for calibration operations with no obvious inclines, dents, or bumps.

d. Ensure that the ground color of the site is pure and there are no obvious patterns or lane markings.

5. The appropriate installation position shall be selected according to the vehicle environment, and this document is for reference only.

6. The appropriate power supply connection method shall be selected according to the vehicle environment. **If loose wire connectors are adopted, connection to the power supply and all signal cables of the vehicle is required and shall be carried out by specialized personnel, as it may be dangerous for non-specialized personnel to operate the power system of the vehicle without authorization.** This document is for reference only.

7. In case of any problem in the installation for special vehicles, please contact the product supplier in time for support.

8. The AVM product needs to use the "Veyes" APP for device installation debugging and configuration.

9. Please scan the QR code below, or search and download the Veyes app in the App Store. After downloading, follow the instructions on the APP interface to connect the APP to the AVM for related operations.

iOS (App Store) Android (Google Play)

1. System Overview

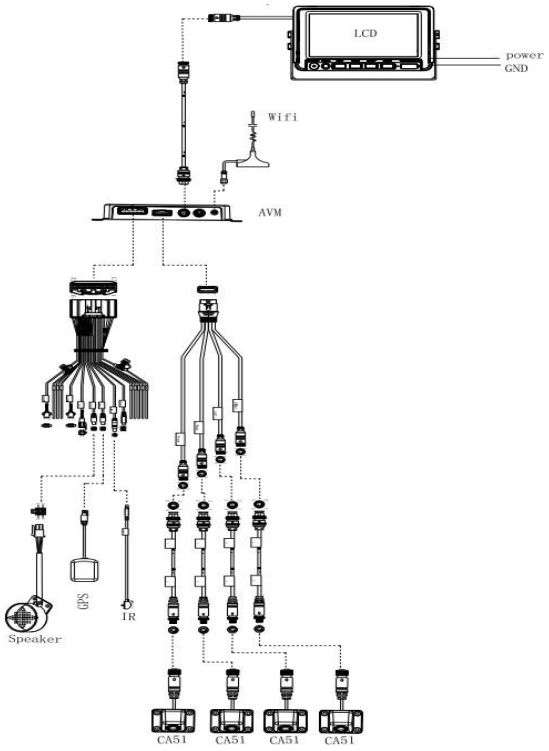
1.1 Product Overview

360 Around View Monitor System (hereinafter referred to as AVM) uses real-time image Splicing and merging of the images from 4 cameras (front/rear/left/right) around the vehicle to form a 360-degree real-time image of the vehicle's surroundings. It eliminates or reduces the visual blind spots near the vehicle, providing convenience and safety for users when parking, driving through narrow alleys, driving at low speeds, and making turns.

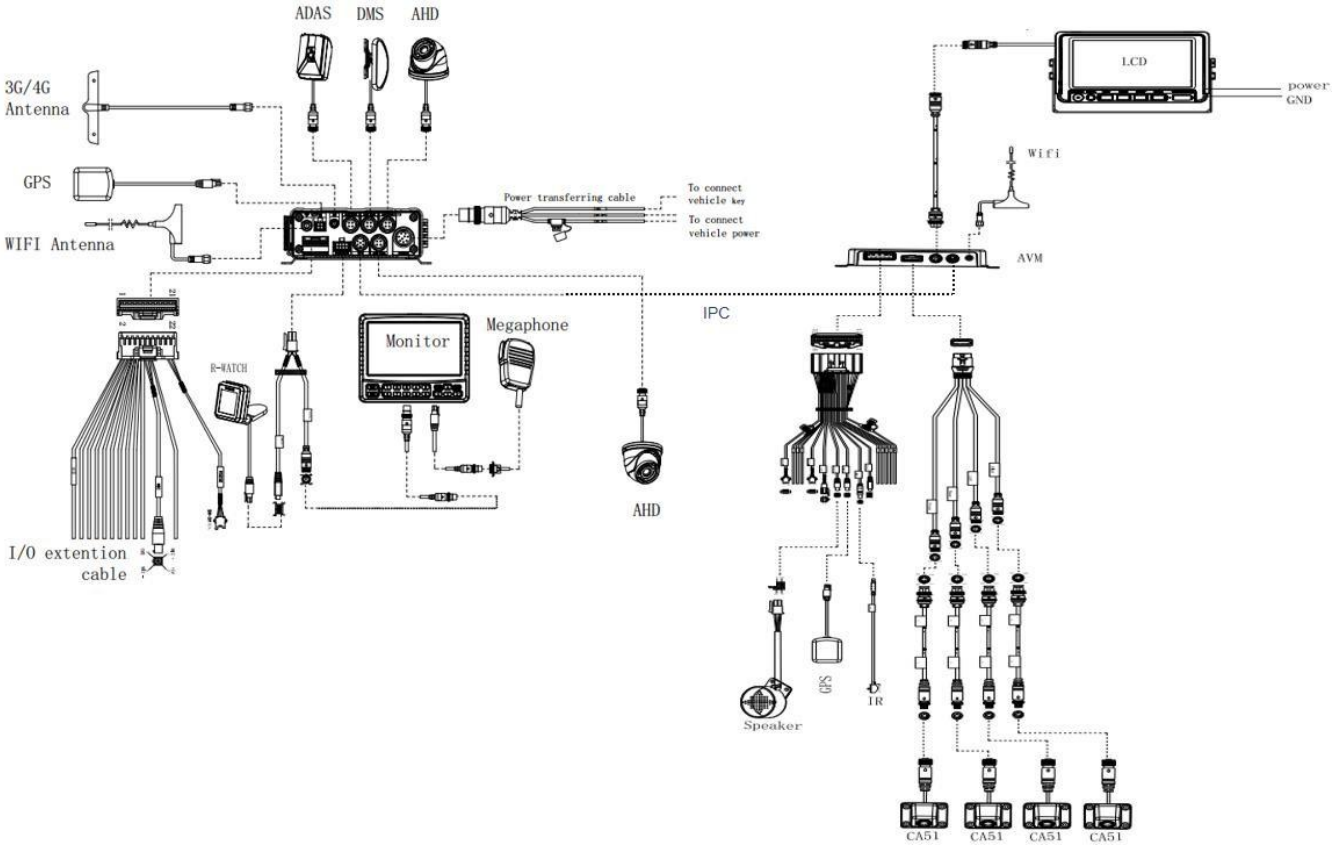
From a technical perspective, the AVM system outputs a bird's eye view of the vehicle by merging the images captured by the 4 cameras, similar to a "god's-eye view" to observe the surrounding scene. However, the merged image is not a true aerial perspective image. Objects may appear distorted because of the physical positions of the cameras. Additionally, objects (such as pedestrians and vehicles) may be partially distorted in video merged area between adjacent cameras because images are captured from two different camera angles. Due to the nature of the system, objects may not be displayed in their true position relative to the vehicle, and their actual distance may be closer than it appears. Especially for objects above the ground, they may appear closer than their actual distance. It is paramount that the driver remains vigilant of potential hazards.

1.2 System Connection Diagram - Loose Wire Power Supply

- Standalone Version



- MDVR Combined Version (M1N as example)



2. Preparation for Installation

2.1 Technical Requirements for Installation

Relevant personnel shall be familiar with the functions, applications, and overall compositions of the product.

Relevant personnel shall understand the electrical circuits and structure of motor vehicles and common installation methods of in-vehicle devices.

2.2 Understanding of Installation Environment

Before device installation, relevant personnel shall have a clear understanding of the vehicle model concerned, the installation positions of the AVM and auxiliary cameras of the AVM, the type and length of cables required for each vehicle model, and the list of common auxiliary materials, so as to ensure successful completion of device installation and commissioning.

2.3 Confirmation of Vehicle Conditions and Vehicle-Related Electrical Information

Confirmation of vehicle information is the basic precondition of successful installation and also the guarantee of division of responsibilities to avoid any damage to the vehicle. For each component, proceeding to next step is only allowed after clear confirmation, and each operation shall be confirmed by the person in charge of the vehicle and the installation personnel.

(1) Check the appearance and interior trims of the vehicle for any damage.

(2) Check whether the vehicle can ignite normally.

(3) Check whether the vehicle power supply system is in good condition.

*Note: Confirmation of the above information is crucial. Installation can only be carried out after the above information is considered normal through confirmation.

2.4 Power Sourcing from Vehicle

AVM power sourcing method:

Loose wire connection power supply: This method requires operation by a professional installer. The AVM needs to be connected to the vehicle power supply. For specific power supply methods, please refer to section 4.3.

(1) Required tool: multimeter.

(2) Selection of power supply connection position

When the vehicle is shut down, use a test pencil to detect whether the circuit is live. If it is live, it is judged as a constant power supply, and then measure the voltage.

When the vehicle is shut down and is in ACC position or ignition state, use a test pencil to detect whether the circuit is live. If it is electrically neutral in shutdown state, and is live in ACC position or ignition state, it is judged as an ACC power cable, and then measure the voltage.

(3) Voltage measurement of power supply connection

Constant power supply: When the vehicle is shut down, use a multimeter to measure whether the voltage of the constant power supply cable is about 24 V or 12 V. If the voltage of multiple cables is in the range, select the cable with higher current as the constant power supply connection cable.

ACC: When the vehicle is in ACC position or ignition state, use a multimeter to measure whether the voltage is about 24 V or 12 V. If the voltage is 0 in shutdown state and 24 V or 12 V in ACC position or ignition state, select the cable as the ACC power supply connection cable.

*Note: During power supply connection, first conduct measurement at the positive and negative terminals of the power supply with a multimeter, to avoid wrong connection.

2.5 Connection of Necessary Signal Cables

(1) Vehicle speed pulse wire—to obtain accurate vehicle speed (if using GPS speed, this line may not be connected)

(2) Left turn signal cable, right turn signal cable, reverse gear signal---to obtain information about the vehicle's left and right turns and reverse gear.

For the specific position of the vehicle speed pulse wire, please consult a professional vehicle maintenance engineer. Generally, the specific position of the left and right turn signal cables is on the fuse board under the steering wheel or the passenger side instrument panel, which can be measured with a multimeter.

*Note: If the measured signal is a pulse signal, in the AVM settings interface, the source of the left turn / right turn / reverse gear signal should be set as a pulse. If the

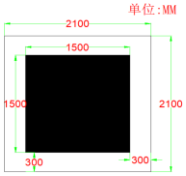
measured signal is a continuous high or low level signal, the source of the left turn / right turn / reverse gear signal in the AVM settings interface should be set as a level.

3. Preparation for Installation Material and Tool List

3.1 Packing List Inspection

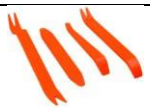
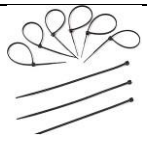
After unpacking the product, please confirm the finished product is intact and whether the accessories are complete.

List of Product Materials				
S/N	**Picture**	**Product Name**	**Application**	**Quantity**
1		AVM	360° Surround View Host Box	1pcs
3		32-PIN Plug Connector Cable	Power Input Cable, RS232, 485 Serial Port, IO Alarm Input, Pulse Speed Input	1pcs
4		20-PIN Plug Connector Cable	Connection Camera	1pcs
5		Infrared Receiver	Intelligent display screen	1pcs
6		Remote Control	Video display screen, optional	1pcs
7		External GPS module	Positioning Module, required	1pcs
8		CP4 Adapter Cable	Display screen patch cord	1pcs
9		WIFI Antenna	Enhance the WIFI signal	1pcs
10		Allen Key	Front Panel Cover of AVM Storage Location	1pcs
11		4.2 × 32 mm Self-tapping Screws	Fixed AVM	1pcs

2		CA51A Camera	Video Capture, Blind Spot Detection	1pcs
13		Camera Bracket	Adjustment of Camera Installation Angle	1pcs
14		M12 to 4-PIN Extension Cable (Optional Length)	AHD Camera Audio and Video Extension Cable, Necessary	1pcs
15		AHD High-definition Screen	Splicing Image, Linking Display Screen, optional	1pcs
16		AVM Calibration Cloth	AVM Calibration Stitching	1pcs

3.2 Preparation for Installation Tools

Before installation, the following installation accessories and tools shall be made available.

List of Installation Tools and Accessories				
S/N	**Picture**	**Tool Name**	**Application**	**Quantity**
1		Common screwdriver kit	Tighten screws, optional	1pcs
2		Crowbar	Pry up the vehicle panel	1pcs
3		Ties	Bundle cables	Prepare as needed
4		Dry cleaning cloth	Clean the dashboard	1pcs
5		Mobile phone/Pad	Install the Veyes App for video preview and parameter configuration	1pcs

6		Steel tape	Measure the installation height of the forward-facing ADAS lens and assist the installation in other scenarios	1pcs
7		Mark pen	Mark lines for AVM installation	1pcs
8		Cutting nippers	Cut and strip wires	1pcs
9		Insulated rubber tape	Wrap wire ends	1pcs
10		Scissors	Cut insulated rubber tape or wire clip	1pcs
11		USB flash disk	For future use	1pcs
12		Multimeter	Locate vehicle power supply Measure the conduction of harness Measure pulse signal	1pcs
13		Three-legged ladder	Help to install the BSD camera	1pcs
14		Waterproof sealant	Waterproof backfill after punching	1pcs
15		Waterproof tape	Waterproof protection for outdoor wire connectors	1pcs

3.3 Preparation of Micro SD Card Storage

To ensure the normal data storage of the device, it is necessary to prepare a matching and quality Micro SD card before installation.

4. Installation of AVM

4.1 Installation of Storage Card

Take out the AVM (power-off), and use the Allen key in the kit to open the card slot panel on the right of the AVM by turning counterclockwise.

As shown in the figure below, insert the Micro SD card into the slot (note the direction of insertion). If you feel smooth and flexible during installation, and hear a clear sound of "Da" when pushing in the cards completely, it indicates that the cards are installed in the correct direction; if there is obvious friction resistance during installation, it indicates that the installation direction is wrong. Take out the cards in time to avoid any damage to the cards and the card holder.

*Note:

(1) Since the working temperature range of the device is -30℃~+70℃, it is required that the Micro SD card can work normally in this environment for a long time in some harsh environments. Specifically, in long-term high-temperature and humid or salt spray environments, the metal contacts on consumer-grade Micro SD cards are prone to oxidation, and frequent insertion and removal can also cause contact wear. In addition, ordinary cards under the pressure of the slot for extended periods of time can also be deformed and bent, resulting in poor contact. Therefore, for Micro SD cards, it is necessary to use an

industrial-grade Micro SD card that can adapt to a wide range of working temperature ranges (-40℃~+85℃) and high stability. Streamax-recommended MicroSD cards are preferred. Failure to use the appropriate card as required may damage the accessories or even the device.

(2) TF Card slot 1 is for Micro SD card insertion with the metal strip facing down, and TF Card slot 2 is for Micro SD card insertion with the metal strip facing up.

Once the Micro SD card is installed, fasten the card slot panel and tighten the screws.

4.2 Installation Area for AVM

The installation position and method of the main unit shall be determined according to relevant electrical equipment construction specifications and on-site vehicle installation conditions.

(I) Installation Position

The installation position shall be determined with careful consideration given to safety, vibration resistance, heat dissipation, waterproofing, damp-proofing, dust-proofing, protection against damage and easy maintenance, and shall meet the following requirements:

1. Vibration resistance: The terminal installation location should choose the part of the vehicle with weaker vibration and stay away from the engine.

2. Heat dissipation: The terminal should be far away from heat sources on the vehicle and installed in a well-ventilated location for efficient heat dissipation.

3. Waterproofing: When installing the terminal, it should pay attention not only to high-temperature resistance but also to waterproofing.

4. Moisture-Proofing: The terminal should be installed in a dry and ventilated location.

5. Dustproofing: The terminal should be installed in a place with less dust.

6. Electrical: The terminal should be as far away as possible from complicated electromagnetic environments and strong interference environments.

7. The installation position of AVMneeds to be flat, and avoid placing it sideways ordiagonally as much as possible.

8. There should be enough space to open and close the front panel(without affecting the removaland replacement of the SD card).

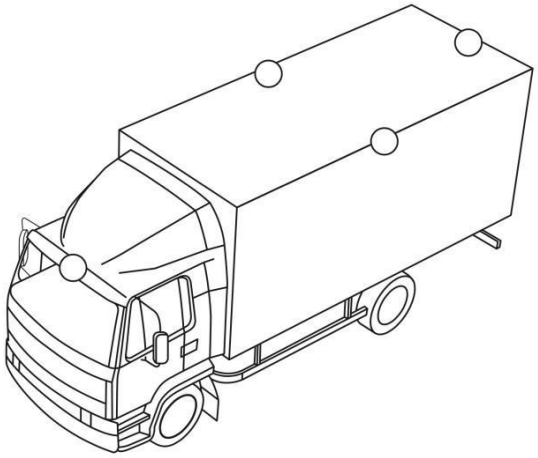
9. The rear of the host should have sufficient distance to plug and unplug the aviation connector (without affecting the wiring), and the rear harness mustbe securely and neatly tied up.

If the above conditions are met, tighten the screws to fix the main unit, as shown in the figure below.

4.3 Camera Installation

(1) Camera Installation Position Selection and Requirements

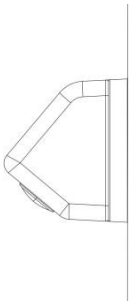
For the four fisheye cameras, the best installation positions are in the middle of the front, rear, left, and right sides of the vehicle. The height of the front top-view camera should be no less than 1.8 meters, and the other lenses should be within the range of 2.2 to 3.0 meters. (The specific installation position should be determined based on the actual situation of the vehicle, and the imaging effect should be confirmed to meet the requirements.) It is recommended to install the cameras at the same height as much as possible, with symmetrical installations both front-to-back and left-to-right. It may not be possible to meet the above installation requirements in some scenarios, which does not affect the normal working of the system after calibration, but it may affect the imaging effect under extreme conditions.



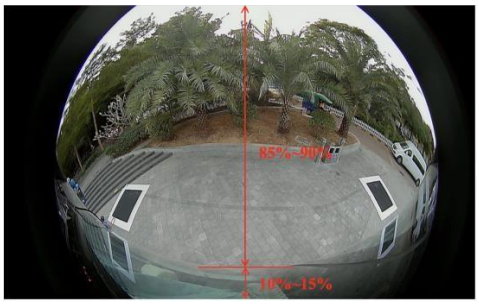
Camera installation requires drilling holes in the vehicle, passing the camera wire through the hole, using a waterproof gasket to block the hole, and then fixing the camera.

(2) Camera Installation Angle Adjustment

The CA51A camera is suitable for installation scenarios where the vehicle body is vertical to the ground. After fixing the CA51A, the vehicle body should occupy 10%~15% of the bottom width of the image.

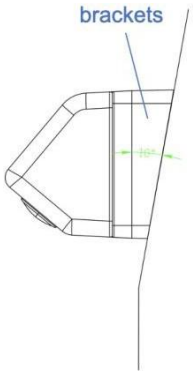


CA51A installed on a vertical vehicle body



The vehicle body occupies 10%~15% of the width of the image

However, in some scenarios, the vehicle body at the camera installation position is not vertical to the ground. It is necessary to use the 10° soft cushion included with the camera or the 90° bracket provided by Streamax to correct the angle to ensure that the vehicle body occupies 10%~15% of the image.



Installation Example

The CA51A camera is suitable for installation on the vehicle with different tilt angles. After selecting an appropriate position to install the CA51A camera, adjust the angle of the modular lens component of the camera by adjusting the pitch angle of the camera to meet the requirements of the vehicle body occupying 10%~15% of the image. After adjustment, use a tool to fix the side angle adjustment screw to ensure that the camera angle is stable and does not move.

(3) Correct Camera Installation Examples

A. Front camera installation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B. Left and right camera installation

C. Rear camera installation

(4) Description of Splicing Blind Spots

Different camera installation methods can result in different sizes of the AVM blind spot. The ideal vehicle model should have a flat front, back, left, and right body without protrusions, and be perpendicular to the ground. After the camera is installed, a single image should show the edges of the vehicle's projection on the ground. However, actual vehicles' bodies often have curvature (narrow roof and wide chassis), door handles, rearview mirrors, and protrusions such as bumpers that cover the view. The perfect solution is to use a camera bracket to mount the camera on the outermost edge of the vehicle. However, due to aesthetic considerations and legal requirements (the thickness requirement of protruding objects on the outer surface of motor vehicles: cannot exceed 10cm if the mounting point is below 2m, cannot exceed the rearview mirror if the mounting point above 2m), a perfect installation plan is impossible.

A camera installed on a curved body often results in a 10-20 cm blind spot in the picture. Depending on the size of the curvature, the size of the blind spot will also vary. As shown in the figure below, a camera installed on curved roof results in a 10 cm-wide blind spot directly below the camera in the AVM system image. In the front and rear of the vehicle, there is a 20 cm-wide blind spot.

Blind spots in the middle of the vehicle's side

Blind spots in the front and rear of the vehicle's side

4.4 Screen Installation

Requirements for screen installation:

① Install the screen in a position where the driver can perceive dynamic changes with their peripheral vision while driving.

② The screen installation position should not cover the driver's line of sight.

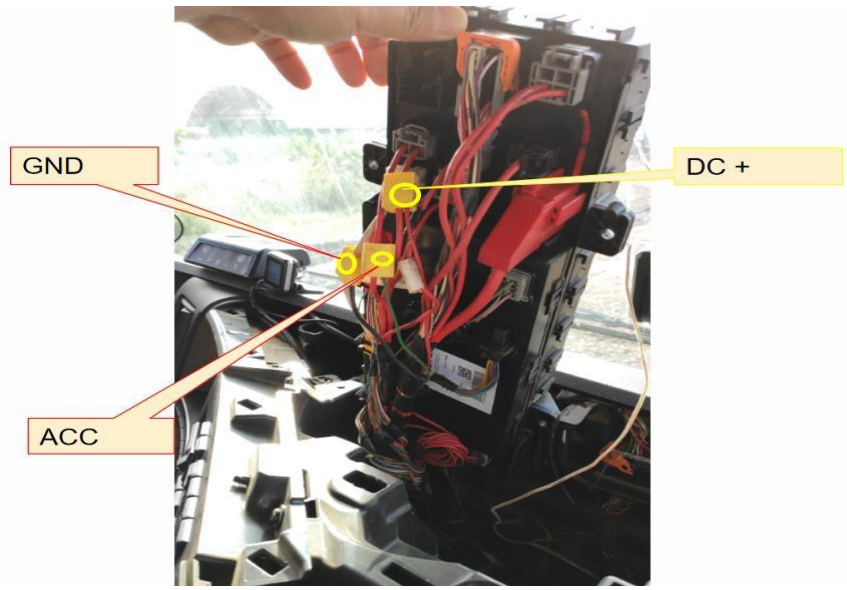
③The rear of the screen should have sufficient distance for plugging and unplugging connectors (without affecting the wiring), and the rear harness must be securely and neatly bundled.

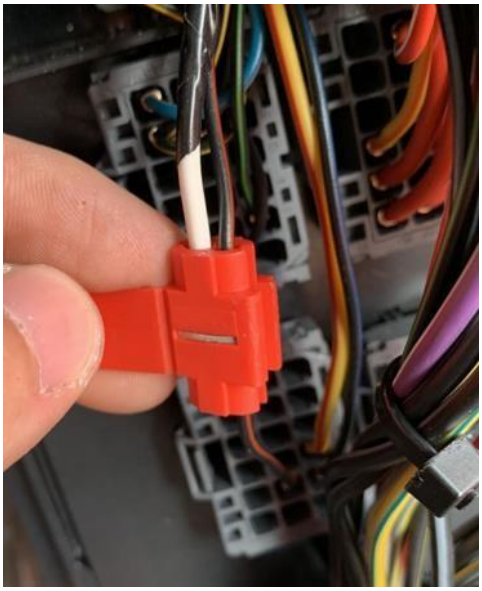
If the above conditions are met, the screen can be firmly fixed with screws.

4.5 Power Supply, Signal Cable Connection, and Wiring

4.5.1 Power Supply

Power cable: Connect DC+ to the vehicle constant power supply, ACC to the vehicle power cable, and GND to the vehicle ground wire.





*Note:

The power line shall be connected using "special stripping-free connection terminal" where possible (no stripping is required, so as to avoid the risk of electric leakage), and the connection shall be wrapped with insulated rubber tape to avoid electric leakage/short circuit.

If there is no special stripping-free connection terminal, stripped wires can also be used for connection. In this case, the connection process must conform to the standard specifications. After the connection is completed, the connection shall be wrapped with insulated rubber tape to avoid electric leakage/short circuit.

4.5.2 Connection of Signal Cables (Pulse/Left and Right Turn Signals/Reverse Gear)

1. Vehicle Speed Pulse

(1) Consult a professional vehicle maintenance engineer to find the vehicle's speed pulse wire, then connect the **SPEED** in the AVM power loose wire to the vehicle's speed pulse wire.

After wiring, the Veyes APP should be used to connect to the AVM and enter the configuration interface to set the speed source of the device to **Pulse**. Then, move the vehicle a short distance during the installation to test whether the vehicle speed pulse data is accurate.

*Note:

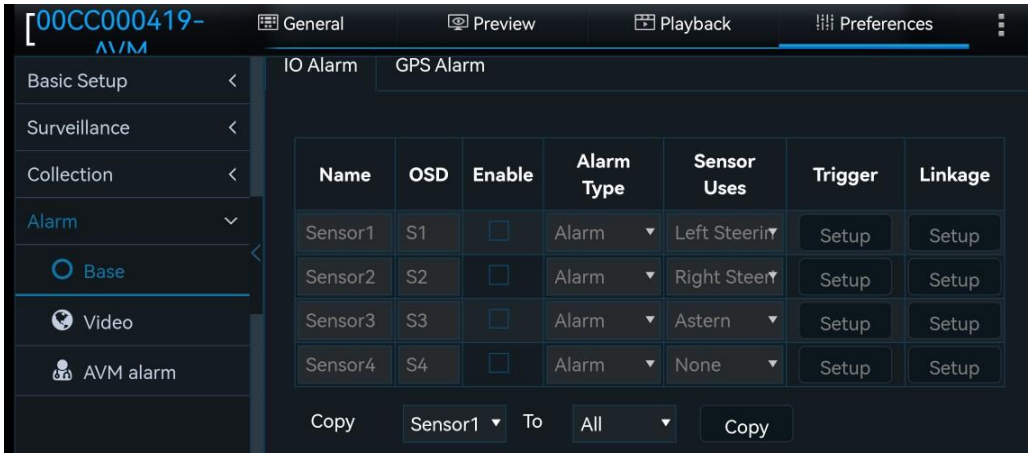
To avoid interference with vehicle speed pulse by other electrical signals of the vehicle, a ground wire must be connected here.

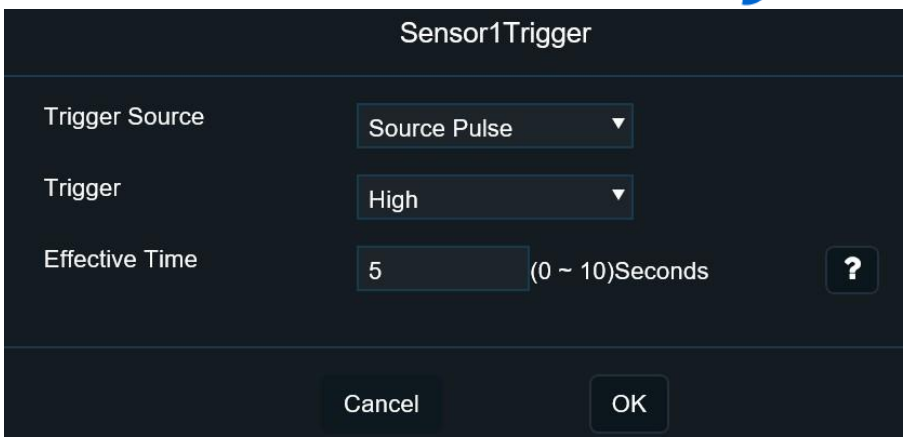
(2) Left Turn/Right Turn/Reverse Gear Signal

After locating the fuse board below the steering wheel or the front passenger dashboard, measure the cable corresponding to left steering/right steering/reversing signal according to the tips on the cover back of the fuse board or using a multimeter.

There are four IO signal cables in the standard loose wire, so left steering, right steering, and reversing signals can be connected. After connection, set the corresponding IO signal cable parameters through Veyes.

For some customized loose wires with four IO signal cables, connect them as required for actual use.





*Note:

If the measured signal is a pulse signal, the source of left steering/right steering/brake signal shall be set as pulse on the setting screen of the AVM; if the measured signal is a continuous high or low level signal, the source of left steering/right steering/brake signal shall be set as level on the setting screen of the AVM.

4.6 Installation of GPS, 3G/4G, and Wi-Fi Antennas

4.6.1 GPS Antenna Installation

Installation requirements of GPS antenna:

1. The GPS antenna should face upwards (the side with the label).

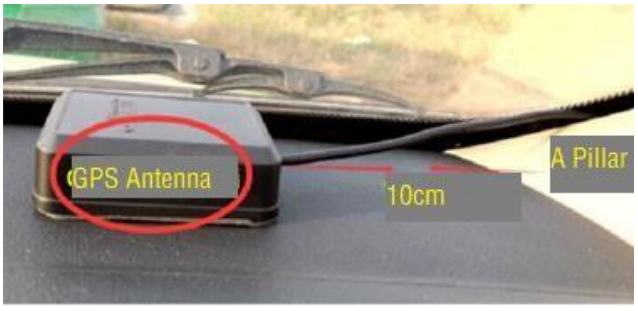
2. It is recommended to install the antenna on the passenger side, at least 10 cm away from the A-pillar.

3. There should be no other device above the antenna, and it should be far from electronic devices such as audio and intercom systems to prevent interference.

4. The antenna should be installed away from areas with high vibration.

5. The antenna should be installed away from air conditioning vents to prevent the accumulation of condensed water due to temperature changes.

Fix the GPS antenna in the vehicle



4.6.2 Wi-Fi Antenna Installation

Tear off the 3M adhesive film on the bottom of the WiFi antenna to stick the antenna to one side of the vehicle center console.

Installation requirements:

1. The antenna should not be placed in an enclosed space as it may affect signal reception.
2. The excess tail cable of the Wi-Fi antenna should be organized and hidden inside the A-pillar or center console.

5. Calibration

5.1 AVM Calibration

5.1.1 Preparation Before Calibration

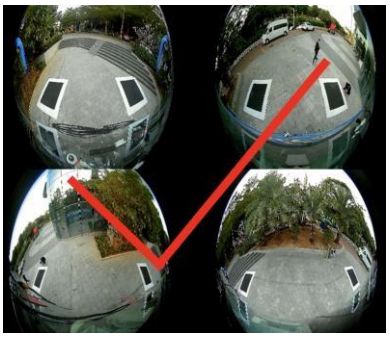
① Selection of Calibration Site

Choose a flat site without obvious slope or unevenness for calibration operation. To ensure normal automatic calibration function, it is necessary to ensure that the ground color of the site is pure and there are no obvious patterns or lane markings. Avoid conducting the calibration in intense sunlight, under strong lights, or in areas with complex shadows, as this may cause an automatic calibration failure.

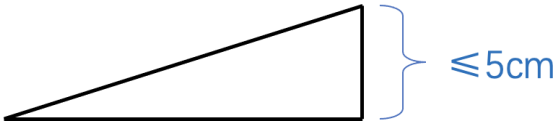
Ground markings or lines

Areas with shadows and interferences

Intense sunlight



Keep the calibration ground as flat as possible and ensure that the height difference is ≤ 5 cm. If the height difference is greater than 5 cm, it may not cause calibration failure, but it will affect the image Splicing effect.



The Slope Requirements for Calibration Site

② **Lighting Requirements for Calibration Environment**

To ensure the success of the automatic calibration process, the calibration environment must have a lighting condition of more than 100 Lux. Lighting conditions below this level may cause an automatic calibration failure.

Auto Calibration with Minimum Illuminance

(3) Placing Calibration Cloth

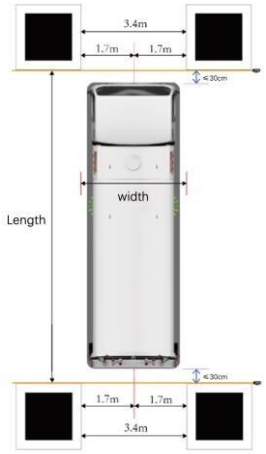
Choose a spacious area at least 3 meters away from the vehicle to conduct the calibration operation, and ensure that the calibration site meets the requirements.

Use a 10-meter tape measure to place it in front and behind the vehicle, ensuring that the tape measure is parallel to the vehicle and within 30 cm of it. The specific position depends on the

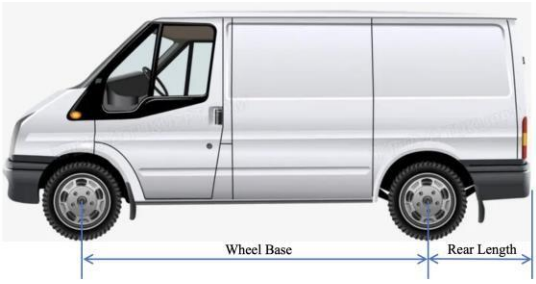
installation environment. The tape measure must be completely visible in the calibration interface and not be covered by the car body. After correctly positioning the measuring tape, place two calibration cloths in front of the vehicle and two behind respectively, ensuring that the inside distances of the two cloths on the front and rear sides are both 3.4 meters. The four pieces of calibration cloth must be placed neatly, and their positions are shown in the figure below.

Measure the distance between the inside edges of the calibration cloth on the front and rear of the vehicle as "Length", and measure the width of the vehicle as "Width" (including the width of the left and right rearview mirrors).

When using the dynamic trajectory function of the vehicle (currently only applicable to two-axis vehicles), it is necessary to measure the wheelbase of the vehicle as "Wheel Base" and the rear length of the vehicle as "Rear Length", as shown in the measurement diagram below.



Placement Diagram for Calibration Cloths

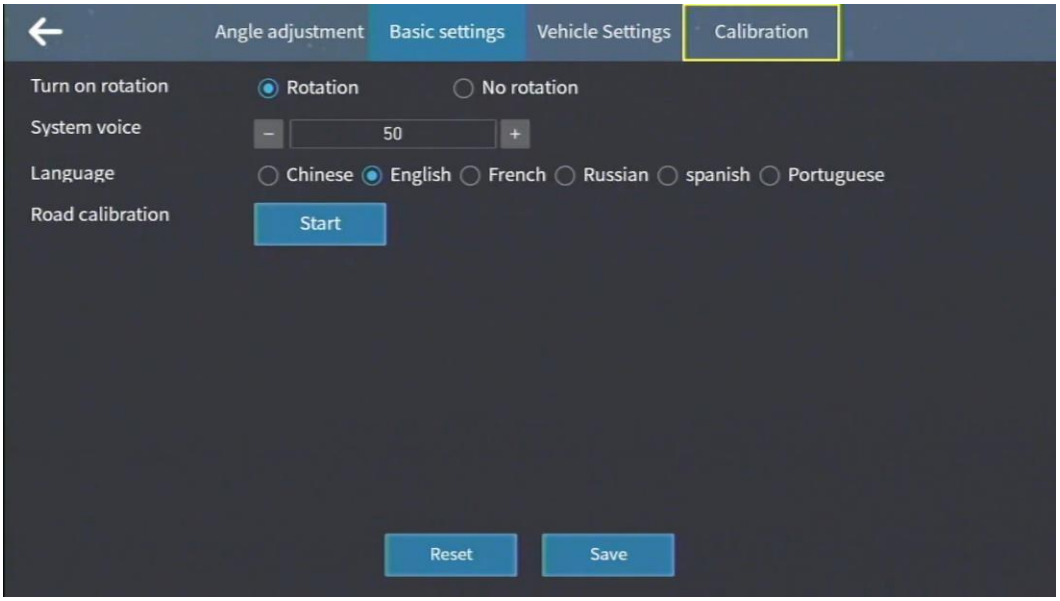


Measurement Diagram of Wheelbase/Rear Length

5.1.1 Automatic Calibration

When the remote control clicks **ENTER**, a settings icon appears in the upper left corner of the screen.

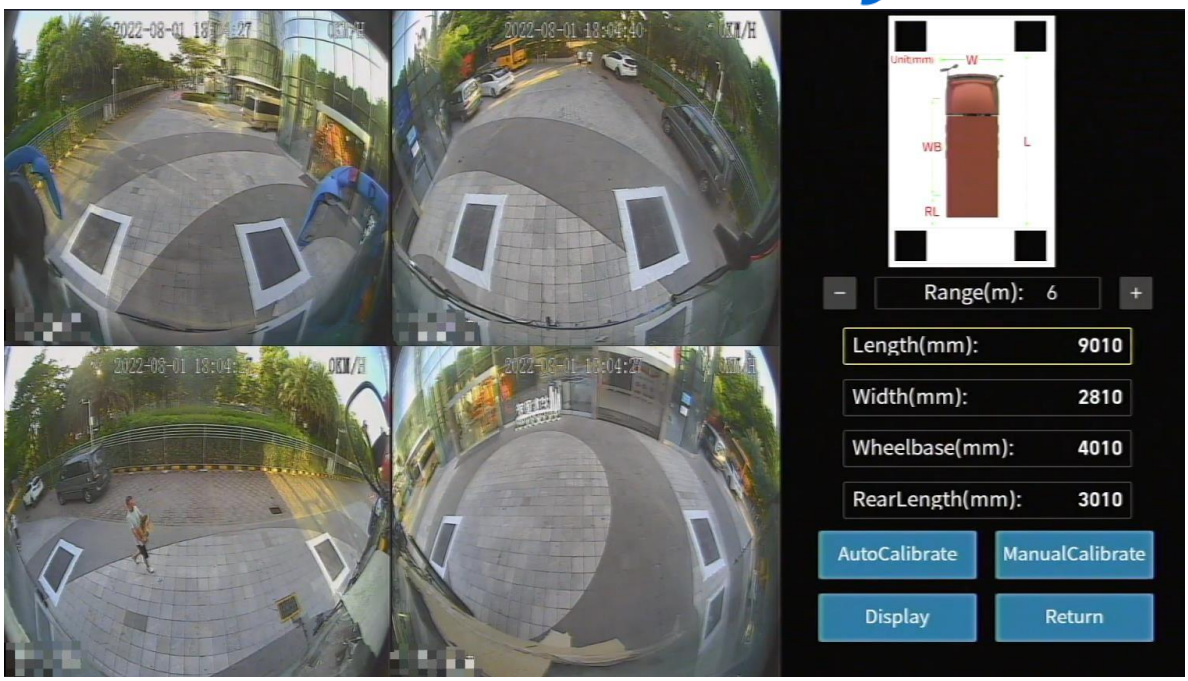
Click to confirm and enter the calibration interface.



Check the camera image of the four channels to determine if the camera installation angle is appropriate. If not, it needs to be adjusted.

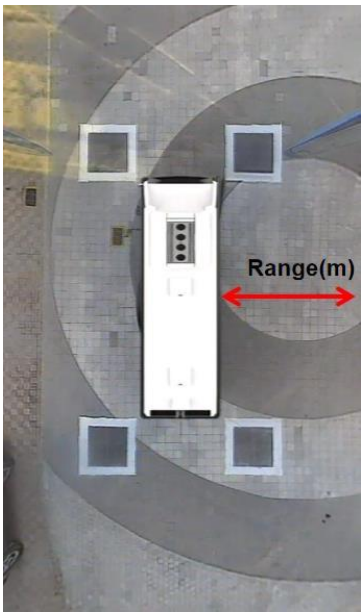
Check if all four channels can clearly see the calibration cloth. If not, the position of the calibration cloth needs to be adjusted.

Manually input the Length (L), Width (W), WheelBase (WB), RearLen (RL) data.



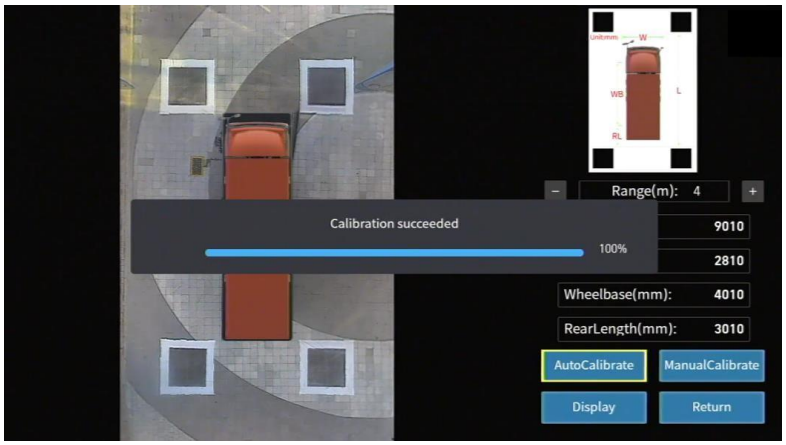
Click the **Range(m)** button and use the left and right arrows to select the display range of the 2D top view. There are four options to choose from 3 m, 4 m, 5 m, and 6 m. The default range is 4 m. Note that the installation height of the camera may affect the screen stitching. To obtain a larger Splicing field of view, the camera needs to be installed higher.

The Range(m) setting is for the left and right visual range. The front and rear visual range will be generated according to the proportion of the left and right visual range.



Click the **AutoCalibrate** button to start the automatic calibration process. At this time, the system will take a snapshot of the current image and execute the calibration program in the background. The four calibration cloths must not be covered by any obstacles or pedestrians, otherwise, the calibration will fail.

When the progress bar is complete, the calibration success pop-up window will appear, indicating that the calibration process is completed.



4.2.3 Manual Calibration

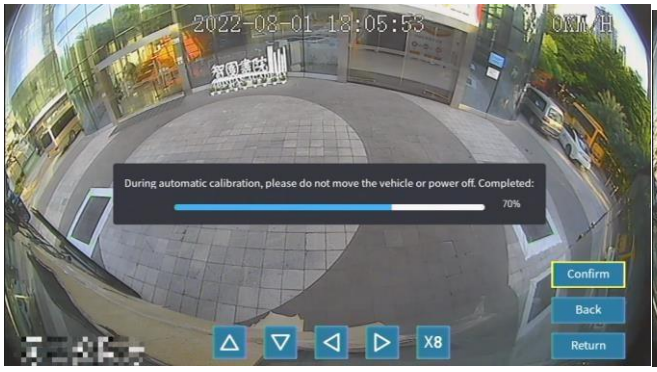
If automatic calibration fails, manual calibration can be used for calibration. After manually inputting vehicle information and selecting the Range (m) range, click the **ManualCalibrate** button to enter the manual calibration program.

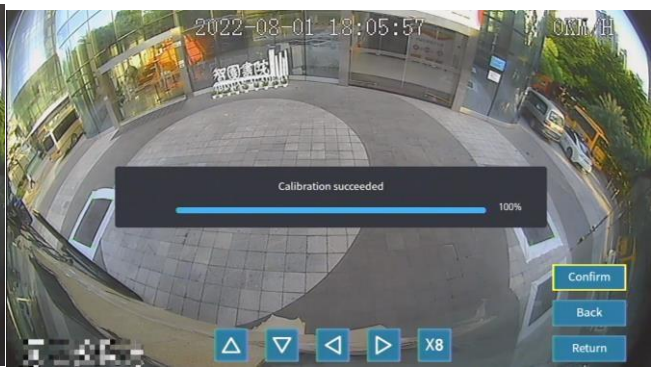
Note: When the calibration cloth is covered or covered by pedestrians, the captured image cannot accurately obtain the coordinate of the calibration cloth, which may cause the manual calibration to fail. Therefore, please confirm that the calibration cloth is not covered when performing manual calibration.

When entering the manual calibration interface, the system will display the front camera image by default. The top middle section shows a partially magnified image to facilitate aligning the cursor with the corner. Click the **up, down, left,** and **right** buttons on the remote control to move the cursor. Click the **×1** button to confirm and adjust the cursor movement step size. **X1** represents a movement of **1X**, while **X8** represents a movement of **8X**. Click **Confirm** to lock a cursor. At this time, the cursor changes from red to green, and another cursor is automatically placed. **Back** can be used to clear any locked cursor.

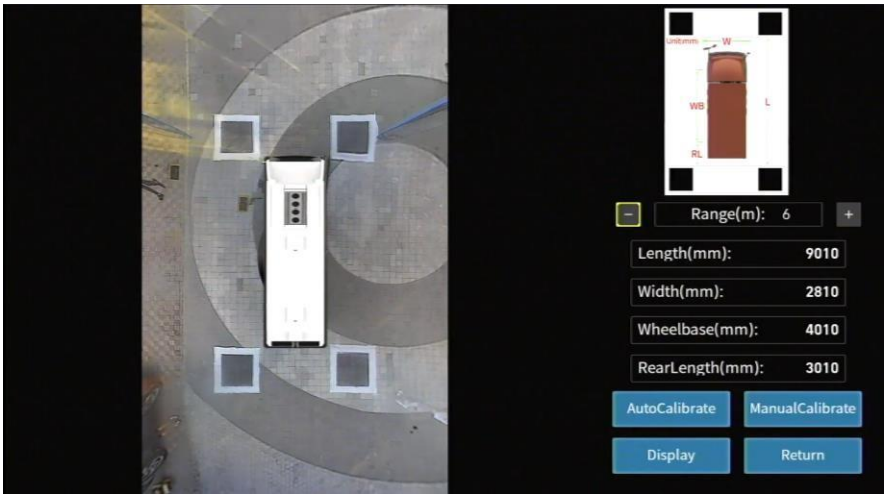
Select the corner points from left to right in order. First, choose the black grid on the left, then the one on the right. From within the same black grid, select the points in a Z-shaped pattern. For each image, two calibration cloths containing eight corner points need to be selected. Once the current image's eight corner points are locked, the system will automatically switch to the next image to repeat the process.

After the corner points for the last image are locked, click **Confirm** to begin the manual calibration process. A pop-up window will prompt for the calibration process to begin.





Once the calibration is complete, the calibration results will be automatically displayed.



Calibration Completion

Click **Return** to exit and return to the panorama display screen.

Calibration Success Interface

5.2 Veyes APP Calibration of AVM

Start the vehicle. When the power status light shows continuous green and the Wi-Fi status light is green, it indicates that the AVM system is working correctly and the Wi-Fi AP mode is enabled.

Log in to the Veyes app with your mobile phone/Pad within 3 minutes after the AVM is turned on. Enable Wi-Fi and GPS on your mobile phone before connecting the device with the truck Veyes App.

When the AVM system is powered on, it will remain in the AP mode for three minutes by default. Then, run the truck Veyes app on your mobile phone and click **Search**. The screen listing the Wi-Fi hotspots found is displayed. For the first-time login, the Wi-Fi hotspot name is named after the AVM encryption chip number (usually default as ST-00CCxxxxxxxx-AVM), if the license plate number is modified, the hotspot name will be changed accordingly. Search for the Wi-Fi hotspot named after the AVM encryption chip or the license plate number that has been entered, and then enter the login page.

*Note:

Within 3 min after startup, the EDR will automatically enable the WIFI transmission mode for debugging and connection with the app. If no connection is established with any app within 3 min, the Wi-Fi hotspot of the EDR will be OFF.

On the login screen, enter the corresponding username and password. Click **LOGIN** to open the operation interface. Default username/password: admin/admin.

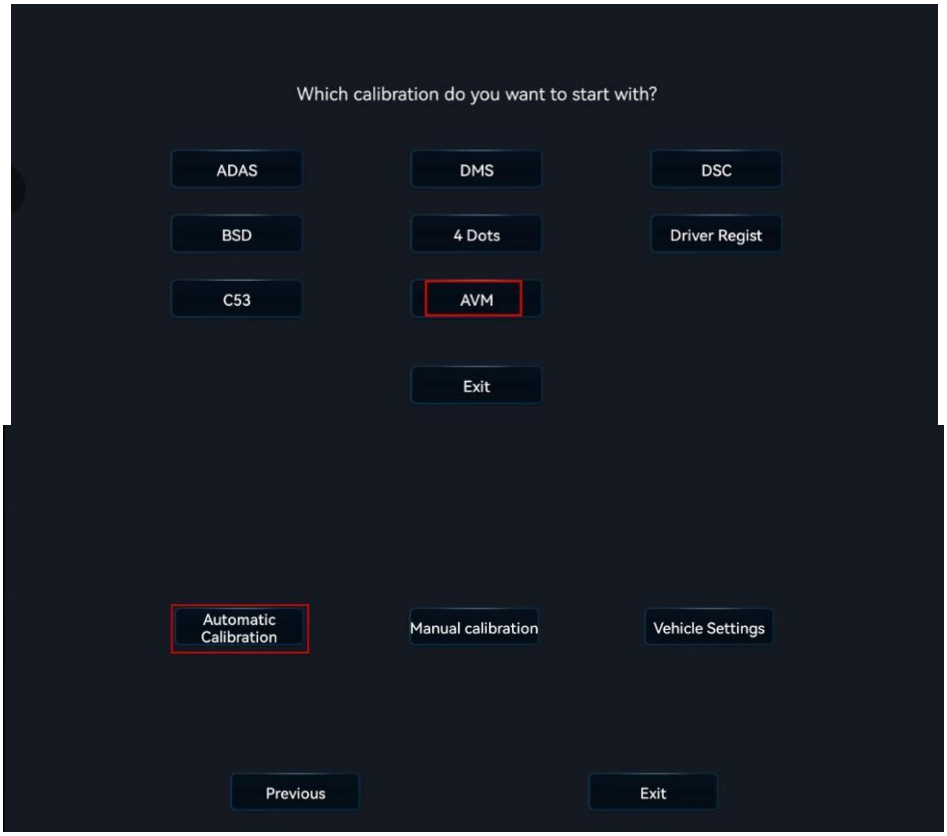
Click **LOGIN**. The operation screen is displayed.

Android: 

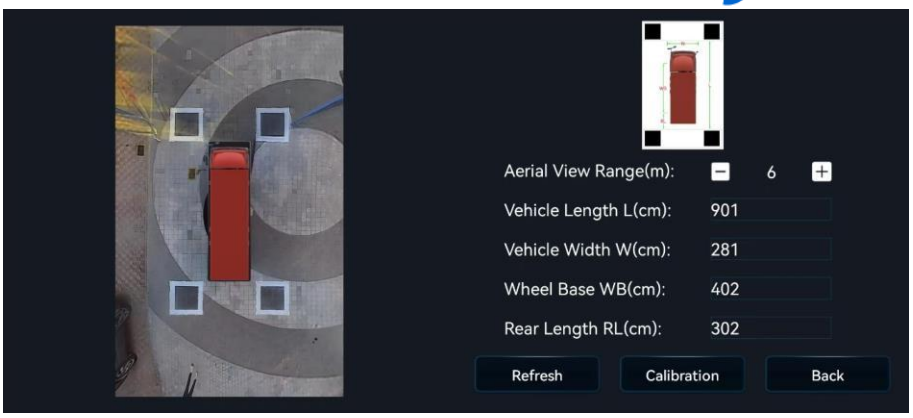
iOS: 

5.2.1 Automatic Calibration

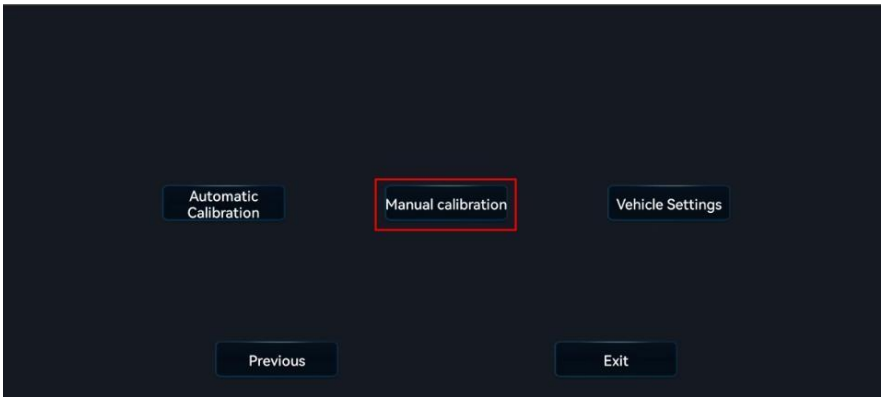
Log in to **Veyes APP → Preview Interface → AI Calibration → AVM**



In the calibration interface, manually input the Length (L), Width (W), WheelBase (WB), RearLen (RL), and Range (m) parameters, then click **Start Calibration**.



5.2.2 Manual Calibration



Calibration Method:

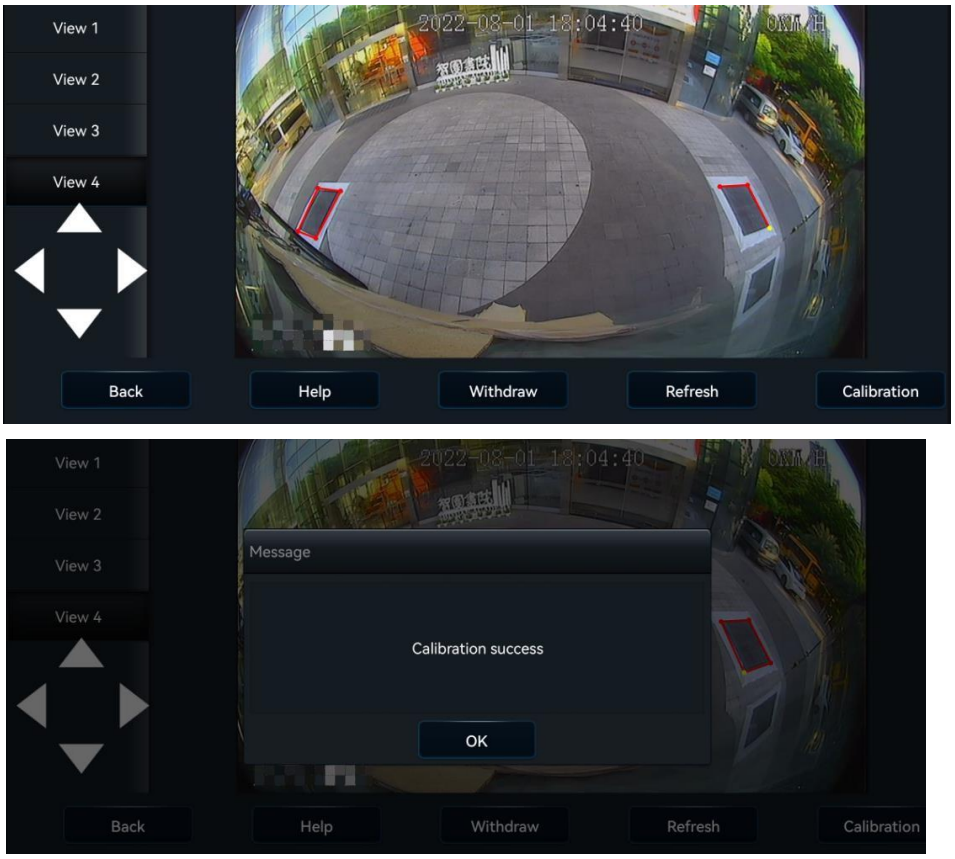
① Calibration is divided into left and right areas.

② Four black cloth corners in the left/right calibration area serve as calibration points.

③ Calibration points can be selected in any order.

④ The last selected calibration point will be shown in yellow and can be fine-tuned using the direction keys on the left.

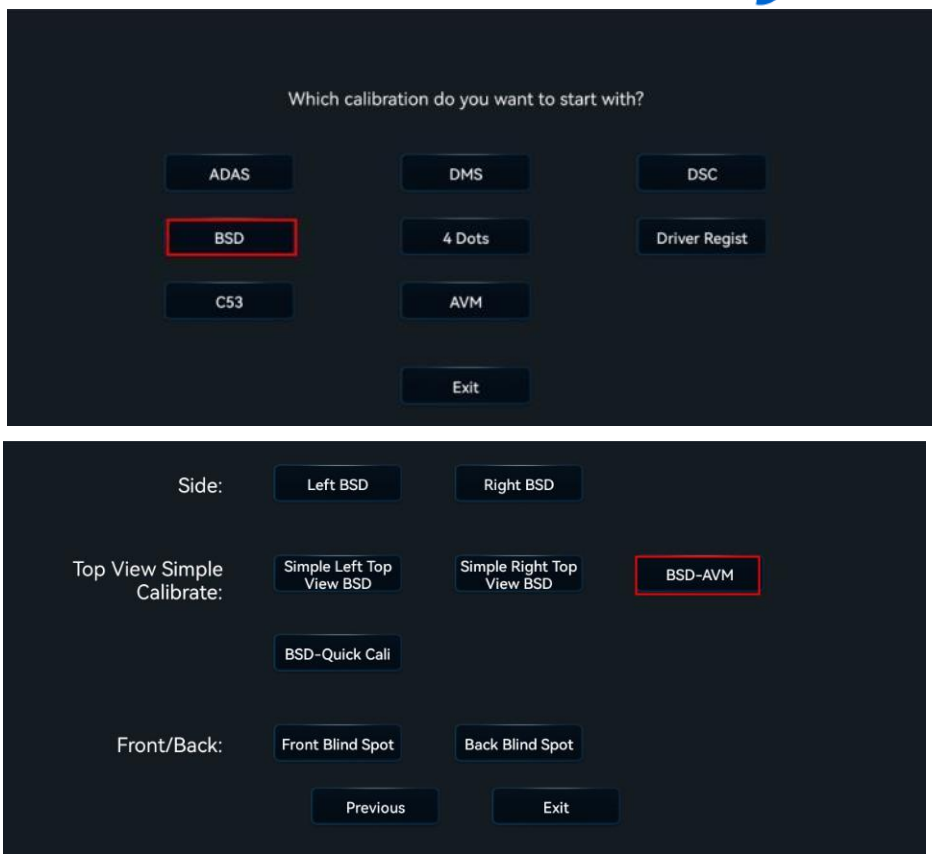
⑤ After completing calibration for one channel, continue to the next channel until all channels are calibrated.



5.3 BSD Calibration of Veyes APP

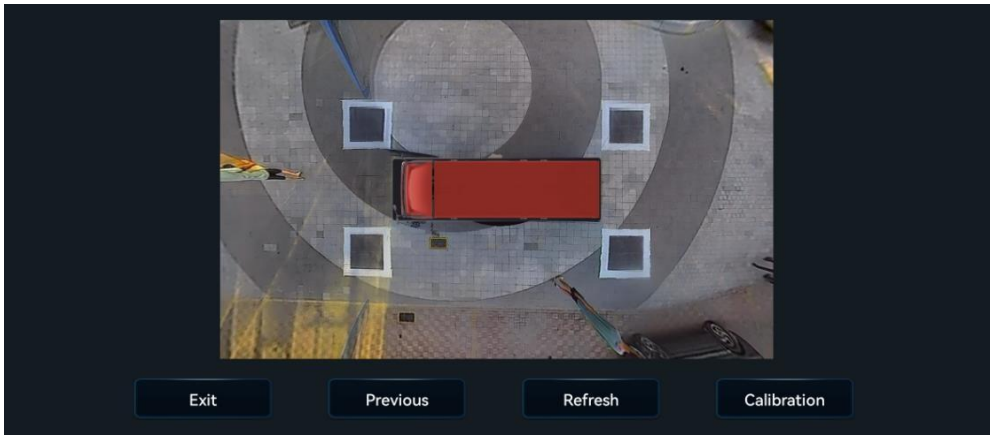
5.3.1 Surround View Blind Spot Calibration

Log in to **Veyes APP → Preview Interface → AI Calibration → BSD → Surround BSD**



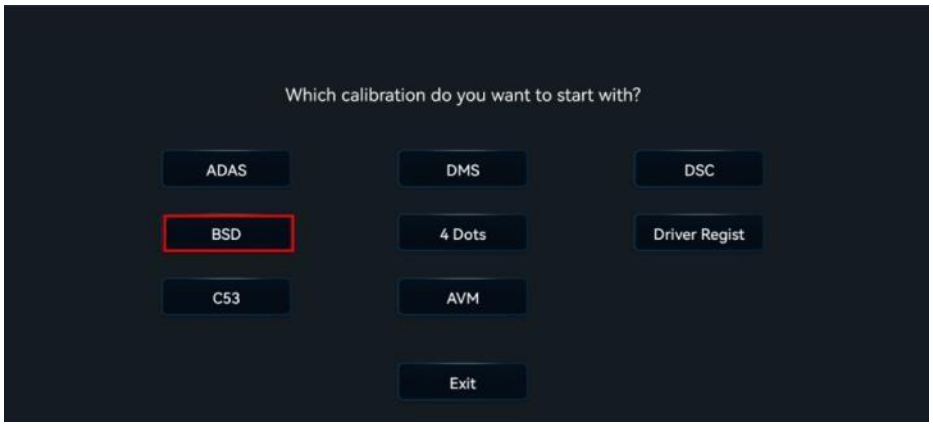
In the capture interface, the bird's-eye view screen is displayed. If the captured image is covered, click **Refresh** to capture a new image. After confirming that the captured photo has no obstructions or reflections, click **Start Calibration**.

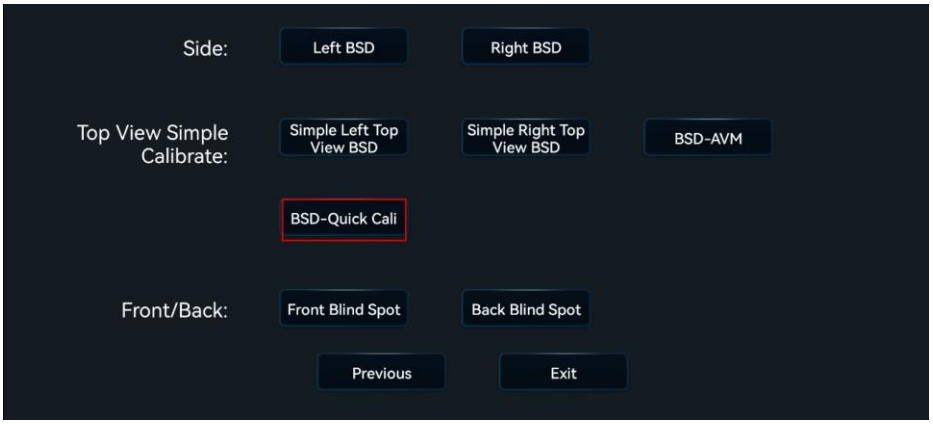
In the calibration interface, two calibration frames will appear. Manually drag the frames to select the alarm area, and then click **Save** to complete calibration. Click **Restore Default** to return the frames to their original position.



5.3.2 Fast Calibration for Surround View BSD

Log in to **Veyes APP → Preview Interface → AI Calibration → BSD → Fast Calibration for Surround BSD**





In the calibration interface, a bird's-eye view screen is displayed with three calibration lines around the vehicle model. Calibration operations: move the end of the line closest to the vehicle model as close to the body as possible, and extend the other end up to a maximum of 4.5 meters. The distance within the frame can be calculated proportionally.

Operating Method 1:

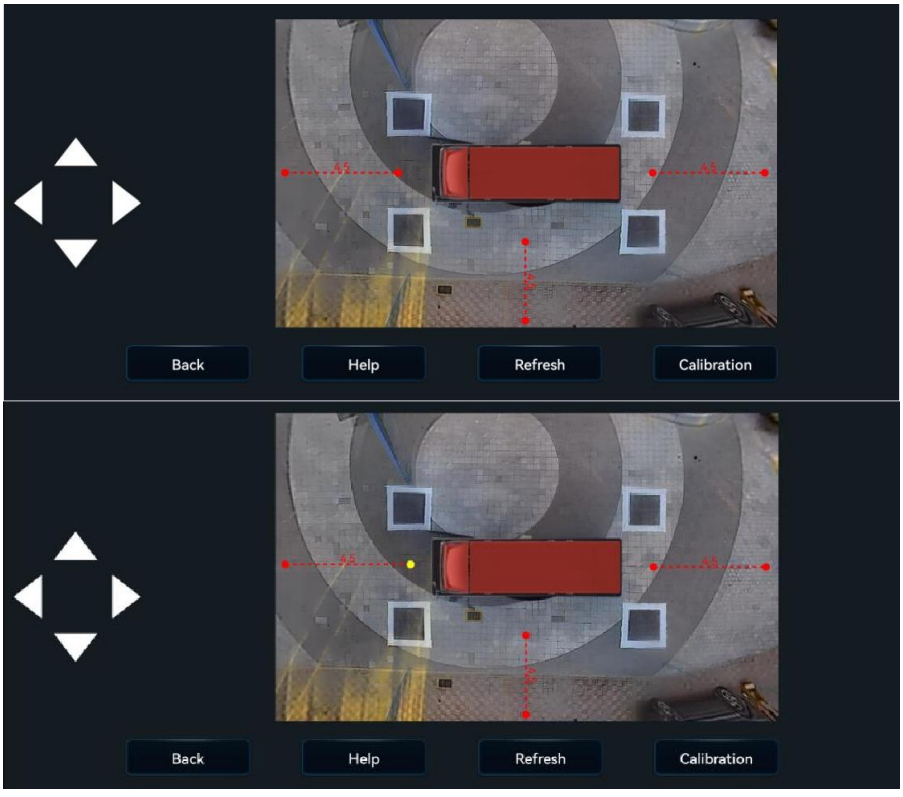
① Long-press the endpoint to drag and adjust the line length, or move the calibration line.

② Long-press the calibration line to move it.

Operating Method 2:

① Select an endpoint of the calibration line and control it using the direction keys on the left.

② The parallel direction of the selected point on the calibration line can be extended or shortened, and the vertical direction can move the position(For example, the points indicated by ▲▼ can be adjusted for length, and ◀▶ can move the calibration line horizontally).



6. Acceptance and Cleaning

6.1 Tidying and Cleaning

Clean up the installation site, collect and take away tools and waste separately, and put the original articles in the vehicle to their original place, and then the installation work ends.

6.2 Installation Acceptance

1. Conduct acceptance for the installation details and parameter setup item by item according to the acceptance list provided by the customer.

(1) Focus on inspection of parameter setup, and save screenshots.

(2) Focus on inspection of video images, and capture and save videos.

2. Take pictures of all the devices and the center console after installation.

(1) Take pictures of the installation positions of all items.

(2) Take a picture of the rendering inside the cockpit after installation.