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RYDEEN[®]

find your road



Owner's Manual

RDV360-3D

3D 360° Surround View 4CH DVR

V2.0

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Welcome Statement & Warnings

Thank you for purchasing the RDV360-3D, that it will make your driving experience easier & hassle-free.

The RDV360-3D provides an easy-to-use specialized user interface and innovative functionality in a stylish system design that grants you a wonderful visual feast and guarantee you a safety parking.

Please read this Owner's Manual carefully. If you have any further questions about your RDV360-3D operation, feel free to call RYDEEN, Toll Free at 1-877-777-8811 (within USA only) for product support, or visit our website: www.rydeenmobile.com.

IMPORTANT INFORMATION

PLEASE READ CAREFULLY BEFORE USING THIS PRODUCT

We recommend that you read and follow all information and instructions in this Owner's Manual for the best performance and satisfaction of your RDV360-3D.

- Please read this manual carefully before using and pay attention to this section for the safety Instructions.
- Serious traffic accidents may be caused by keeping watching on the screen or operating the system during driving. It is strongly recommended that do not operate this system while driving.
- The RDV360-3D is a parking and driving assistant system which offers the road situation around the vehicle to eliminate blind spots and thus works perfectly as a visual guide for safe parking and driving. It may bring inconsistency between the screen image content with actual surroundings of the vehicle. Please handle this case according to actual situation.
- Never hotplug the host device when power is connected. The host device can't be sunk in any kind of liquid. Please kindly pay attention to heat dissipation.

(Recommended) Use the 3D-360 view for ultimate parking assistance and the camera for blind-spot elimination while vehicle is in motion over 10mph

⚠ WARNINGS ⚠

- Avoid dropping your RDV360-3D unit or subjecting it to excessive shock and vibrations as this may cause it to malfunction.
- Do NOT open your unit's main box in any case except during authorized technical supporting.
- Keep the RDV360-3D unit out of reach of small children. Removable parts (microSD memory card) can be a choking hazard.
- The RDV360-3D unit IS NOT WATERPROOF. Avoid exposing it to rain or other forms of excessive moisture. Water damage is not covered under the warranty.

⚠ WARNINGS ⚠

- THE FOLLOWING INSTRUCTIONS ARE INTENDED FOR AUTHORIZED RYDEENMOBILE INSTALLERS ONLY
- PROFESSIONAL INSTALLATION BY AN AUTHORIZED RYDEEN RETAILER IS REQUIRED TO BE COVERED UNDER WARRANTY

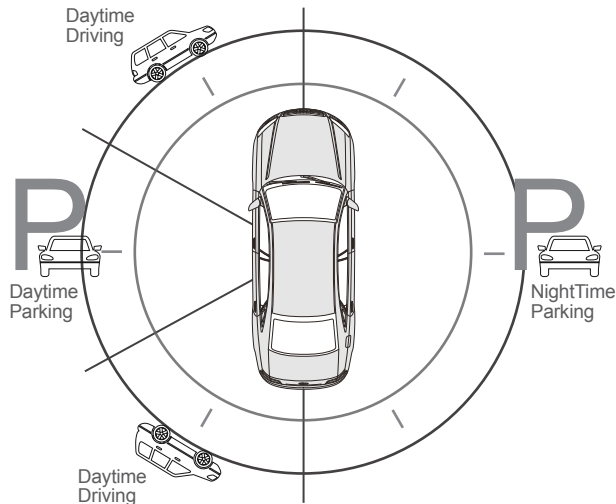
Technical Support Contact Info

If you have other questions about the RYDEEN RDV360-3D, please contact your retailer or Technical Support:

- Telephone: 1-877-777-8811 (within USA only)
- techdept@rydeenmobile.com
- Web Address: www.rydeenmobile.com

System Brief Introduction

The DVR360-3D Around View Monitoring Technology synthesizes images from four cameras to create a true 3D sophisticated view of a vehicle's surroundings. The technology enables flexible omni-directional monitoring around a vehicle from a dynamically definable perspective or "free eye point." Such kind of technology can display the complete vision of the positioning and moving path of the vehicle, it covers blind spot and thus works perfectly as a safe parking and driving guide even when restricted by adjacent vehicles and objects, parking line, etc. The system offers various SVM system configurations like -HDMI/LVDS/AV with alternative version of 2D or 3D, and what's more, this system also integrated full channel car DVR function with 24 hours videos loop recording supported.



This guide is to provide the basic illustration for topological structure of the RDV360-3D system, operating principle and basic concept to help users to understand the whole system installation procedure, camera calibration steps, and how to interact with the system menu.

What's in the box

Your RDV360-3D system comes complete with everything you need to get set up and get going. Please take a moment to review the contents of your system.



RDV360-3D



Front



Rear



Left



Right



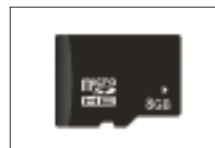
Wire harness



IR



Remote



SD card



Manual



Tape

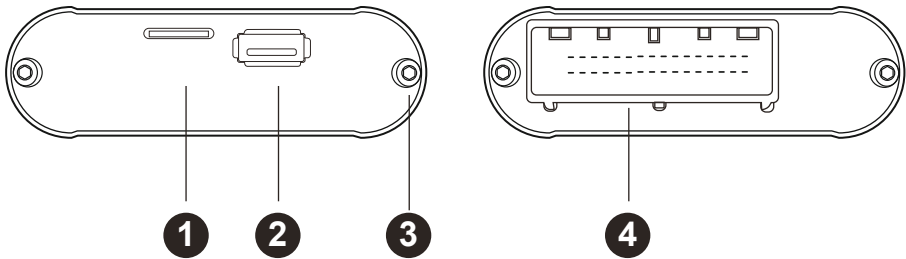


3D ON/OFF Switch



Extension cable

Product Overview and Features



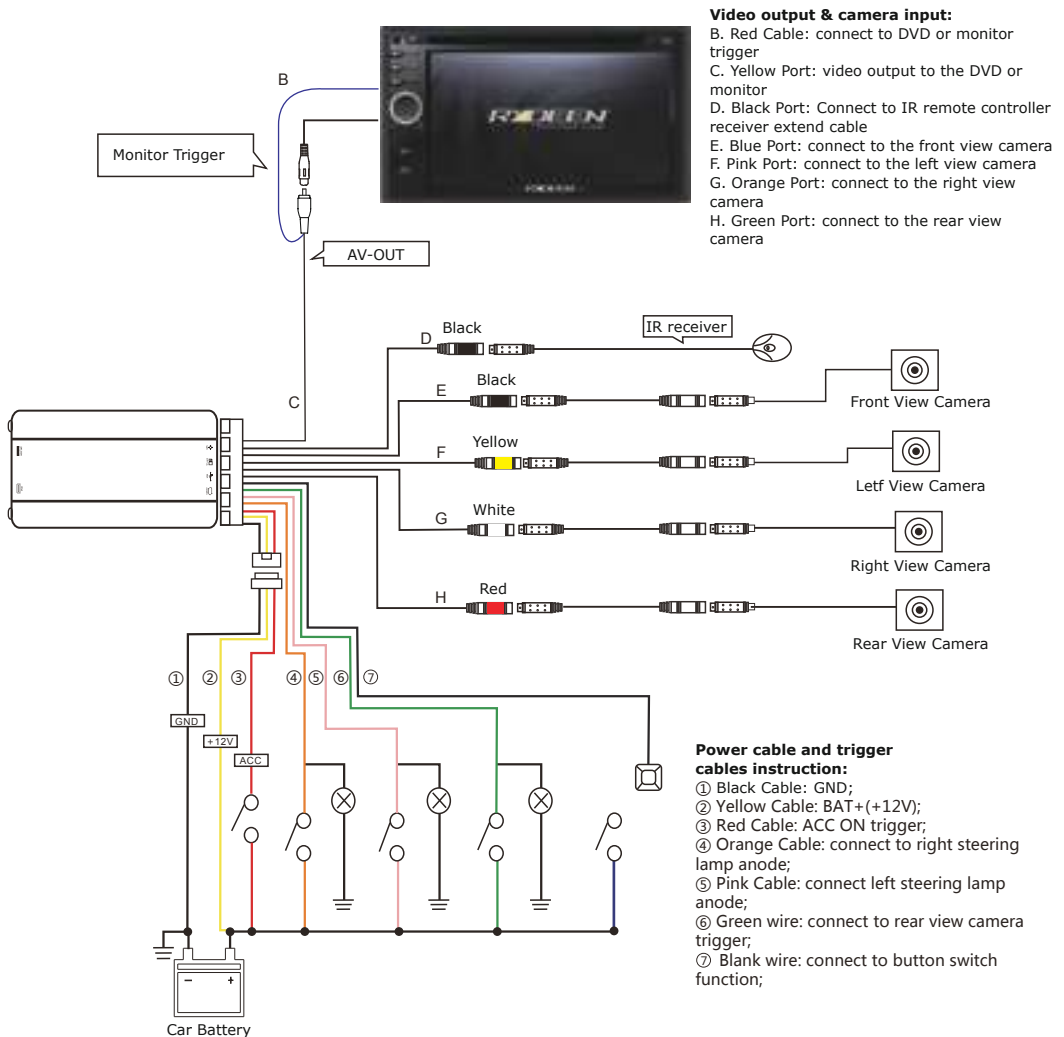
1. microSD Card Slot
2. USB Slot for Recording Video Storage
3. Screws for fixing Housing
4. Integrate Wire Harness Socket

Tips: If both USB and SD card are plugged in, the USB will be the priority to use as storage.

Features:

- Four 180 degrees ultra wide fish-eye cameras
- Seamless video merging based on dual core ARM CPU and hardware high efficiency acceleration engine.
- Arbitrary and dynamic 3D mode view angle switching for better surrounding environment observation
- Independent Fish-eye calibration parameter and algorithm for each camera.
- Pixel statistic engine for auto-brightness and balance for all four cameras.
- 3D video de-interlacing and noise reduction technology for CVBS signal decoding.
- Support alternative recording media for TF card and USB disk
- The simplest calibration steps with calibration tape and packing box, and system applicable for almost all types of vehicle which including Buses, Trucks, Lorries, Limousines, Typical length of the vehicle is 5.5m, 6.5m.
- Smart power managements to save automobile's battery
- High video recording resolution up to 1080p
- OE quality for main chipset with well protected circuit and devices in order to achieve the best system performance and stability.

Wiring Diagram Illustration



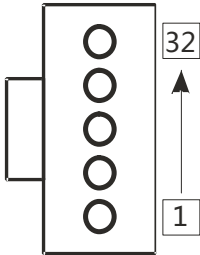
3 Ways for DVD or monitor display on and off:

1. DVD or monitor display on by engaging reverse gear trigger, turn off when the car power off;
2. DVD or monitor display on and off by remote control;
3. DVD or monitor display on and off by pressing caution light button two times.

Connector PIN Descriptions

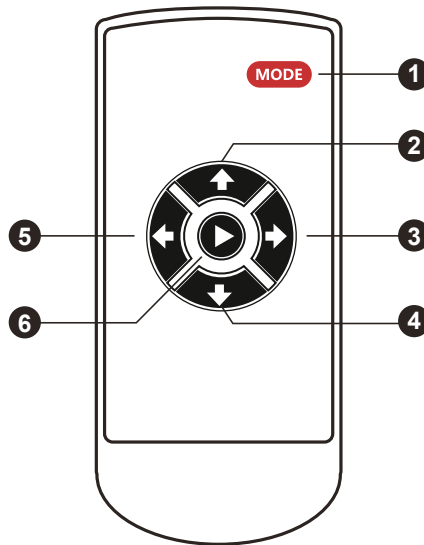
Connector PIN Descriptions:

Connector A



Pin	Color	Description
1	N/A	
2	N/A	
3	N/A	
4	N/A	
5	Pink	AV-OUT
6	Red	Power Cable
7	Pink	Left Light Trigger
8	Black	Power Cable
9	Orange	Right Light Trigger
10	Yellow	Power Cable
11	Green	Reverse Trigger
12	Yellow	Right Camera
13	Pink	Right Camera
14	Black +Black	Right Camera +3D ON/OFF Switch
15	Red	3D On/Off Switch
16	Yellow	Left Camera
17	Pink	Left Camera
18	Black	Left Camera
19	N/A	
20	Yellow	Rear Camera
21	Pink	Pink
22	Black	Rear Camera
23	N/A	
24	Yellow	Front Camera
25	Pink	Front Camera
26	Black	Front Camera
27	N/A	
28	Yellow	AV-Out
29	Black	AV-Out
30	Black	IR Receiver
31	Red	IR Receiver
32	Yellow	IR Receiver

Remote Control Illustration



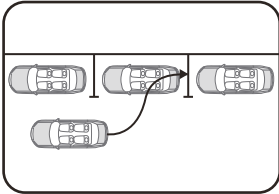
Key Number	Description	Function
[1]	MODE	Enter Settings Menu
		In 3D Mode, long press 2 seconds enter into 4CH recording mode
[2]	UP	While in MENU screen, toggle through the icons
		In 3D mode, short press to switch from 3D to Camera view. Press again to go back to 3D mode.
[3]	RIGHT	In 3D model, long press enter into right 360 rotatable mode
[4]	DOWN	In 3D mode, long press enter into reversing gear mode
		While in MENU screen, toggle through the icons
[5]	LEFT	In 3D model, long press enter into 360 rotateable mode
[6]	OKAY	To confirm the selected option

Specifications

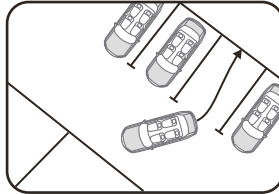
Type	Specifications	
Video	Video Interface	Mini plug connector
	Input / Output Impedance	75Ω
	Amplitude	Typical 1Vpp, 1.2Vpp Maximum
	Bandwidth	8MHz
	Sampling Frequency	13.5MHz
	DP(Differential Phase)	<0.8°TYP
	DG(Differential Gain)	<3%TYP
	SNR	70dB
Indicator Lamp /Blinker	ON/OFF switch to trigger 2D/3D	Button switch
	Left/Right Turning Blinker	Yes
	Reversing Lamp	Yes
G-sensor	BM250E	Bosch
Compression	Algorithm	H.264 Baseline@L3.1
	Resolution	1440*960@30fps
	Bitrates	5Mbps, 3Gbyte/Hour
	Recording Media	USB Disk(High Priority)/TF
Disk Capacity	SD CARD	32G SDIO3.0/SDIO2.0
	USB Disk	32GB USB2.0
Power Consumption	4-CH DVR + SVM mode	350mA
	4-CH DVR mode	180mA
	Sleep Mode	<10mA
Dimension	L*W*H	123*81*25mm(Host Metal box)
Weight		220g
Environments	Normal Working	-30℃~+85℃
	Storage	-40℃~+105℃
	Relative Humidity	0~95%
Voltage Tolerance	Working Voltage	9.5V~36V

Product Features

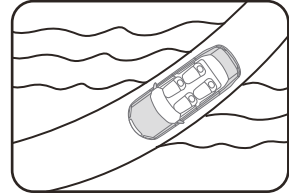
System main application scenarios



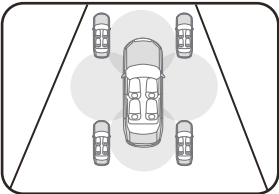
Parallel parking



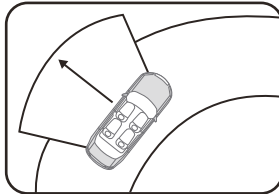
Reverse parking



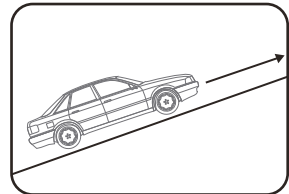
Narrow Road/Lane



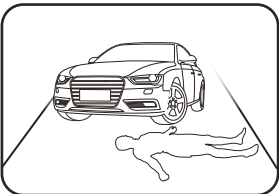
Blind Spots Coverage



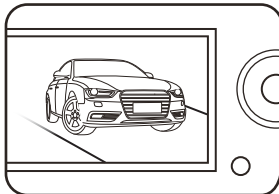
Turning assist



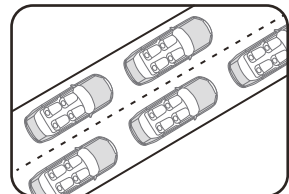
Slope sections



Accidents



Car DVR



Crowded Road

**Note:**

This manual gives a basic and general feature description of the system, but it may vary from specific product model and application case. Please consult sales team for detail specifications before ordering.

System Hardware Installation

Installation Steps

1

Wire routing inside the car

Please refer to wiring diagram for more details. Please also be alert for the color and connector size of each extending cable. Wire routing should be from cameras to the host device side. All the cables should be gathered to the host device side.

2

Cameras Installation

Please refer to the corresponding section for detail installation steps. Embedded or out-cell installation for side cameras depends on the size of the side mirrors and also depends on the space available for installation especially for large vehicles. Be cautious when disassembling the side mirror and drilling hole for camera installation.

3

Host Installation

It is recommended to place the module inside the glove compartment or under the driver seat for easy access to SD card or USB.

4

Wiring Test

Do not turn on the power before all the wire connection is double checked. Hot-plugging the module is prohibited.

5

Functional Test

Test the main functions and settings of the product.

6

Side Camera's Angle Adjusting

Angle the side camera 45(Degrees) outward.

7

Camera Calibration

Refer to the calibration guide screen while calibrating the system. The guide will show where to place the crosshair.

8

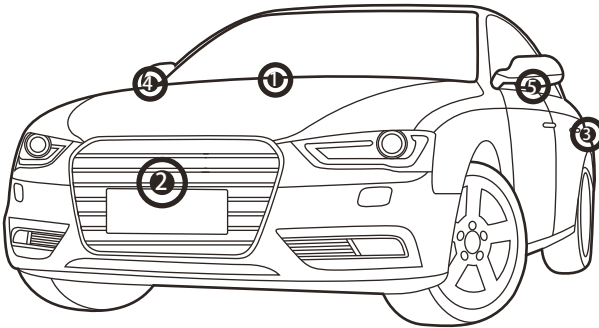
Completion

After the installation and calibration, carefully put the panels back.

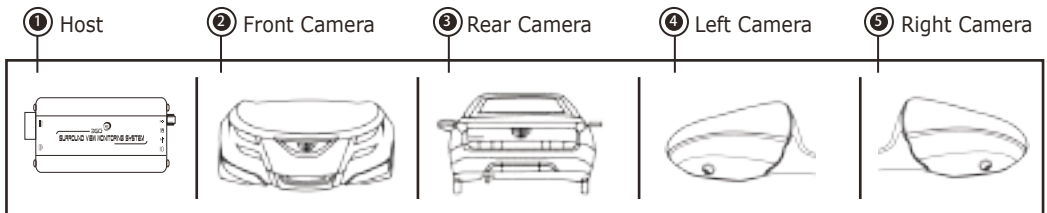
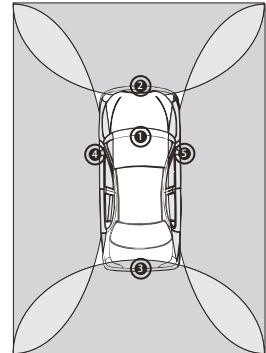
Installation Overview

It is recommended that the 360 DVR Control Box to be placed under the driver seat for easy access to the SD Card.

Perspective Drawing



Top view



Camera Installation Overview

1) Rearview Camera Installation

The placement of the camera MUST be higher than 16-inch from the ground and the portion of rear bumper must be seen on a monitor.

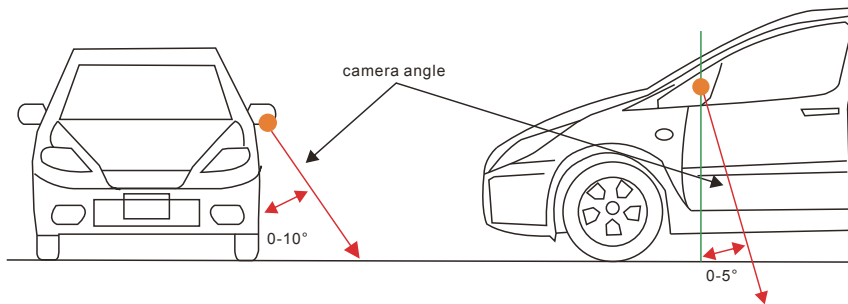
2) Front Camera Installation

The placement of the camera MUST be higher than 16-inch from the ground and the portion of front bumper must be seen on a monitor. Make sure NOT TO COVER any portion of radiator, grill or condenser to prevent overheating from the engine

3) Side View Cameras (Left / Right) Camera Installations

Attention must be paid to the movement path of motorized mirrors as to not hinder their movement by the camera installation. Check the camera views by using a monitor. Make sure to follow the camera installation angles.

Cameras Angle Adjusting



Find triggers for the left / right camera by checking the fuse box (see below). Use the blinker signal switch to test and locate the trigger points.

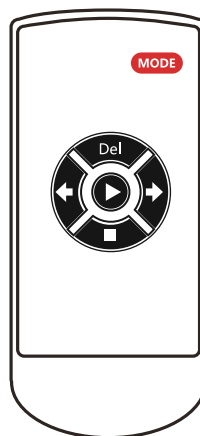


For adapting to different shape of wing mirror plastic shell, the angle and direction of side cameras are always designed to be free adjusted. Rotate the side cameras according to the image to keep vehicle body in image closely to the side calibration line and meanwhile keep the pixel in wider angles and farther places can be captured as many as possible. Keep the left and right calibration point distributed in symmetrical position in the screen.

Next step, the mirroring setting of the camera sensor need to be set according to camera installation direction. The guideline for this setting is to make the pixel content of the image as same as the instruction show in the system calibration preview menu. Generally speaking, except for the rear camera, all other cameras must be original image.

Camera Calibration

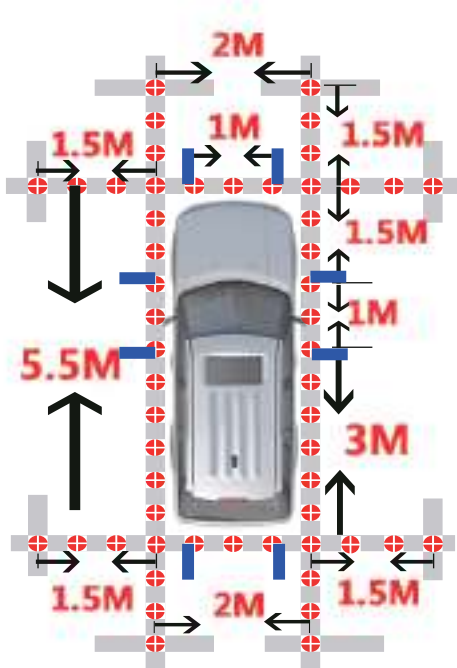
Calibration Parameters Setting



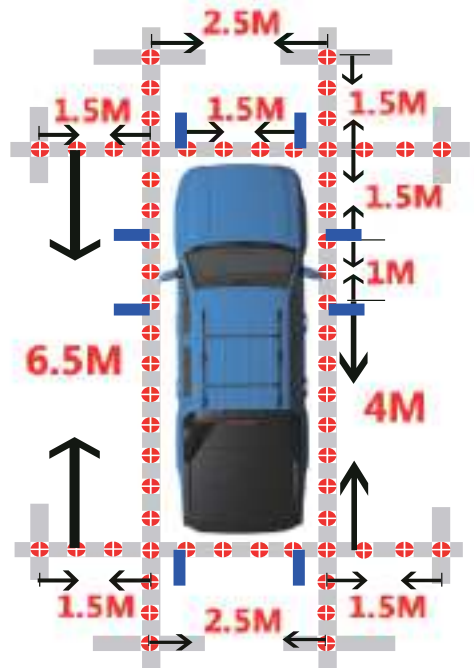
Please press the "MODE" button once on the remote control to enter the MENU screen. Press "OK" button to select GO.

Select the vehicle type: Small, Medium or Large by referring to the dimensions of the actual vehicle.

Calibration Tape Placement



Small-Duty Vehicle



Medium-Duty Vehicle

Note:

As the menu diagram shows, pasting the calibration tape around the vehicle.

Please refer to the calibration pictures of different vehicle models and sizes to select the correct one for matching your vehicle.

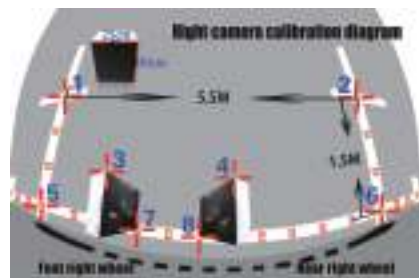
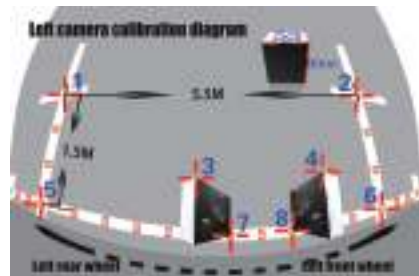
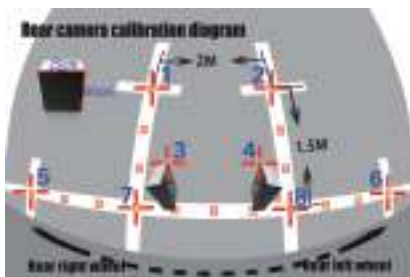
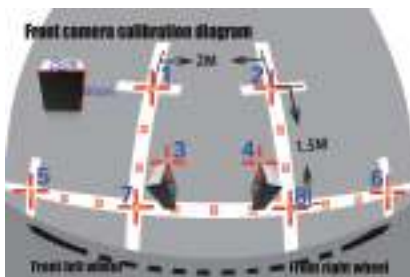


Please refer to the calibration pictures of different vehicle models and sizes to select the correct one for matching your vehicle.

Calibration Illustrations

For Small-duty Vehicle

There are always 8 calibration points for each camera which need to be marked in the screen, the third and fourth points will need the placement of the gift box on the tape to place the points. The gift box can be divided into outer and inner one so that each packing box can be used for calibration 1 camera each time.

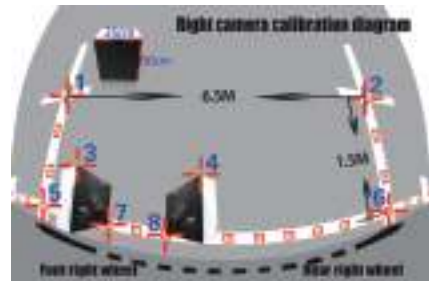
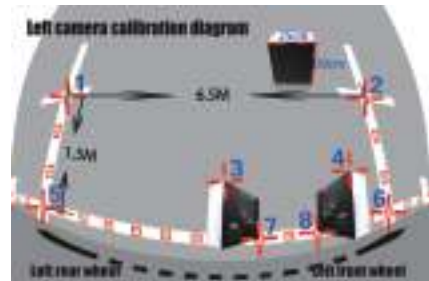
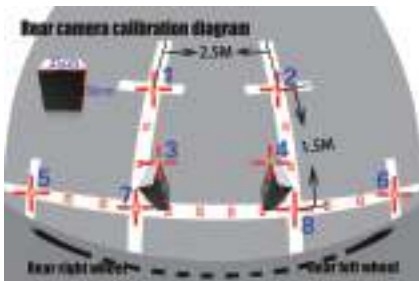
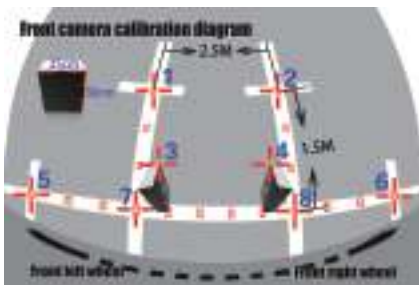


Notes: Put the 2 packing boxes (Outer and Inner) in the correct position separately as the pictures above illustrated. You can also use other boxes instead as a calibration reference objects, the dimension requirements of the box must be 30cm in height and 25cm in width.

Calibration Illustrations

For Medium-duty Vehicle

There are always 8 calibration points for each camera which need to be marked in the screen, the third and fourth points will need the placement of the gift box on the tape to place the points. The gift box can be divided into outer and inner one so that each packing box can be used for calibration 1 camera each time.

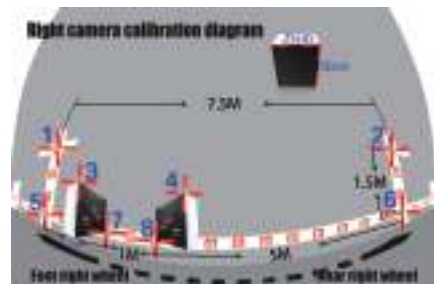
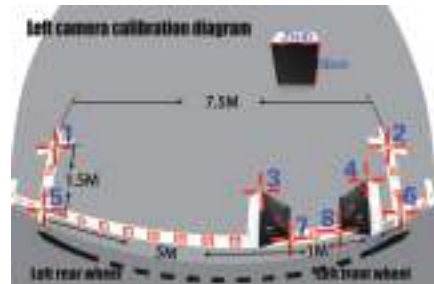
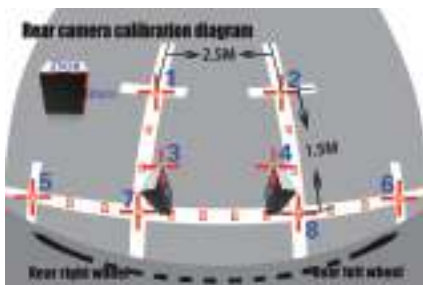
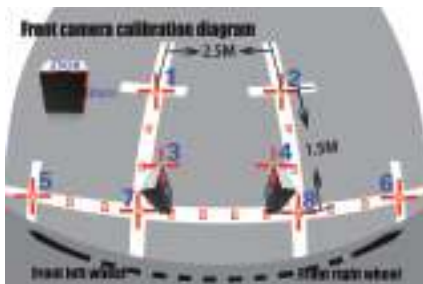


Notes: Put the 2 packing boxes (Outer and Inner) in the correct position separately as the pictures above illustrated. You can also use other boxes instead as a calibration reference objects, the dimension requirements of the box must be 30cm in height and 25cm in width.

Calibration Illustrations

For Heavy-duty Vehicle

There are always 8 calibration points for each camera which need to be marked in the screen, the third and fourth points will need the placement of the gift box on the tape to place the points. The gift box can be divided into outer and inner one so that each packing box can be used for calibration 1 camera each time.



Notes: Put the 2 packing boxes (Outer and Inner) in the correct position separately as the pictures above illustrated. You can also use other boxes instead as a calibration reference objects, the dimension requirements of the box must be 30cm in height and 25cm in width.