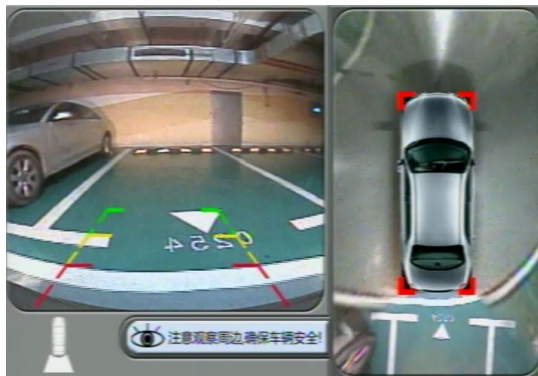


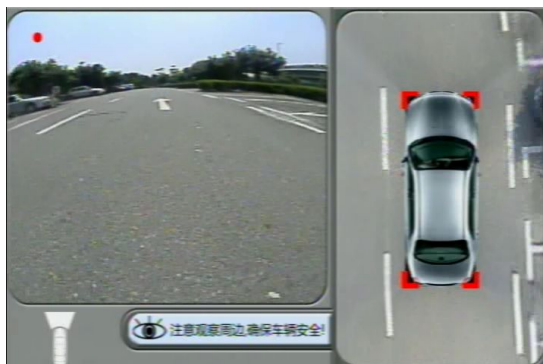
## **Product Introduction**

Birdview Parking Assistance System can collect the video images around the car simultaneously by four wide angle fish-eye cameras installed on the front/rear/left/right side of the car, after the image is processed, split and jointed by the image software, a 360 degree's panoramic view is formed and timely transmitted to the display equipment on the center console. With the help of Birdview Parking Assist System, the drivers are able to intuitively catch sight of the location as well as the obstacles around just sitting in the vehicle and leisurely parking or bypassing under the complex road conditions, which effectively decreases the occurrence of scratch, crash, downthrow and other traffic accidents.

Picture of reversing



Picture of driving



## **Product Features**

- **The wide angle of 180 degree HD fish-eye cameras, HD signal input, clear image quality, fast and smooth.**
- **The seamless panoramic bird's-eye view image with no blind spot display.**
- **Auto calibration and convenient operation.**
- **A long time of 28 hours continuously for driving recording, real time monitoring with the four-direction video images.**

## Technical Parametres

Item	Unit	Specification	
<b>Camera</b>	Image Sensor	PC1089N	
	Optical Size	Inch	1/3"
	Pixel Pitch	μ m	6.35um*7.4um
	Effective Pixels	pixels	720 (H) *480 (V)
	Horizontal Resolution	TV Lines	580
	Video Format		PAL / NTSC
	S/N Ratio	dB	>48dB
	Dynamic range	dB	>72dB
	Auto Electronic Exposure	sec	Electronic Rolling Shutter
	Minimum Illumination	Lux	0.1
	View Angle	Degree(° )	180
	Video Output	Vp-p	1.0VP-P/75 Ω
<b>Control Box</b>	Supply Voltage	V DC	12V (8~30V)
	Consumption Current	mA	<500
	Operation Temperature	°C/° F	-20~75
	Storge Temperature	°C/° F	-40~80
	Water Proof		IP67

## Function Introduction of Control Box



Infrared Receiver

Power Cable and Control Cable

Video Extension Cable

Infrared Remote Control

1. Color AV connector: Video signal output to DVD/display screen
2. Black 3.5mm socket: Connect to infrared remote control
3. Blue socket: Connect to right camera
4. Red socket: Connect to left camera
5. Yellow socket: Connect to rear camera
6. Black socket: Connect to front camera
7. USB socket: Connect to U disk for the data storage and system upgrade.
8. Connector socket for power cable and control cable
9. SD card slot: Used for Micro SD
10. Indicator Light: Indicating the power supply and the running status of the control box. When the light is on, then indicating the power on. Later the light is shining, then indicating the system is starting. Finally the light is always on, then indicating the system is in normal operation.

## **Introduction for Remote Control**

1. By starting the remote control, “Front Sideview+Birdview” will appear on screen. By clicking up/down/left/right keys of remote control the corresponding “Sideview” can be switched.
2. Function of the keys in the remote control is the same as below. Kind attention that if the system is started by remote control, then it also must be turned off by it.

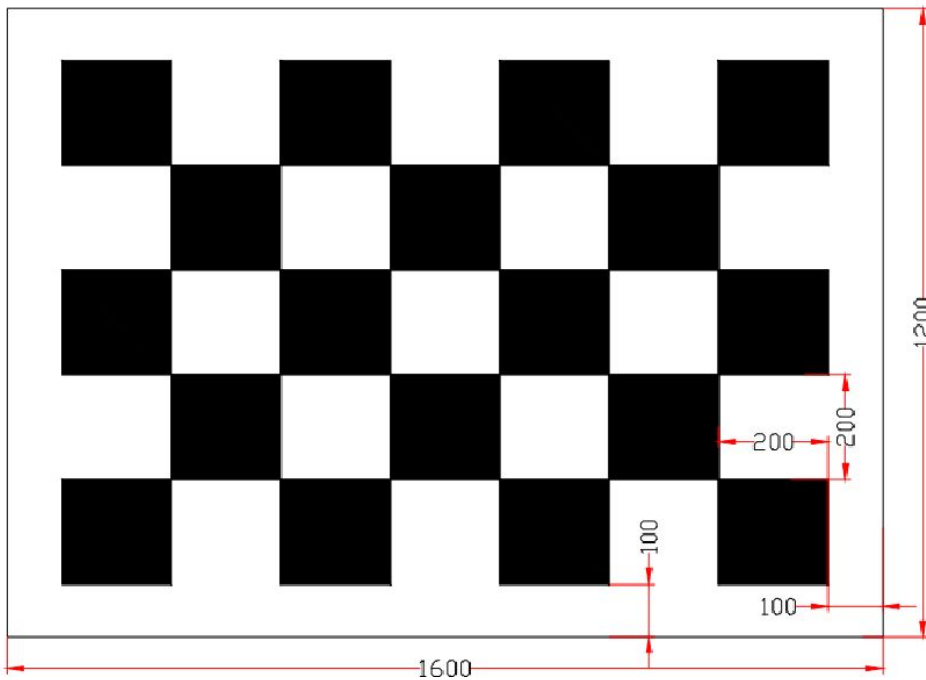


## **Preparations before Installation**

1. Two pieces of 7.5M tapline and two pieces of 5M or 3M tapline should be ready.



2. Four pieces of calibration cloth, that size is 1.6M\*1.2M, composed of the checkboard in black and white, made of interior smooth materials should be ready ahead. The reflect-light materials go against the image identification.



3. The toolkit including screwdriver, multimeter and electric drill and so on.

### **Product Installation**

Product Component	Purpose
Control Box	The core processing section of the system, automotive regulation level
Front camera	The 180 degree wide angle high definition night vision camera installed at the front of the car body
Right camera	The 180 degree wide angle high definition night vision camera installed at the bottom of the right rearview

	mirror
Rear camera	The 180 degree wide angle high definition night vision camera installed at the back of the car body
Left camera	The 180 degree wide angle high definition night vision camera installed at the bottom of the left rearview mirror
Extension cables of the camera(X4)	Used for power supply switch of the camera and extension joining up. The length of 4M, 4M, 4M respectively for the connection of the front/left/right cameras and 6M for the rear camera.
The wiring harness for control	It is used to connect the reverse control line, the left/right signal lamp line, as well as the ACC power supply, etc.

#### 1. Installation of Control Box

(1) Control Box can be installed anywhere inside the car. In view of SD card which is used for video files storage and connected to box, so advise the box installed under the driver's seat or under the steering wheel, where ensure the good ventilation, close to the display screen and convenient to take SD card.

(2) The installation position of control box must be fixed so avoiding shaking to affect the storage.

#### 2. Installation of Cameras

(1) Rear camera: Universal rear camera should be installed at the back of the car, where the height apart from the ground is at least 400mm. The image of the car body should be seen on the screen. Dedicated camera should be tailored.

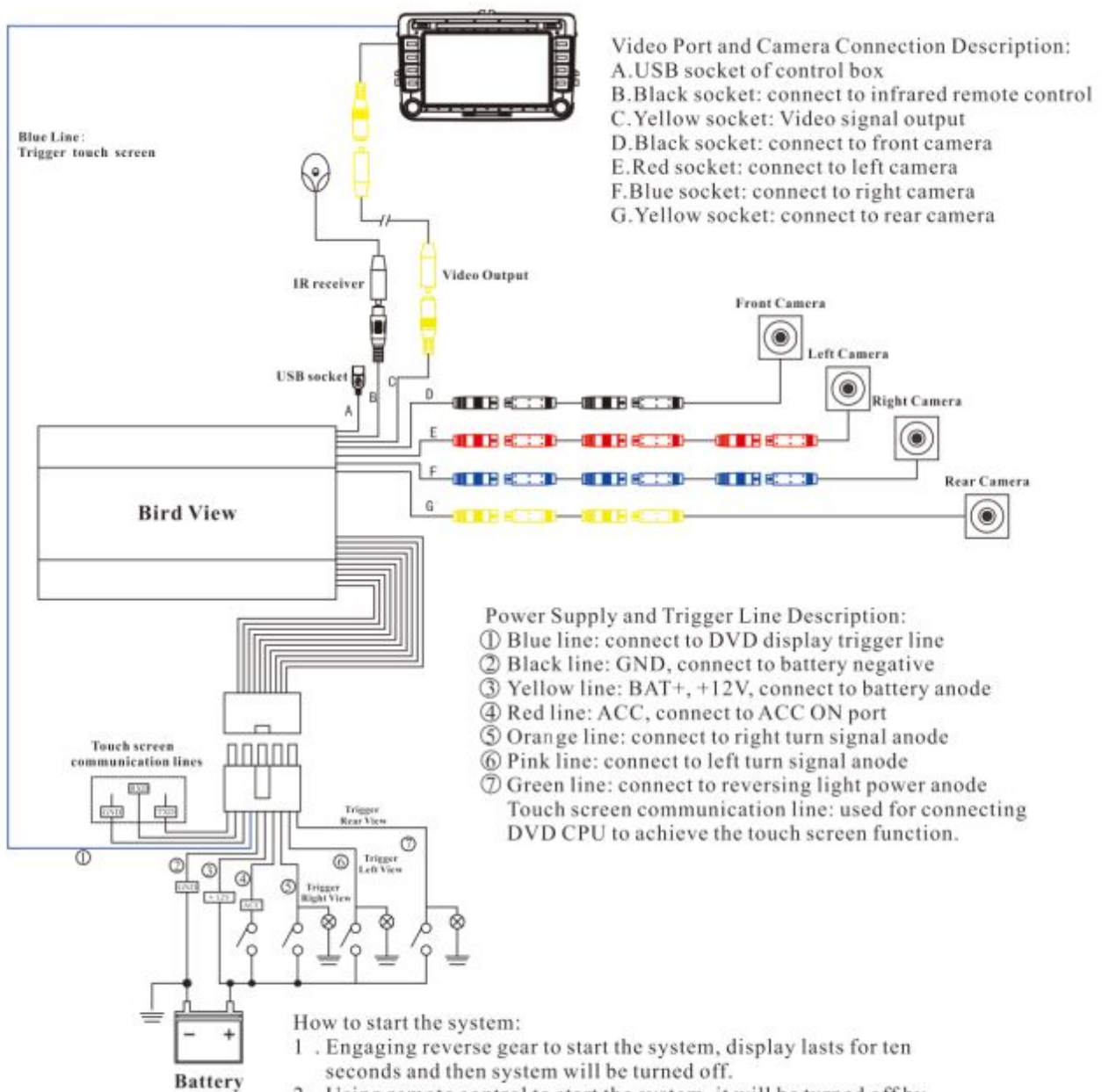
(2) Front camera: Universal front camera should be installed at the front of the car, where the height apart from the ground is at least 400mm, adjust the angle so that the car body can be seen. Dedicated camera should be tailored. Because of the high temperature inside the car engine, please note that when layout the line should be far away from the motor and the insulating materials should be used for video cable and power cable. Also note the water proof for connectors.

(3) Left camera: Installation of left camera should drill a hole at the bottom of the left rearview camera. After fixing, adjust the angle by the special tools.

(4) Right camera: Installation method is the same as the left camera.

Attention: Regarding all the cameras, the height of installation position apart from the ground is at least 400mm.

### **Chart for System Connection**

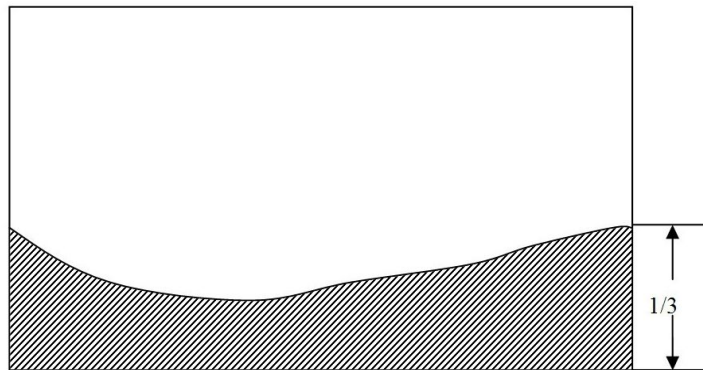


## Calibration Procedure

1. Adjust the angle of the camera

(1) Front/Rear camera

- The car body should be seen below in the fish-eye view image.
- The front/rear car bumper should show up within the one third area of the fish-eye view image, and meanwhile it forms an included angle ranged of  $45^{\circ}$ — $75^{\circ}$  with the vertical plane of the car body. After finish adjusting, please lock the camera angle.



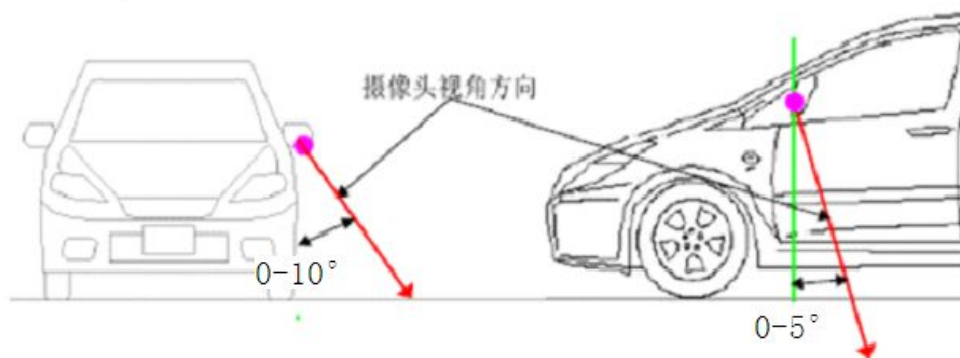
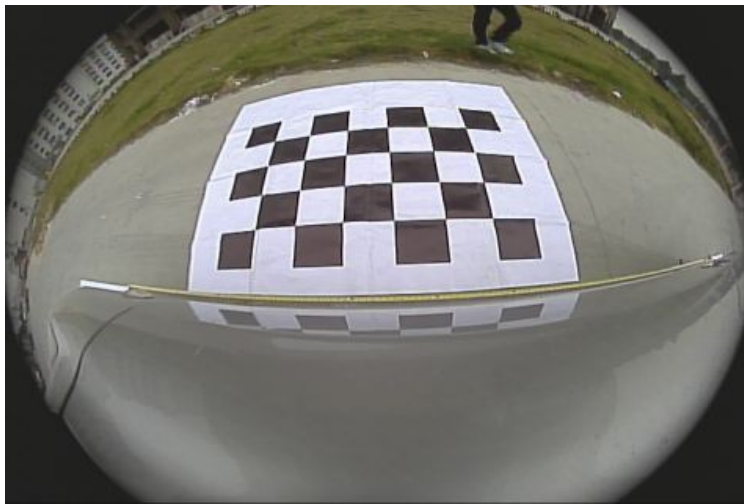
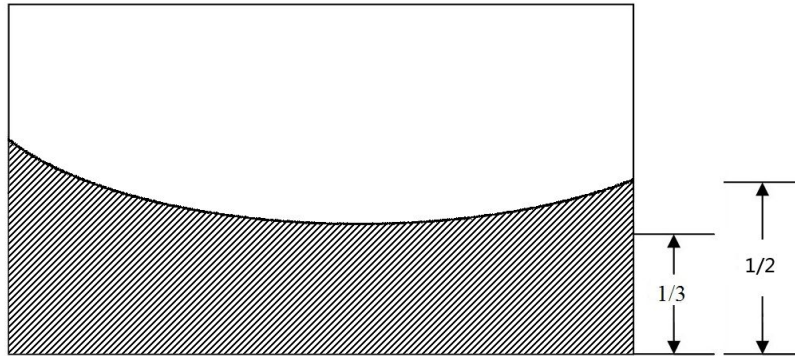
(2) Left/Right camera

- The left/right side of car body should be seen within one half area in the fish-eye view image,



and meanwhile parallel with the middle line of the fish-eye.

- The optical axis of the camera should be vertical with the horizontal plane(front&rear rotation angle ranged of  $0-5^\circ$  and outboard wing of  $0-10^\circ$  ). Please use the U type tools specially for left/right camera to adjust the angle.



(3) Check the image of the checkerboard

- In the single picture mode, check if it's seen completely

- In the single picture mode, check if the outline is clear

If the above requirements can not be reached, it's necessary to adjust the angle or the light outside so as to ensure the image is clear in black and white.

## 2. How to Place the Tapline

(1) The four scaleplates are separately placed around the car body to make the car framed in a rectangle. Advised steps: First place the tapline on the front side, then take a measure the distance from the left/right tyre to the tapline so as to keep the same distance. Second place the tapline on the left/right side, finally place it on the back side. All of steps should assure the length of the front tapline is the same as the back and the left is the same as the right.

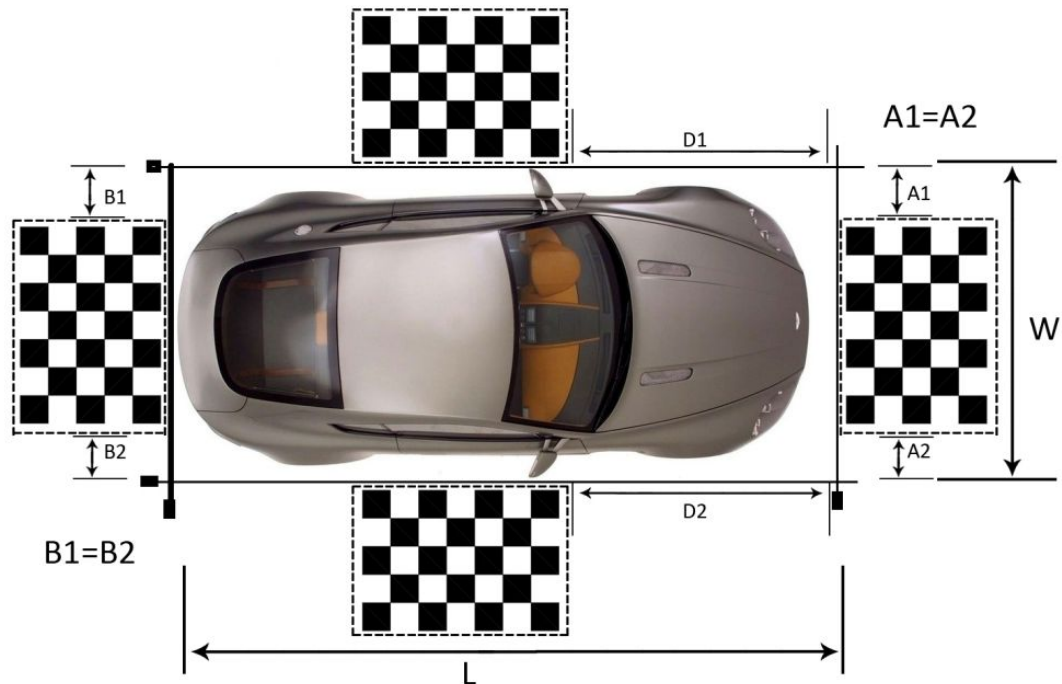
(2) Adjust the angle of the camera and the position of the tapline.

## 3. How to Place the Calibration Cloth

(1) According to the rectangle framed by the taplines, place the front/rear calibration cloth out alongside the car and let the middle line of cloth stay the same as the one of rectangle.

(2) According to the rectangle framed by the taplines, place the left/right calibration cloth out alongside the car and let the middle line of cloth stay the same as the camera installed at the left/right rearview mirror.

(3) Refer to the picture below, read and note the value of “L”, “W” and “D”. “L” for length, “W” for width and “D” for offset.





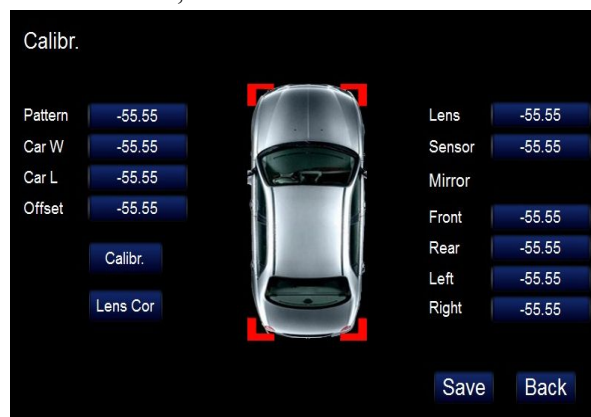
#### 4. Panoramic View Calibration

Click "ok" key of remote control and enter the main menu.

- (1) Choose "Calibr." and input the password 654321 to enter.



- (2) In the "Calibr." mode,



**Pattern:** Large/Middle/Small, the default is for “Middle”.

“Large” is used for bus and heavy vehicle, “Middle” for car and “Small” for model car.

**Car W:** Input the value of “W” by remote control

**Car L:** Input the value of “L” by remote control

**Offset:** Input the value of “D” by remote control

**Lens:** Input the different code for different sensor. Set the default without the customization.

**Sensor:** Input the different code for different sensor. Set the default without the customization.

## **Mirror**

**Front:** NO (If the output picture is preimage, then set “NO”, otherwise set “YES”.)

**Rear:** YES (If the output picture is mirror image, then set “YES”, otherwise set “NO”.)

**Left:** NO (If the output picture is preimage, then set “NO”, otherwise set “YES”.)

**Right:** NO (If the output picture is preimage, then set “NO”, otherwise set “YES”.)

(3) Calibration: After adjusting the angle of cameras and fixing the calibration cloth, click “ok” key of remote control to enter “Calibr.”. About 3 seconds later, “Calibrat successfully” will come up on a screen and then click “Save”. If failure, then need to adjust the position of calibration cloth or check the lights around.

(4) The reason of the calibration failure

When “Detect front cloth failer” is displayed on a screen, please check the following items:

A. Whether the camera’s position is above 400MM apart from the ground, if not, need to adjust the height.

B. Whether there’s lightspot seen or exposure found in the image, if yes, need to clear reflection spot by shading.

C. Whether there’s something found in the image, if yes, need to take it out.

D. Whether the image of the calibration cloth is clear, if no, need to check if the camera clear or move the calibration cloth to make its image clear.

E. Whether the angle of the front/rear/left/right camera meet the requirement.

Repeat the operations above then start “Calibr.” till “Calibration is successful”.

## **Main Menu**

Click “ok” key of remote control to enter the main menu.



**Record:** used to lock the video files/delete/play/fast forward

**Recording:** used to set Channel/Storage Location/Time

**Control:** choose the corresponding control status according to the requirement

**Calibr:** used for calibration

**Sys Setting:** used for system start/delay setting/system update/system backup/format SD card/language setting and so on

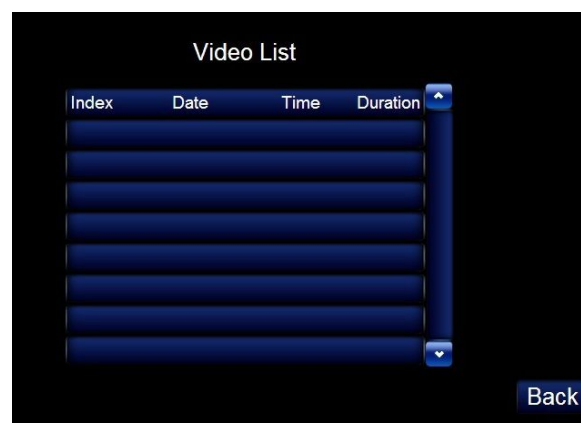
**Version:** used to check the software version of the product

## Video View and Playback

1. Click "ok" key to enter the main menu and choose "Record".

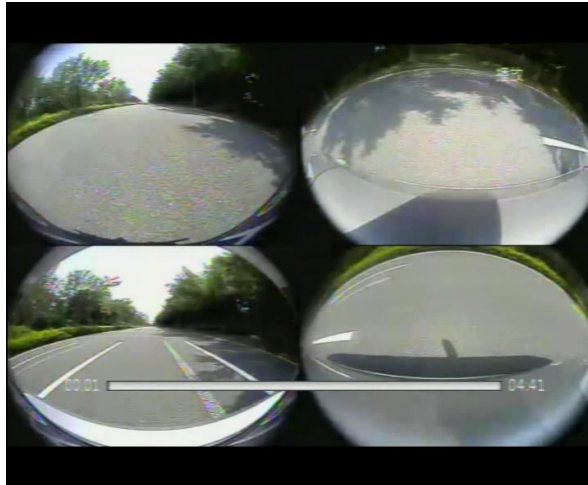


2. In the "Video List", the user can choose the driving video depending on the time and play it. Meanwhile the video display can be controlled by fast forward, fast backward, play/pause key of remote control.



When playing, by use of the direction key of remote control, a single-way enlarged video can be displayed.

When recording, don't pull out the saving device to avoid the damage to U disk or SD card.



The above picture is a four-direction display when video playing.



The above picture is a single-direction display when video playing.

### **Video Recording Setting**

Click "ok" key to enter the main menu and choose "Recording" for video recording setting.

**Channel:** Four/Front/Rear/Left/Right/None, choose "Channel" by use of "+/-" key of remote control.

**Storage Location:** USB/SD card, choose by use of "+/-" key of remote control, when insert USB then choose "USB".

**Time:** set the date and time of the present location.

Click "save" after setting and return to the main menu. At this time there's a red point at the top

left corner and it shows the video recording is processing.



### **Control Setting**

Click "ok" key to enter the main menu. Choose "Control" and input the password 654321.

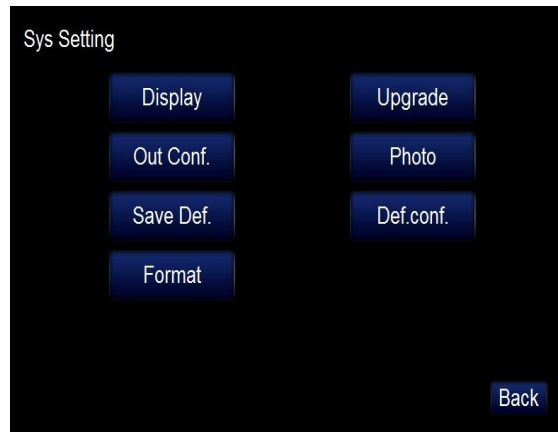
**Turn Sig.:** Open/Close/None. "Open" refers to the system will automatically start when open the turn signal light. "None" refers to the operation of turn signal light doesn't affect the system.

**Emerg Sig.:** Open/Close/None. "Open" refers to the system will automatically start when open the emergency signal light. "None" refers to the operation of emergency signal light doesn't affect the system.

**Start by ACC:** Open/Close. When ACC is turned on, the system automatically starts and the view image delays 10 seconds and then shut down.

### **System Setting**

1. Click "ok" key to enter the main menu. Choose "Sys Setting" and input the password 654321.



**Display:** Used to set and save the display parameters.

**Out Conf.:** Insert USB and click “ok” key of remote control to save the parameters to USB. The data can be used for the same kind of cars.

**Save Def.:** Backup the present parameters.

**Format:** Format all of the files in USB/SD card. The files will be lost once formatted. It takes a long time for system format, so advise the format be finished on computer.

**Upgrade:** Used for version upgrade. Save the upgrade file to U disk and insrt USB for upgrading. It will be finished in 60 seconds. Power off is not allowed during upgrading.

**Photo:** Take photoes of four-direction and save them to U disk.

**Def.conf.:** Restore the last backup parameters.

2. Enter the submenu “Display”



(1)Video Output

**Out Fm:** NTSC/PAL. Choose the corresponding value according to the display equipment.

**Left:** 0

**Right:** 720

**Top:** 0

**Bottom:** 480

The above parameters are used to adjust the position where the image can completely appear in the centre of the screen. If not in the centre, then adjust the parameters to move the image.

(2) Calibration

**Distance:** Refer to the simulation altitude of the panoramic view image. The larger is the value,



the wider is the field of view.

**Offset V:** Refer to the location where the car logo on screen moves up and down.

**Offset H:** Refer to the location where the car logo on screen moves to the left and right.

(3) Sideview

**Angle:** Refer to the view angle of the front and rear image. The larger is the value, the wider is the field of view meanwhile the more badly is the image morphing.

### **Check the Software Version of the Product**

Click "ok" key to enter the main menu. Choose "Version" to check the software version of the product.

