



Vispect Intelligent Technology Co., Ltd

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# **Vispect ADAS** **User Manual for S1**

**Please read this manual carefully and keep it properly for future use.**



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Dear Users,

Thank you for choosing Vispect Advanced Driving Assistance Product (ADAS).

Before using this product, please have the product installed and calibrated properly at the venue as designated by your local dealer. This manual describes general information about this product. Please consult your local dealer or contact Vispect for more information.

## **IMPORTANT NOTICE**

This product is an assistance product for certain driving conditions and cannot be used as a substitute for the driver himself/herself. Even with this product in operation, you must continue to focus on driving, while paying close attention to the conditions on the road and neighboring vehicles. When driving, safety comes first.

## **Product Features**

- Forward Collision Warning (FCW), which detects potential collisions with vehicles within a certain range ahead and reminds you in advance.
- Lane Departure Warning (LDW), which alerts you when the vehicle is crossing a lane with a solid line while driving.
- Moving Objects Detection (MOD), which is optional and mainly applies to the detection of particular moving objects. However, it cannot detect static objects (including but not limited to parked vehicles, stationary pedestrians or bicycles, trees, buildings, pillars, walls, steps, handrails, and curbs). It is recommended that users themselves should determine whether such objects are static or use other equipment.
- This product can be linked with a screen display. The screen display should be provided by users.



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## Safety Instructions

- This product can only be used after being installed and tested by a professional installer. Drivers are not permitted to install it without professional assistance. Drivers shall take full responsibility for the consequences arising from installing this product without professional assistance, as a result of which, it will not constitute the liability for our product.
- Under standard working environments with full and proper light, the LDW function has a higher recognition rate when the vehicle crosses solid lines of a lane. Under weak light or adverse environments, the recognition rate may become apparently lower.
- Under standard working environments with full and proper light, the FCW function has a higher recognition rate of dangerous vehicles ahead. Under weak light or adverse environments, the recognition rate may become apparently lower.
- Under standard working environments with full and proper light, the MOD function has a higher recognition rate to detect moving objects. Under weak light or adverse environments, the recognition rate may become noticeably lower.
- Please confirm with your local dealer to set the alarm volume of this product. The alarm buzzer must be loud enough to be heard when the vehicle entertainment product works, or otherwise accidents might occur.
- Do not use the MOD function when the vehicle is towed. When your vehicle is connected with a tow truck, this product may only detect the tow truck and ignore the surrounding objects, thus potential traffic risks may be ignored.
- If this product is installed in an improper position (hindering driving or causing the wires to tangle with other objects, including the areas nearby the steering wheel, the gear shift lever, and the brake pedal), please contact your local dealer immediately; otherwise, it may affect your driving or vision and then result in serious accidents.
- While driving, you should not be excessively dependent on the screen display. Watching the screen display during driving may be distracting and then cause an accident. Do not ignore the alarm warnings. Please focus on the road and check the surroundings carefully when hearing the alarm warnings.
- Please note the working conditions of different warning functions. The MOD function will be automatically activated when the gear shift lever is in the reverse (R) position. In other positions, FCW and LDW functions can be automatically activated. If the relevant functions are closed, it may cause accidents.
- If the camera angle or installation position changes, or reinstallation of this



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product is required to replace accessories, please contact your local dealer to calibrate the camera again; otherwise, it may cause warning function failures and position reverse guidelines inaccurately.

- Please use this product under the vehicle voltage from DC12V to DC24 V. If used under other voltages, it may cause fire, electric shock, or other damages.
- Do not cut the cables or remove insulating layers to supply other devices, or it may cause a short circuit, fire, or electric shock due to exceeding the rated load.

## Interaction with mobile phones

This product is interactive with smart phones of the drivers to provide more diversified supporting functions. Please download and install the Vispect APP on your mobile phones.

## Model and Function Table

According to the selected model, this product provides the functions indicated in the table below. Descriptions of functions in this table only apply to the specific model that contains these functions.

<b>Function</b>	<b>Model</b>
	<b>S1</b>
Forward Collision Warning (FCW)	√
Lane Departure Warning (LDW)	√
Moving Objects Detection (MOD)	Optional, with Rear-view Camera



## Directions

After installing this product and calibrating the camera, please use this product as follows:

### Front-view Image:

- If the vehicle departs from the road lanes that are identified with solid lines, the product will automatically sound a “dee-dee-dee-dee” alarm to remind you to check the forward road conditions and take measures promptly to ensure safety.
- If the vehicle quickly approaches the vehicles ahead, which may cause a dangerous collision, the product will automatically sound the “dee” alarm to remind you to check the forward road conditions and take measures promptly to ensure safety.
- The screen display in the vehicle will show the front-view images. Meanwhile, danger icons will also be shown on the screen display when the warning sound is activated. To confirm the reason for the warning, please check it wherever necessary.

### Rear-view Image:

- When your vehicle backs off, the product will sound a long “dee” alarm to remind you to watch the screen display. At the same time, the screen display will show rear-view images.
- You shall confirm that no obstacles are in the rear of the vehicle, and then start to back off.
- When in reverse, if any moving objects cross or are too close to your vehicle, the product would warn you with the “dee-dee” alarm to remind you to brake immediately and then watch the screen display to confirm the alarm source (Note: The alarm only sounds once, but the warning sign will remain on the screen display until the objects move away).
- After obstacles leave, please continue to back off
- When in reverse, you can confirm the distance between the vehicle and parking line or obstacles through the bird’s eye view and the overlapping distance line on the screen display, which will help park the vehicle in a proper place.

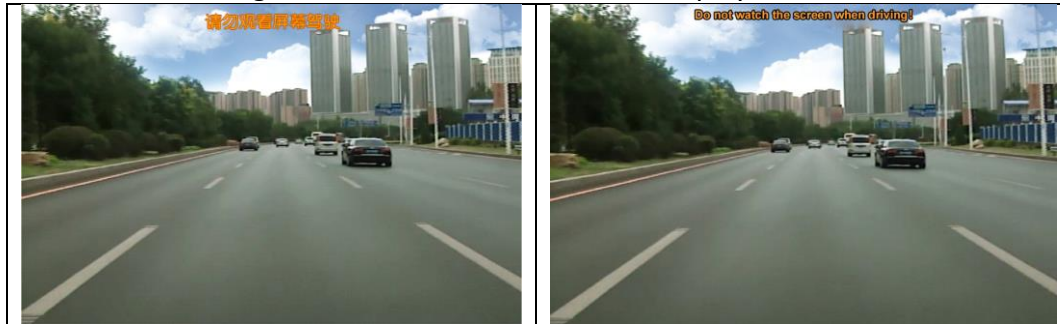


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## Display

### Front-view Interface

The front-view image will be shown on the screen display as below.



The warning sign of the LDW function will be shown as below. The sign shows that the vehicle will depart from the right side of the lane line. If the vehicle departs from the left side, the warning sign will be shown on the top left corner and the sign will be symmetric to the right side.

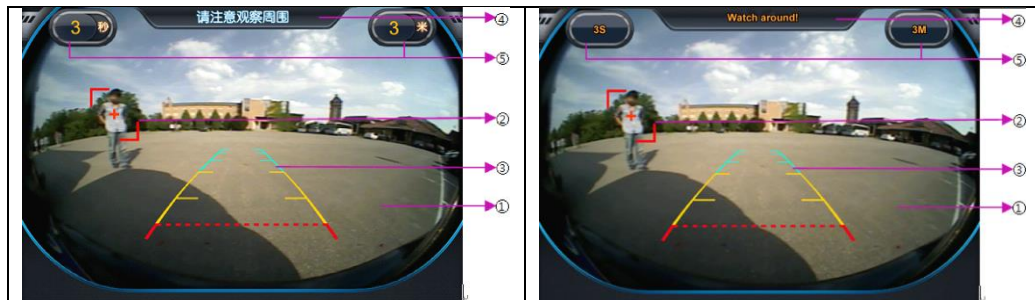





The warning sign of the FCW function will be shown as below.



**Reverse Interface:**

According to the choice that you have made for product installation, the reverse interfaces will be either Interface One or Interface Two

**Interface One:****Interface Two:**

- ① The rear-view camera will show the images in the rear of the vehicle.
- ② The icon on the screen indicates the obstacle's position. There are three types:
  - A. When an obstacle is on the left side at the rear of the vehicle, the icon will be shown as ;
  - B. When an obstacle is on the right side of the vehicle, the icon will be shown as ; and
  - C. When an obstacle is in the center at the rear of the vehicle, the icon will be shown as .
- ③ Reverse Parking Guideline: Two vertical lines indicate the vehicle width area (excluding mirrors at driver and co-pilot seats). Horizontal lines indicate the different ground distance with the outer part in the rear of the vehicle (e. g. the rear bumper).  
The horizontal lines from near to far indicate:
  - A. Red line: 0.5 m dotted line;
  - B. Yellow line one: 1 m;
  - C. Yellow line two: 2 m;





- D. Blue line one: 3 m;
- E. Blue line two: 4 m;
- F. Blue line three: 5 m;
- ④ Prompt: Please watch your surroundings. This reminds you to watch the screen display and pay attention to the vehicle conditions in order to prevent any scratches on the front and sides of the vehicle when in reverse.
- ⑤ This indicates the distance from an obstacle to the camera and the estimated time until a collision after the product detects the obstacle.
- ⑥ The bird's eye view at the rear of the vehicle shows 1.2 m in the vertical direction and 3.6 m in the horizontal direction. (It may vary subject to the camera height, installation angle, and deviation of suspended objects).
- ⑦ In the bird's eye view, two red dotted lines indicate that the horizontal distance from the outer part of the vehicle to the dotted lines is 0.5 m.
- ⑧ The arrow means that it may have obstacles close to the vehicle; otherwise, the arrow will not appear.

When an obstacle is detected in the bird's eye view, the obstacle will be shown with the overlapping red squares as below.





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## Technical Specifications

### FCW (Forward Collision Warning)

Type	Item	Specification
Function	FCW	The front-view camera will detect the lane lines. If any risk of a collision is detected, you will be alerted by a sound and visual means.
	User setting	The sensitivity and the alarm volume may be adjusted.
Performance	Start speed	When the speed of the vehicle exceeds the pre-set start speed, the FCW will start automatically.
	Weather and lights	Except heavy rain, fog, and heavy snow, the visual range must be longer than 1 km.
	Road type	Freeways, city expressways, first-class roads, and second- and third-class roads with good working conditions
	Vehicle targets	Sedans, SUVs, pick-ups, vans, trucks, buses, and other vehicles clearly visible on the images
	Detection distance	Horizontal to the lane of the driven vehicle covers 5 m, and the farthest vertical distance covers 80 m.
	Alarm rate	90% or above
	False alarm rate	Less than 1/100 km

### LDW (Lane Departure Warning)

Type	Item	Specification
Function	LDW	The front-view camera will detect the lane lines. If an unintentional deviation from the line of the lane occurs, you will be alerted by a sound and visual means.
	User settings	The sensitivity and the alarm volume may be adjusted.
Performance	Start speed	When the speed of the vehicle exceeds the pre-set start speed of 50 km/h, the LDW will start automatically.
	Weather and lights	Except heavy rain, fog, and heavy snow, the visual range must be longer than 1 km.



	Road type	Structured roads with clear lane lines (including freeways, first-class roads, and second- and third-class roads with clear lane lines).
	Road radius	More than 250 m
	Line type	Unilateral or bilateral lane lines
	Line pattern	Solid lines, dotted lines, and double lines (including double solid lines and dotted lines)
	Line color	White or yellow lane lines
	Line detection distance	Horizontal to the lane of the driven vehicle, about 5 m
	Alarm rate	95% or above (in above typical and ideal working conditions, and clear lines) based on road tests and video tests
	False alarm rate	Less than 1/100 km


### MOD (Moving Objects Detection)

Type	Item	Specification
Function	Visibility	The fish-eye camera has a super wide angle, with images rectified into a general angle.
	Collision Warning	When in reverse, the camera in the rear will detect the obstacle. Subject to the time until a collision and other factors, the danger will be determined. In case of any collision, you will be alerted by a sound and visual means.
	Distance line	The overlapping line on the screen display indicates that the width of the driven vehicle and the distance from the relevant position on the ground.
	User settings	The sensitivity and the alarm volume may be adjusted.
Performance	Weather and lights	Except heavy rain, fog, and heavy snow, the visual range must be longer than 1 km.
	MOD range	Subject to the height and angle of the camera, it is usually 8 m along the horizontal direction and 5 m along the vertical direction
	Moving objects	Pedestrians, bicycles, vehicles, and others that are close to the driven vehicle.
	Moving object size	Objects can be detected if their height is more than 50 cm and the width is more than 10 pixels in the image



	Relative speed	The moving object must have a relative speed faster than 5 km/h of the driven vehicle
	Alarm rate	90% or above
	False alarm rate	Less than 5 times per 100 vehicles in reverse

## Working/Storage Conditions

- Working Voltage: DC +9 ~+32V 
- Power Consumption: 5W(max)
- Outer Size: 141 mm x 89 mm x 30 mm
- Working Temperature: -40~85°C
- Storage Temperature: -40~125°C

## Problem Instructions

### Camera Problem

The forward and reverse functions both use the camera, but the following factors may affect the performance of the camera, which impairs its maximum results:

① Due to climate, environmental factors and special lights, images may not be seen clearly, such as:

- The rain, snow, fog, sand storm, and other low visibility weather;
- Too high or too low temperature;
- In dark environments, like at night without lights;
- Backlight, direct sunlight, or other direct light sources, flashing lights; and
- Sudden light change from darker to brighter, such as from the outside into the garage or leave the garage for the outside.

② The camera may be blocked or its position changed:

- The camera may be blocked by fog. For example, the vehicle comes from the cold weather outside into the garage.
- The camera may be covered by water droplets, dust, mud, snow, and other matter.
- The camera may be blocked by a vehicle body (such as spare wheels and bumpers), thus creating a blind spot or impairing visibility.
- The camera may be blocked by foggy, frozen, and dirty windshields or wipers, thus likely causing blurred surroundings and road conditions in



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forward images.

- The camera may be blocked by exhaust, thus the road surfaces or obstacles may not be seen clearly.
- The camera angle or installation position changes. For example, the opened trunk may cause the camera to face towards the sky or deviate to one side.

③ It is difficult to distinguish between lane lines, vehicles, obstacles, and the background in images, such as:

- Lane lines, vehicles, and obstacles have similar colors to the road surface or surroundings.
- Lane lines, vehicles, and obstacles are in a shadowed environment.
- Vehicles and obstacles move too fast, or the driven vehicle goes over a bump or makes a turn.
- Blocked by other vehicles, obstacles, or other information.

④ Due to the screen display, complete images or interface may not be shown.

### **Alarm Problem**

① The following factors may cause all functions not to sound the alarms or delay the alarms:

A. Lane Departure Warning Function:

- The above factors that may cause the camera not to reach its maximum potential.
- Special line types, such as diversion zone, etc.
- The driven vehicle speed is less than 30 km/h.
- The deviation speed of the driven vehicle is over 3 km/h.
- The driven vehicle drives on the lane lines.

B. Forward Collision Warning Function:

- The above factors that may cause the camera not to reach its maximum potential.
- Special vehicle types, such as irregular loading trucks or tricycles.
- Other moving vehicles, such as crossing vehicles.
- The driven vehicle speed is less than 20 km/h.
- The vehicles whose relative speed is over 30 km/h.

C. Moving Objects Detection Function:

- The above factors that may cause the camera not to reach its maximum potential.
- Obstacles or sloping vehicles are nearby the slopes.
- The vehicle is close to the obstacles at a speed of over 5 km/h.



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- Moving speed of obstacles is the same as the speed of the driven vehicle.
  - Obstacles are beyond the detection range at the rear of the driven vehicle.
  - Fine and long obstacles, such as obstacles narrower than 15 cm.
  - Obstacles have a height lower than 50 cm.
  - Several pedestrians are crossing or continuously closing in to the driven vehicle.

② The following factors may lead to false alarms:

A. Lane Departure Warning Function:

- The signs and markings on the pavement, such as temporary markings, old markings, or arrow signs.
- Fences, vehicle body, obstacles, street lamps, etc.
- Combination lines, such as double yellow lines.

B. Forward Collision Warning Function:

- Toll station entrance, tunnel entrance, trees, and other obstacles that are similar to vehicles.
- Vehicles in other lanes.
- Remote-distance vehicles or vehicles whose speed is similar to the driven vehicle.
- The driven vehicle goes over a bump.

C. Moving Objects Detection Function:

- Markings on the roads, such as parking lines.
- Vehicle exhaust.
- Shadows from light or obstacles.
- Obstacles that are beyond the detection range, such as vehicles, pedestrians, buildings, and trees.
- Slide forward when the driven vehicle is in reverse.
- Parts of the driven vehicle fall within the camera view.
- In a very humid environment, the vehicle may sound the alarm.



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## About Equipment Maintenance

- **DO NOT** use a wet cloth that contains chemicals to remove stains, or it may cause discoloration or distortion of the camera, the host, the base, and cables.
- When washing the vehicle, **DO NOT** wash the camera, the buzzer, the host, their fixed base and cables, or it may cause a short circuit.
- Please be careful of the automatic washer or high-pressure washer. Do not wash the camera or host or their fixed base with force; otherwise, it may cause the camera and the host to fall off. Meanwhile, it may damage cables and cause deviation in angles of the equipment.
- When washing the vehicle, do not apply water or other liquids to the front-view camera, the buzzer, the host, their fixed base, and the cables; otherwise, it may cause short-circuit.
- To avoid damaging insulation for parts or cables, please keep cables away from heat or moving parts; otherwise, a short circuit, fire, and electric shock may result.

## About the Camera

- The camera of this product is a special-purpose product. Please do not connect it to other camera products.
- Do not use a mobile phone or wireless devices near the camera; otherwise, it may cause signal interference or faults on the screen display.

**Attention:** The actual performance of this product might deviate from the standards as provided in this manual and affects the user experience in this product for the following reasons when this product is installed: calibration is not completed or inaccurate; the vehicle is on an uneven road or on a slope; the tire pressure or the loading has changed; the camera position or angle is altered, or other similar reasons.



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## Components in Package

Number	Component Name	Quantity
1	Host	1
2	Buzzer	1
3	Main Cable Harness	1
4	Buzzer Connecting Line	1
5	OBD Connecting Line	2
6	OBD Box	1
7	OBD Extension Line with two portals	1
8	Power Extension Line	1
9	Turn Signal Extension Line	1
10	Fixed Glue Stick (for buzzer use)	1
11	Manual (including quality warranty card)	1
12	Product Certificate	1
13	Rear-view Camera (including bracket, extension line, and screw groups) *** <b>Optional</b>	1
14	Front-view Camera (including bracket, extension line, and screw groups)	1
15	Speaker *** <b>Optional</b>	1
16	Fixed Glue Stick (for speaker use)	1
17	Fixed Glue Stick (for front-view camera use)	1





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## Environmental Protection Instructions

Component Name	Toxic and Harmful Materials or Elements					
	(Pb)	(Hg)	(Cd)	(Cr6+)	(PBB)	(PBDE)
Metal Parts (including fasteners)	×	×	×	×	×	×
Circuit Board Assembly	×	×	×	×	×	×
Cables or Cables Assembly	×	×	×	×	×	×
Plastic and Polymer Components	×	×	×	×	×	×
Other Electrical Assembly (except circuit board)	×	×	×	×	×	×
Accessories	×	×	×	×	×	×

○ : The content of toxic and harmful substances is in compliance with the requirements set under the SJ/T 11363-2006 standard.

×

The content of toxic and harmful substances may exceed the required content set under the SJ/T 11363-2006 standard.

The information in this table is based on the data as provided by the supplier or third-party testing results. Thanks to the current technical level, all toxic and harmful substances are well controlled. We will continue to work hard to reduce the use of these toxic and harmful substances or elements by improving our technology.

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