

VANTRUE

Vantrue Intelligence

FUNCTION USER GUIDE **V1.3**





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1. Vantrue Intelligence Function Introduction

Vantrue Intelligence functions provide users with accurate, personalized, and efficient intelligent driving assistance experience. The front ADAS (Advanced Driver Assistance System) monitors real-time road conditions ahead and alerts potential hazards. The rear BSD (Blind Spot Detection) accurately identifies vehicles in blind spots to assist with safe lane changes. The in-cabin DMS (Driver Monitoring System) closely tracks the driver's status to prevent risky driving behavior. The dynamic display screen intuitively presents key vehicle information, making it convenient for the driver to control road conditions. The AI mark screen can display the vehicle's location and provide strong support for driving decisions. Vantrue is committed to creating a safe, convenient, and intelligent driving experience for users.

Note: Vantrue intelligence is only for reference in driving assistance. Due to factors such as weather and light, deviations may occur. Please drive according to the actual driving scene.

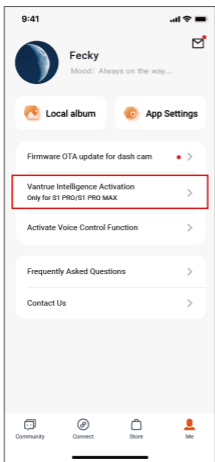
1.1 Activating Vantrue Intelligence Functions

Vantrue intelligence is pre-activated during factory provisioning, if the following standard icons do not appear on the main interface, the activation may have expired and need to be reactivated. For upgraded legacy devices, activation is necessary if icons do not appear.



Reactivation Steps:

1. Turn on the Wi-Fi on the host device, open the Vantrue APP on your phone, and connect it to the host.
2. In the 'Me' section of the app, enable the “Vantrue Intelligence activation” option;
3. Follow the app prompts to activate. Once the activation is complete, the main interface will display a standard icon, indicating successful activation.



2. Front ADAS

2.1 Front ADAS (Advanced Driver Assistance Systems) Features

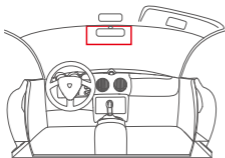
The front ADAS provides comprehensive real-time monitoring of forward conditions. It uses images from the front camera, combined with Vantrue's proprietary AI algorithms, to accurately achieve features such as collision warnings, lane departure alerts, lead vehicle start reminders, and virtual bumper functionality. The system offers both audio and visual alerts to ensure all-around driving safety.

2.2 Front ADAS Camera Installation Position and Requirements

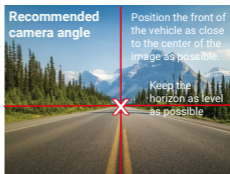
- ① Park the vehicle in an open area, preferably with straight lane markings or a straight line as a reference. Ensure that the vehicle is parallel to the reference line.
- ② The camera should not obstruct the driver's view or interfere with driving.
- ③ The camera must be mounted level from left to right and should not be tilted.
- ④ The red horizontal line in the preview image should align with the horizon at the end of the road, and the vertical line should be centered on the road.
- ⑤ The center point of the "x" position is at the vanishing point of the road, and the vanishing point is preferably about 1/3 or 1/2 of the picture height.
- ⑥ The portion of the front hood visible in the frame should not be too large, as this can affect the accuracy of the algorithm.

Note: The following image shows the recommended camera installation angle. The installation position should be as close to the center of the windshield as possible, with the vanishing line ideally centered in the

frame. Exceeding these guidelines may degrade the ADAS experience.



Camera Position
Reference Diagram



Camera Frame Reference

2.3 Front ADAS Calibration Settings

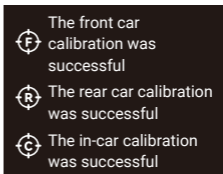
a. Requirements for first-time automatic calibration :

- ① The front camera must be installed correctly.
- ② GPS is turned on and the GPS location icon is no longer flashing;
- ③ After installation, calibration must be performed on a road with visible lane markings that are not obstructed and can be identified by the naked eye.
- ④ The vehicle must travel at a speed of over 20 km/h.
- ⑤ Drive for 1 to 5 minutes when the above conditions are met;
- ⑥ The voice broadcast "Front camera calibration successful" or the calibration icon is no longer flashing indicates that the calibration has been completed, otherwise the calibration is not completed;
- ⑦ After successful automatic calibration, ADAS warnings will be activated; if calibration is unsuccessful, warnings will not be activated.
- ⑧ If the front camera installation position is changed, recalibration must be performed under the above conditions.

Note: If calibration does not succeed after a long period, the calibration process must be restarted from the beginning.



Initial Calibration
Reference Diagram



Calibration Icon Status
Display Reference Diagram

2.4 ADAS Main Function Configuration and Activation Criteria

(1) Forward Collision Warning

When the vehicle is driving normally, it detects the vehicle in front in real time, collects real-time images and sensor data, uses AI algorithms to calculate the risk of collision with the vehicle in front, and provides sound and visual warnings.

- a. **Switch:** You can choose to turn it on or off, and it is turned on by default.
- b. **Sensitivity:** There are three levels: high, medium, and low, and the default is medium.
- c. **Activation speed:** 0 - 120KM/H (0~75MPH) adjustable, the default is 30KM/H (20MPH).
- d. **Trigger conditions:**
 - Automatic calibration has been completed;
 - GPS positioning is successful, and the speed exceeds the set default activation speed;
 - There is a vehicle in front of the vehicle's driving track.



Forward Collision Warning

(2) Pedestrian Collision Detection

When the vehicle is driving normally, the system continuously monitors pedestrians and cyclists ahead using real-time images and sensor data. By employing AI algorithms, it calculates the potential risk of a collision with pedestrians or cyclists and provides both audio and visual alerts to warn the driver.

- a. **Switch:** You can choose to turn it on or off, and it is turned on by default.
- b. **Sensitivity:** There are three levels: high, medium, and low, and the default is low.
- c. **Minimum activation speed:** 0 ~ 50KM/H (0~30MPH) adjustable, default 10KM/H (0~5MPH).
- d. **Maximum activation speed:** 50 ~ 120KM/H (30~75MPH) adjustable, default 60KM/H (40MPH).
- e. **Trigger conditions:**
 - Automatic calibration has been completed;
 - GPS positioning is successful, and the speed is within the warning speed range (minimum default activation speed ~ maximum default activation speed);
 - There are pedestrians in front of the vehicle's driving trajectory.



Pedestrian Collision Diagram

(3) Lane Departure Warning

When the vehicle is driving normally, it detects the road trajectory or lane marking in real time, collects real-time images and sensor data, uses AI algorithms to calculate the risk of possible route deviation, and provides sound and visual warnings.

a. Switch: Can be turned on or off; default is off.

b. Sensitivity: There are three levels: high, medium, and low, and the default is medium.

c. Activation speed: 0 ~ 120KM/H (0~75MPH) adjustable, the default is 60KM/H (40MPH).

d. Trigger conditions:

- Automatic calibration has been completed;
- GPS positioning is successful, and the speed exceeds the set default activation speed;
- The wheel overruns the lane line that can be identified by the naked eye;



Lane Departure Diagram

(4) Forward Vehicle Departure Alert

When the vehicle is stationary, it detects the vehicle in front in real time. By collecting real-time images and sensor data, using AI algorithms, it calculates that the vehicle in front is driving normally, and provides sound and visual warnings so as not to affect the driving of the rear vehicle.

a. Switch: Can be turned on or off; default is off.

b. Sensitivity: There are three levels: high, medium, and low, and the default is medium.

c. Trigger conditions:

- Automatic calibration has been completed;
- GPS positioning is successful, and the vehicle speed is 0;
- The time for the vehicle in front to stop and continue to move forward exceeds the threshold set by the sensitivity.



Lead Vehicle Start Diagram

(5) Virtual Bumper

When the vehicle is driving slowly at a low speed, it detects the vehicle in front in real time, collects real-time images and sensor data, uses AI algorithms to calculate the risk of collision with the vehicle in front, and provides sound and visual warnings.

- a. **Switch:** Can be turned on or off; default is off.
- b. **Sensitivity:** There are three levels: high, medium, and low, and the default is low.
- c. **Minimum activation speed:** 0 ~ 30KM/H (0~20MPH) adjustable, default 1KM/H (1MPH).
- d. **Maximum activation speed:** 30 ~ 120KM/H (20~75MPH) adjustable, default 30KM/H (20MPH).
- e. **Trigger conditions:**
 - Automatic calibration has been completed;
 - GPS positioning is successful, and the speed is within the activation speed range (minimum default activation speed ~ maximum default activation speed);
 - There is a vehicle directly in front of the vehicle's driving trajectory;
 - The distance between the vehicle and the vehicle in front is less than the warning range value, and the two vehicles are close to each other.



Virtual Bumper Diagram

3. Rear BSD (optional)

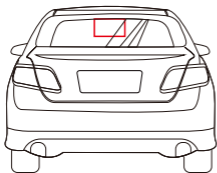
3.1 Rear BSD(Blind Spot Detection) Features

The Rear BSD (Blind Spot Detection) system uses images from the rear camera, combined with Vantrue's proprietary AI algorithms, to monitor the blind spot areas behind the vehicle. When another vehicle enters the blind spot, the system provides both audio and visual alerts to help the driver avoid blind spot accidents.

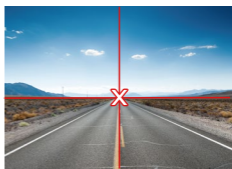
3.2 Rear BSD Camera Installation Position and Requirements

- ① Do not interfere with the driver's driving;
- ② The lens must be kept horizontal and cannot be tilted;
- ③ The red horizontal line in the middle of the preview screen must coincide with the end of the road, and the vertical line must be in the middle of the road;
- ④ The "x" icon is at the vanishing point of the road, and the vanishing point is preferably about 1/3 or 1/2 of the picture height;

Note: The following figure is the recommended camera installation angle. The installation position should be in the middle of the rear windshield as much as possible, and the sky and earth vanishing line should be kept in the middle of the picture as much as possible. Exceeding the area may cause the REAR experience to deteriorate. To avoid damage to the lens, it is recommended to install the lens inside the car.



Camera Shot Reference



Camera Position Reference
Diagram

3.3 Rear Bsd Calibration Settings

The calibration method of the rear BSD camera is the same as that of the front ADAS camera.

3.4 BSD Main Function Configuration and Activation Criteria

(1) Lane Change Assist Warning

When the vehicle is driving normally, it detects the vehicles on the left and right sides of the rear in real time. By collecting real-time images and sensor data, using AI algorithms, it calculates the risk of collision with the vehicles on the left and right sides of the rear, provides sound and visual warnings, and assists the vehicle in changing lanes.

- a. **Switch:** Can be turned on or off; default is off.
- b. **Sensitivity:** divided into high, medium, and low levels, the default is medium.
- c. **Activation speed:** 0 ~ 120KM/H (0~75MPH) adjustable, the default is 30KM/H (20MPH).
- d. **Trigger conditions:**
 - Automatic calibration has been completed;
 - GPS positioning is successful, and the speed exceeds the set default activation speed;
 - There is a vehicle on the left/right rear of the vehicle's driving track;

- The relative speed of the left/right rear vehicle and the vehicle is greater than the warning range value, and the relative distance between the two vehicles is within the warning range value.



Lane Change Assist
Warning Diagram

(2) Rear-End Collision Warning

When the vehicle is driving normally, it detects the vehicle directly behind in real time, collects real-time images and sensor data, uses AI algorithms to calculate the risk of collision with the rear vehicle, and provides sound and visual warnings.

- a. **Switch:** Select on or off, the default is on.
- b. **Sensitivity:** divided into high, medium, and low levels, the default is medium.
- c. **Activation speed:** 0 ~ 120KM/H (0~75MPH) adjustable, the default is 30KM/H (20MPH).
- d. **Trigger conditions:**
 - Automatic calibration has been completed;
 - GPS positioning is successful, and the speed exceeds the set default activation speed;
 - There is a vehicle directly behind the vehicle's driving trajectory.



Rear Vehicle Collision
Warning Icon

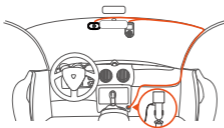
4. In-Cabin DMS (optional)

4.1 In-Cabin DMS (Driver Monitoring System) Features

The in-cabin DMS is designed to monitor the driver's condition and behavior, such as drowsy driving, distraction, making phone calls, smoking, etc. By using an in-car infrared camera and Vantrue's proprietary AI algorithms, the system detects behaviors that could affect driving safety and alerts the driver accordingly to enhance overall driving safety.

4.2 In-Cabin DMS Camera Installation Position and Requirements

- ① Do not block the driver's sight and do not interfere with the driver's driving;
- ② The lens must be kept horizontal and cannot be tilted;
- ③ The driver's face should be located in the center of the image as much as possible;
The driver's face area should account for no less than 1/10 of the entire image area.



Camera Position
Reference Diagram



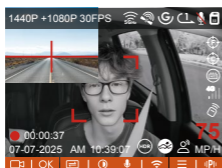
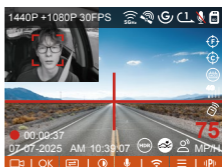
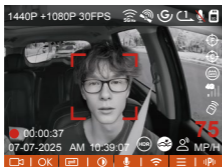
Camera Shot Reference

4.3 In-Cabin DMS Calibration Settings

- ① The in-car camera is correctly installed and the infrared light is turned on;
- ② The GPS is turned on and positioning is completed;
- ③ The driver's face is located in the calibrated recognition area;
- ④ The vehicle is driving at a speed of more than 20km/h;
- ⑤ The vehicle meets the above conditions and drives for 1-5 minutes;
- ⑥ The voice broadcast "In-car camera calibration is successful" or the calibration icon no longer flashes, indicating that the calibration has been completed, otherwise the calibration is incomplete.

Notes:

- If the lens angle is adjusted after successful calibration, simply restart the dash cam.
- If the installation position is changed after calibration, recalibration is required: Restore the dash cam to factory settings, then restart it.



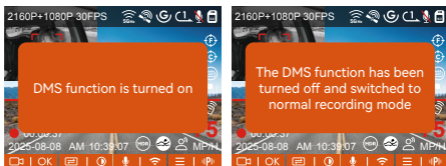
In-Cabin DMS Calibration Reference Diagram

4.4 DMS Main Function Configuration and Activation Criteria

4.4.1 DMS Lens Functions

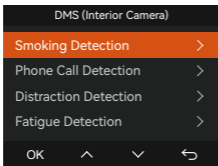
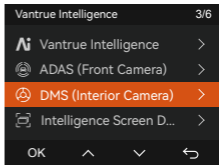
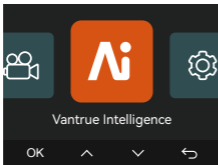
The in-cabin DMS (Driver Monitoring System) continuously monitors the driver's status and behavior in real-time during normal vehicle operation, including fatigue, distraction, phone calls, and smoking. This system utilizes an infrared cabin camera for image capture and VANTRUE's proprietary AI algorithms for detection. Upon identifying potentially unsafe driving behaviors, it alerts the driver through audible and visual warnings, significantly enhancing driving safety.

DMS Toggle Method: When first powered on, the RC08 Lens defaults to Infrared Mode (B&W Mode) indicating DMS is active. To enable or disable DMS functionality, press the function switch button on the RC08 Lens.



Note: To switch from B&W Mode (infrared night vision) to Color Mode (normal recording), press the DMS switch button. Successful switch deactivates DMS functionality. In Color Mode, driver behavior monitoring algorithms are disabled.

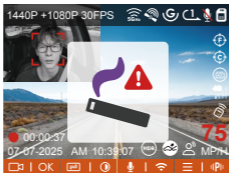
In-Cabin DMS Function Settings: Users can individually enable/disable detection functions, set sensitivity levels, and configure activation speed thresholds per their requirements.



(1) Smoking Detection

When the vehicle is driving normally, the driver is detected in real time. By collecting real-time images and sensor data, the AI algorithm is used to calculate the driver's possible smoking behavior and provide sound and visual warnings.

- a. **Switch:** Can be turned on or off; default is off.
- b. **Sensitivity:** divided into high, medium and low levels, the default is medium.
- c. **Activation speed:** 0 ~ 120KM/H (0~75MPH) adjustable, the default is 30KM/H (20MPH).
- d. **Trigger conditions:**
 - GPS positioning is successful, and the vehicle speed exceeds the set default activation speed;
 - The face display is relatively clear;
 - The driver holds a cigarette, and the smoking time is greater than the warning value.

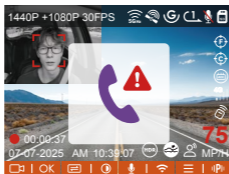


Smoking Detection Diagram

(2) Phone Call Detection

When the vehicle is driving normally, the driver is detected in real time. By collecting real-time images and sensor data, the AI algorithm is used to calculate the driver's possible phone call behavior and provide sound and visual warnings.

- a. **Switch:** Can be turned on or off; default is off.
- b. **Sensitivity:** divided into high, medium, and low levels, the default is medium.
- c. **Activation speed:** 0 ~ 120KM/H (0~75MPH) adjustable, the default is 30KM/H (20MPH).
- d. **Trigger conditions:**
 - GPS positioning is successful, and the vehicle speed exceeds the set default activation speed;
 - The face display is relatively clear;
 - The driver holds a mobile phone and the call time is greater than the warning value.



Phone Call Detection Diagram

(3) Distraction Detection

When the vehicle is driving normally, the driver is detected in real time. By collecting real-time images and sensor data, AI algorithms are used to calculate possible distracted behaviors of the driver and provide sound and visual warnings.

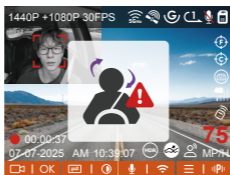
a. Switch: Can be turned on or off; default is off.

b. Sensitivity: divided into three levels: high, medium and low, the default is medium.

c. Activation speed: 0 ~ 120KM/H (0~75MPH) adjustable, the default is 30KM/H (20MPH).

d. Trigger conditions

- GPS positioning is successful, and the vehicle speed exceeds the set default activation speed;
- The face and human eyes are displayed clearly;
- The driver's face angle is greater than the warning value for a certain period of time (for example, the angle of looking left and right is $\geq 35^\circ$, the angle of looking down and looking up is $\geq 35^\circ$) or the time of looking down is greater than the warning value (for example, the time of looking down is $\geq 3s$).



Distraction Detection Diagram

(4) Fatigue Detection

When the vehicle is driving normally, the driver is detected in real time. By collecting real-time images and sensor data, the AI algorithm is used to calculate the driver's possible fatigue driving behavior and provide sound and visual warnings.

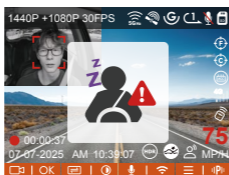
a. Switch: Select on or off, the default is on.

b. Sensitivity: divided into three levels: high, medium and low, the default is medium.

c. Activation speed: 0 ~ 120KM/H (0~75MPH) adjustable, the default is 30KM/H (20MPH).

d. Trigger conditions:

- GPS positioning is successful, and the vehicle speed exceeds the set default activation speed;
- The face and eyes are displayed clearly;
- The driver's eye closing time exceeds the warning value or the yawning time exceeds the warning value (the height-to-width ratio of the lips is greater than the warning value).



Fatigue Detection Diagram

(5) Driver Presence Detection

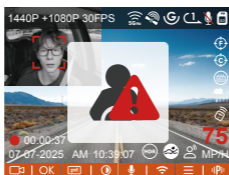
When the vehicle is driving normally, the driver is detected in real time. By collecting real-time images and sensor data, using AI algorithms, it is calculated that the driver may deviate from the driving position or have foreign objects blocking the face, and provide sound and visual warnings.

a. Switch: Can be turned on or off; default is off.

b. Activation speed: 0 ~ 120KM/H (0~75MPH) adjustable, default 30KM/H (20MPH).

c. Trigger conditions:

- GPS positioning is successful, and the vehicle speed exceeds the set default activation speed;
- The driver deviates from the driving position (face and head are not exposed), and foreign objects block the driver's face and head (blocking more than 80%) for a time greater than the warning value.



Driver Presence Detection

(6) Steering Wheel Position

It can be adjusted according to the actual vehicle's steering wheel position. By matching the set steering wheel position with the corresponding DMS algorithm parameters, the algorithm can run more accurately.

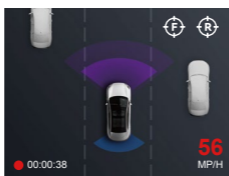
Position: You can choose the left steering wheel or the right steering wheel, the default is the left steering wheel.

5. Dynamic Smart Screen Display

After the vehicle is calibrated, when driving normally, the simulated position of the vehicles in front and behind the vehicle is displayed on the display screen in real time by collecting real-time images and sensor data in front and behind the vehicle, using AI algorithms, to provide auxiliary support for the driver's safe driving.

Note: When there is only the front camera, the dynamic smart screen display cannot display the simulated position of the vehicle behind the vehicle.

There are four options: off, 1 minute, 3 minutes, and 5 minutes. The default is: off. 1 minute, 3 minutes, and 5 minutes are the time to display the dynamic smart screen display after turning on or entering the normal recording mode.



Dynamic Smart Display
Reference Diagram

6. AI Marking Screen Display

After the vehicle is calibrated, during normal driving, the AI algorithm is used to collect real-time images and sensor data in front of and behind the vehicle, and the simulated position of the vehicle in front and behind the vehicle is displayed on the display screen in real time, and the corresponding distance is marked to provide auxiliary support for the driver's safe driving.

※ The recognition distance is for reference only and may deviate due to weather and light.

a. Choose to turn on or off, the default is on.

b. When the dynamic intelligent screen display function is turned on, the dynamic intelligent screen display is displayed first.




AI-marked Display
Reference Diagram

7. Voice Reminder

The volume of Vantrue Intelligence voice reminder playback can be independently controlled and is not affected by the system volume adjustment.

You can choose to turn it off or set it to 1, 2, 3, 4, 5, the default is 5.

An abstract graphic consisting of several overlapping, semi-transparent gray rectangles of various sizes and orientations, creating a sense of motion and depth. The rectangles are arranged in a way that suggests a stylized 'V' or a series of steps.

Vantrue Intelligence

VANTRUE

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