

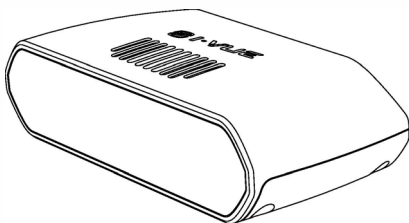


RVS-335

Driver Fatigue System



Product Manual



All information of this User Manual is protected by copyright law.

- Other products and services mentioned herein are registered trademarks of their respective owners.
- This user manual is produced as of the present and there would be an editing error or omitting.
- The images used on this User Manual look different from the actual product and color as per the printing conditions.
- These product and User Manual may change or be modified without any prior notice for improvements.
- Make sure to read this User Manual thoroughly before use so as to use this product as intended and safely.

This product is a device to warn the driver of drowsiness and negligence in keeping eyes forward during driving, and it is a safe driving assistant device that reduces accident that may occur due to driver's carelessness.

- It is effective for long-hour or highway driving to use this product.
- Please make sure to install and use in a correct and safe way according to this User Manual.
- This product may present different recognition rates depending on surroundings, conditions in the vehicles, and driver's habits.
- TREE EARTH is not responsible for any troubles or accidents caused by improper installation, usage, and remodeling.
- Do not move or operate this product while driving for safety.

Cautions for The Use are intended to prevent accidents and danger by using the product safely and correctly, so please be sure to follow.

TREE EARTH is not responsible for any problems caused by violation of instructions in this User Manual.



Warning

For serious accidents or damages/ injuries due to violation of instructions.

- Do not put this product in any heating devices (stove or microwave oven, etc.) to dry when it is wet.
It can cause deformation or malfunction, for which free services are not available.
- Do not use chemical detergents (benzene, thinner, or alcohol, etc.) to clean this product.
It can cause a fire, for which free services are not available.
- Do not disassemble or apply physical impact.
It can cause a damage or malfunction, for which free services are not available.
- Do not install or operate this product while driving.
It can cause an accident. Stop or park your car in a safe place and install or operate this product.

Cautions for The Use are intended to prevent accidents and danger by using the product safely and correctly, so please be sure to follow.

TREE EARTH is not responsible for any problems caused by violation of instructions in this User Manual.



Caution

For potential minor injuries and product damages due to violation of instructions.

- Do not connect this product to the vehicle power supply(battery) directly.

If connect to the power at ordinary time, it can cause a discharge of the vehicle battery.

- Do not connect this product to other electronic devices like a car navigator, dash cam or a Hi-PASS, etc.

It can cause malfunction.

- Avoid parking under the direct sunlight.

If this product inside the vehicle stays long under the direct sunlight, it can cause malfunction or failure.

- Be cautious of electrostatic force(especially, in winter or a dry condition).

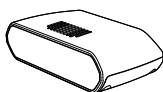
It can cause malfunction or failure.

I Product specifications

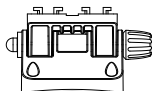
- ▶ High - performance ARM CPU
- ▶ CMOS image sensor
- ▶ USB 2.0 / UART / RS232 / Video output interface
- ▶ High power micro speaker
- ▶ DC 12 / 24 support

I Major functions

- ▶ Mounting on all vehicles(specialized for commercial vehicle)
- ▶ Detection & warning of drowsiness, negligence in keeping eyes forward and movement of the driver beyond the detectable range while driving
- ▶ Day/night operation with infrared LED
- ▶ Removal of irregular reflection by sunlight using special filters
- ▶ Detection/distinction of glasses and sunglasses
- ▶ Recognizable distance(70 ~ 110cm)
- ▶ Multi-connector provides various scalability
- ▶ Interlocking with external device and vehicle control system
- ▶ Easy mounting using a dedicated cradle
- ▶ User adjustable volume(4 levels) and sensitivity(3 levels)
- ▶ Supports of variable external accessories



Main body



Cradle



Multi cable



User Manual



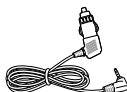
Double-sided
adhesive tapes for
the cradle



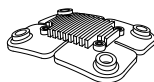
Cable clips



External GPS
(Optional)

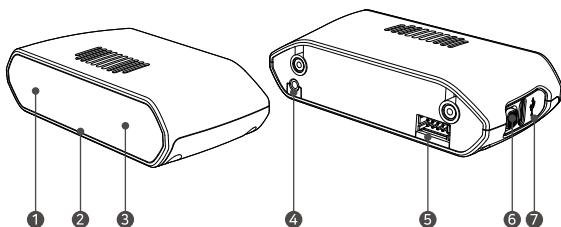


Cigarette
power cable
(Optional)



Extension cradle
(Optional)

※ The components of this product are subject to change without prior notice for the improvement of their performance.



- ① **Infrared LED** : for detecting the driver's face at the dark nights and the tunnels with the LED lights
- ② **Operation status LED** : for display of such statuses as the driver's drowsiness, negligence in keeping eyes forward, and movement of the face beyond the detectable range(in green / blue / red)
- ③ **Camera lens** : for monitoring of the driver's driving condition in real time
- ④ **GPS port** : interface for interlocking with external GPS
- ⑤ **Multi connector** : Power supply and interface with external device
- ⑥ **Function switch** : for control of the volume and the sensitivity
- ▶ A short press is for control of the volume (Mute / 1~4 step
 - ▶ A long press is for control of the sensitivity(High : Level 3 / iddle : Level 2 / Low : Level 1)
- ⑦ **USB Port** : Firmware Update

- ▶ Make sure to install this product in a place with flat ground after turning off your engine.
- ▶ Make sure to check all components inside the gift box and to read through this User Manual so as to install this product in a correct way.
- ▶ Be careful not to block your driving sights when installing this product.
- ▶ Install this product at a safe and light place.
- ▶ Install this product at a place where your face can be well viewed by the camera.
- ▶ Make sure to remove the protection film from the front side before installation.
- ▶ Keep this product away from any place where the airbags are equipped.
- ▶ Fix the power cable not to be visible, which can make your car clean and safe.
- ▶ Installing it on the front window of a vehicle is possible but it may be illegal by country, please install in accordance with each country's Road Traffic Act.

I Recommended mounting positions

- ▶ Refer to the picture shown below and select a convenient location depending on the type of vehicle.
- ▶ Install the product at a location which is a little below the level of the driver's eyes looking ahead.
- ▶ Adjust the product on a level with the eyes of the driver.



- ① Front window of vehicle
- ② Above the vehicle dashboard(recommended)

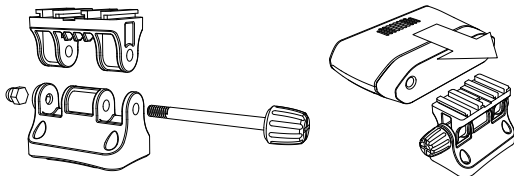
I Mounting distance

- ▶ 70 ~110cm(recommended : 80 ~ 90cm)

I How to install & Cautions for installation

- ▶ After assembling the cradle, tighten it with the main body.
- ▶ Connect the multi-cable to the connector located on the back of the product.
- ▶ When you look at the front of the driver's seat, select a product position below the line of sight on a straight line.
- ▶ Attach double-sided tape to the bottom of the cradle and fix it at an installation location.
(Remove dirt or water on the double-sided tape mounting surface)
- ▶ Use a separate extension cradle for vehicles that are difficult to fit.
- ▶ Adjust the position so that the camera lens can face the driver's eyes.(You can check the exact mounting position through video output)
- ▶ After applying power to the product, adjust the angle through the mounting support function, then tighten the screws of the cradle firmly.(See page 12, No.2)
- ▶ Now, you finish installing the product.

I How to assemble the cradle and main body



● : Lit on

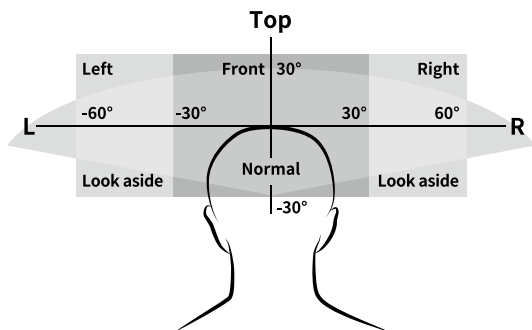
☀ : Flickering

I Operational sequence and summary

Activity	Contents	Operation Status	Warning Alarms
1. Power On/ Booting	When power is turned on, the system boots and is initialized in about 10 seconds.	OFF → ●●●	Booting Sound
2. Equipment Support	If the driver's face can not be found. (face departure)	☀	
	When the driver's face approaches the detectable range.	☀	
	If the driver's face is within the detectable range.	●	
	When it is within recognition range for more than 1 second, it is completed.	●	T-R-Ring~
3. 1st alarm for drowsiness detection	When the driver's eyes close in the left, right, upper and lower 30-degree drowsiness detectable range based on the state of keeping eyes forward.	● → ●	Beeeeep~
4. 2nd alarm for drowsiness	When additional 1 second drowsiness after 1st alarm for drowsiness.	● → ●	T-Ring ~T-Ring ~T-Ring ~ (Until the eyes open)
5. Alarm for negligence in looking	When the driver's gaze is positioned for about 3 seconds between 30° and 60° on the left and right sides based on the state of keeping eyes forward.	● → ●	Bee-O~ Bee-O~ (Until the looking straight ahead)
6. Face departure	When the driver's face deviates for about 6 seconds more than 60° on the left and right sides based on the keeping eyes forward. (if the camera can not find the eyes)	● → ☀	Ding~Ding~ (Until the eyes are found)
7. Power OFF	When the power cable is unplugged or the ignition is turned off.	OFF	

I Face detectable ranges

Face Departure



I Precautions for operations

- ▶ Some of specially coated sunglasses or glasses can reduce the recognition rate.
- ▶ When hair blots out the eye, the product can make mistakes or experience reduced recognition.
- ▶ The recognition rate may be reduced before and after sunrise/sunset or affected by sideways light or external light.
- ▶ When the driver lowers his head or looks down or opens his eyes slightly, or when he laughs aloud making his eyes narrow, the product judges driver's drowsiness and warning beep might sound.

- ▶ Model name : I - VUE D10
- ▶ Physical dimensions : 93 X 45 X 25 mm(Main body)
- ▶ Weight : 60g(Main body)
- ▶ Camera : High resolution CMOS sensor
- ▶ Audio : High Power Speaker(Max. 95dB)
- ▶ Operating voltage : DC 12 / 24V
- ▶ Power consumption : Max 3.5W
- ▶ Operation temperature : -20 ~ +70°C

※ For better performance, the exterior designs or the specifications of this product may change without any prior notice.

- ▶ The warranty term of this product is within 1 year from the purchase date.
- ▶ The warranty term of the accessories and the consumable parts other than the main body is separately applied.
- ▶ The warranty for this product is according to described product warranty.
- ▶ The warranty term is calculated from the date of purchase, so please be sure to indicate the date of purchase.
- ▶ For detailed warranty support, please refer to "Indemnity Policy for Customer Damages".
- ▶ Products, being subject to replacement under the warranty policy, may be replaced with new products or ones that have similar specifications.
- ▶ TREE EARTH is not responsible for any repair, exchange or refund until the faulty product is returned.
- ▶ The product warranty and the serial number will not be reissue and please keep it well.
- ▶ The product warranty will be provided only for the product manufactured by TREE EARTH. Please pay attention to similar products.

11 Product Warranty

Product Warranty		
Product Name	Vehicle Driver Monitoring System	
Model Name	I - VUE D10	
KC No.		
Serial No.		
Warranty Period	1 year from the purchased date Year Month Day	
Customer	Name	Contacts
	Address	
Purchased Where	Name	Contacts
	Address	

For performance or functional problem occurring naturally under normal use condition	Classification by Customer Damages		Warranty within the Term	Warranty out of the Term
	For serious repair required within 10 days of purchase		Exchange	N/A
	For serious repair required within 1 month of purchase		Exchange	
	For serious repair required within 1 month of exchange		Exchange	
	When not exchangeable		Refund	
	Repair if available	For defect	Exchange	Paid repair / Paid product exchange
		Repeated problem with the same defect(from 4 times)	Exchange	
		Repeated problem with different parts(from 5 times)		
	Repair if unavailable	For the loss of a product while in A/S	Exchange	Paid product exchange
		When repair is unavailable due to lack of spare parts within the component holding period		
When repair is unavailable even with spare parts				
1) Malfunction due to customer fault			Paid repair	Paid repair
- User's carelessness(fall, shock, breakage, malfunction or malfunction due to improper use and product damage)				
- Damage or product damage caused by intention or negligence of the consumer				
- Damage or product damage caused by repair or modification of the consumer or third party other than our service engineer.				
- Damage and product damage due to use of parts, consumables, optional items other than our designated parts				
2) Other cases				
- Malfunction due to natural disasters(fire, flood, earthquake, etc.)				
- Expired life span of a consumable part				
- Malfunction due to external reasons				

※ The warranty term of the accessories and the consumable parts other than the main body is separately applied.



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IN NO EVENT SHALL SELLER OR MANUFACTURER BE
LIABLE FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES OF
ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM
ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

Q. Power is not turned on.

A. Check if the power cable is properly connected to the power socket on the product if the cable is damaged.

A. If no problem is found with the cable, contact the customer support center.

Q. Operation status LED doesn't come on or change colors.

A. Contact the customer support center unless the operation status LED turns on after power is applied.

A. When the LED continues to flicker red while the power is on, that means that the camera still does not pinpoint the eye, and you need to adjust its position. Contact the customer support center if there is no change thereafter.

A. Check again if the product is correctly installed when the operation status LED does not function properly. Contact the customer support center if the same symptom occurs repeatedly.

Q. Speaker does not give warning sounds.

A. Try adjusting it with the volume control switch.

A. After check whether it is installed correctly, please contact the customer support center.

Q. After power on, it cannot recognize the eyes.

A. Show your eyes on the front window and adjust the distance. If it does not recognize, set your eye view on the center of the camera using the video output. If it still doesn't work, please apply for after sales service.

I DC input (12/24V)

- ▶ Supplying power to the product.

I Video output

- ▶ If you want to check the driver's image directly on the product, you can check it by connecting to a monitor that supports CVBS.

I DC output (5V)

- ▶ Supplying power to external devices.

I Vehicle speed signal input

- ▶ A vehicle speed signal or a brake signal is connected to determine whether the vehicle is driving or stopping, and apply separate scenario and operate.

I UART / RS232 communication

- ▶ UART communication with external device when it is needed.
- ▶ If UART communication is supported, various event information such as drowsiness driving and status information of the driver through the corresponding port.

I Trigger output (3.3V)

- ▶ Event information such as drowsiness driving can be transmitted to the external device using the high/low trigger signal.
- ▶ Event information such as drowsiness driving can be transmitted to the external device using the high/low trigger signal.

MEMO



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