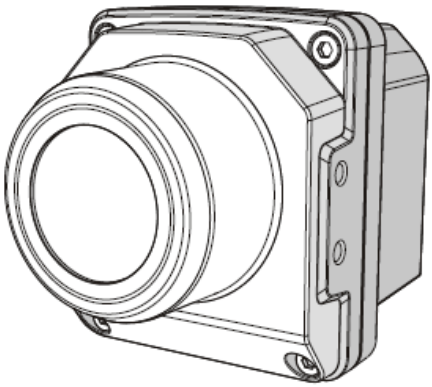
USER MANUAL



Advanced Driving Assistant System

Thank you very much for choosing our products. You are kindly recommended to carefully read the user manual prior to using this system, which is believed to be quite helpful for correct use of this product.

Copyright

Declaration of Responsibility

Without permission of EcorTech, this Manual must not be, in any form or manner (electronic, electromagnetic, optical, or manual, etc.) reproduced, transmitted, transcribed, filed or translated into other language and computer language.

We prepare this Manual with the purpose of facilitating users to use and understand our products. We will try our best to ensure the accuracy of contents of this Manual, but we still cannot ensure the completeness of contents of this Manual. Since we have been continuously updating and upgrading our products, we reserve the right to change this Manual at any time without notice.

Version record

Infrared thermal imaging automobile driving assistant system Dec. 04, 2015 V1.0

Contents

1. User Informa

1.1. Disclaimer

Before using this product, please make sure you have carefully read and fully understood the instructions for use and this Disclaimer, and you will install and use this product in strict accordance with this product manual. Failure to install and use this product in strict accordance with instructions is likely to lead great inconvenience, and even cause property loss and personal injury. Our company will not bear any legal responsibility for any property loss and personal injury caused by improper installation and use of this product by the user.

Our company will not bear any legal responsibility for any mistake and accident caused by own reasons or reasons of any third party in the course of using this product by the user or property loss and personal injury caused by misjudgment against images.

Any person not qualified for automobile driving is prohibited from using this product; any person qualified for automobile driving can only use this product on the vehicle for which he/she is qualified for automobile driving.

1.2. Service principle

For this product series, exchange and warranty are available within one month and one year after sale respectively. Specific service principle is specified according to the accompanying warranty card, and we provide the warranty service; as for products subject to suspended production, elimination, special price, and products sold at reduced prices, etc., the time standard shall be based on written documents of our company such as notices.

1.3. Precautions

Please do not directly expose the lens of the infrared thermal imaging automobile driving assistant system to high intensity radiation sources such as the sun, laser, and electric welding machine.

This system combines precision optical lens and electrostatically sensitive circuits. Please do not throw, beat it, and pay attention to electrostatic protection to avoid damage.

Do not disassemble this system by yourself. Contact the manufacturer in case of failure. Otherwise, we are not responsible for warranty repair.

This system can not take the place of head light or the human visual image formed with the help of head light. Drivers are kindly requested to pay attention to road conditions during driving.

1.4. Daily use and maintenance

To improve and guarantee your safe driving experience to the hilt and ensure that this system provide you with excellent driving assistance service normally, please be sure to follow the following:

1) Prior to using this system, please confirm the system is reliably installed. As for long-term use of this product, please regularly check and confirm that this system is firmly installed and without any foreign obstruction.

2) During use, please ensure that this system operates within the specified range of voltage and operating temperature. Please do not power on and power off the machine frequently. The shutdown and restart interval shall be not less than 30s.

3) To enhance the imaging quality, surface of the ophthalmic lens of lens of this system is coated with a layer of reflection reducing coating. Avoid touching the surface of the lens with a hand as acid materials on skin left by fingerprint will damage the surfaces of the coating and lens. Please wipe the lens with special lens cloth or glasses cloth when cleaning is required.

2. Product Profile

2.1. Introduction

In recent years, the driving assistant system has been increasingly known by people. The driving assistant system can, without interfering in the normal driving of drivers, improve the driving comfort and safety of drivers.

Infrared thermal imaging automobile driving assistant system can facilitate drivers to identify pedestrians in front of the vehicle in advance in the dark (without the night vision assistance system, this kind of identification would be realized quite late). The infrared night vision driving assistant system is capable of extracting the heat generating object which is not within the lighting vision of the vehicle yet from its background, displaying it in the screen, which greatly improves the driving experience of driver and the driving safety factor.

2.2. Overview of product function

Thank you for choosing our far infrared night vision driving assistant system which is just like eyes seeing through clearly the night and assists you in traveling freely and returning home safely.

Based on the infrared thermal imaging technology, the infrared thermal imaging automobile driving assistant system converts the

thermal imaging contents within the field of view into 2D images, and display them via the display. It can effectively eliminate strong light stimulation from the vehicle in the opposite direction, and interference caused by glare in the opposite on the sight, without any effect on the field of view. It helps drivers, in the dark, and especially under such severe weather conditions as rain, snow, fog and haze, and sand and dust, clearly observe vehicles, pedestrians, and obstructions, etc., on the road; thus, safety of the driver, passenger, and the third party can be greatly improved. This system can automatically identify pedestrians and vehicles in front of the automobile, mark the target position with a rectangular frame in the infrared thermal image, and, at the same time, judge the possible collision risk in a real-time manner, and give a warning prompt to the driver.

The infrared thermal imaging automobile driving assistant system can greatly improve the environmental perception ability of drivers, significantly improve the driving safety factor and driving experience of drivers, and effectively safeguard personal and property safety of drivers.

2.3. Product appearance

The infrared thermal imaging automobile driving assistant system is as shown in Fig. 1.

Fig. 1 Infrared thermal imaging automobile driving assistant system

2.4. Main characteristics

· Foregrounding the non-luminous heating body:

The infrared thermal imaging automobile driving assistant system can, under all weather conditions, automatically identify and foreground such non-luminous heating body as the walking person, ride man, vehicle, animal for the driver. It can help the driver better understand the overall road conditions by displaying the road conditions beyond the scope of the headlight light beam, effectively improve the visual effect in case of insufficient light, as shown in Fig. 2.

Fig. 2 Effect in night by using the infrared thermal imaging automobile driving assistant system

· Long detection distance:

Under the condition of good field of view, the operating distance of the infrared thermal imaging automobile driving assistant system can be up to 300m; under severe weather conditions (heavy rain, heavy fog, haze, sand and dust, etc.), the operating distance of the night vision system will be reduced to a certain extent.

For comparison, the irradiation distance of asymmetric dipped headlight at the opposite lane side is about 60m, and that of being near the road side is about 120m. The irradiation distance of headlight on full beam is only 200m, which is also smaller than the operating distance of the night vision system.

Since the operating distance of the infrared thermal imaging automobile driving assistant system has obvious advantages as compared to the dipped headlight and headlight on full beam, its pre-alarm function targeted at potential risk wins the precious time for the driver in terms of safety protection, which is very important for avoiding traffic accidents, and safeguarding the personal and property safety of persons in the automobile, as shown in Fig. 3.

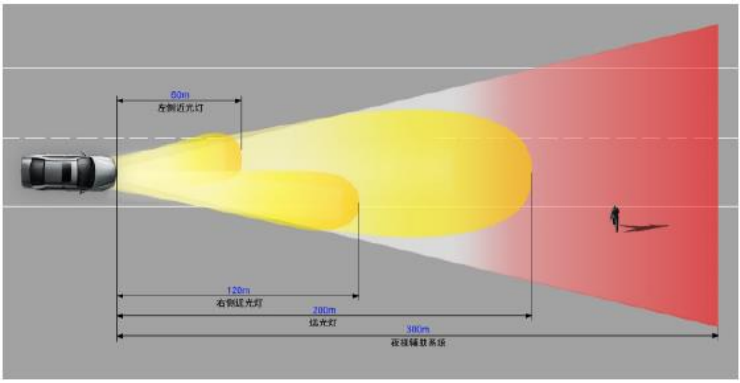


Fig. 3 Effective identification distance of infrared thermal imaging automobile driving assistant system

· Anti-dazzling function:

The infrared thermal imaging automobile driving assistant system creates corresponding images by collecting the external infrared radiation energy, so the headlights on full beam of the automobile in the opposite direction cause on effect on the infrared imaging, which effectively reduces the driving potential safety hazard caused by dazzling of the driver, and improves the safety of driver during automobile meeting, as shown in Fig. 4.


Fig. 4 Effect of anti-head-on dazzling by using the infrared thermal imaging automobile driving assistant system

· All-weather use

The infrared thermal imaging automobile driving assistant system adapts to all kinds of bad weather (rain, fog, haze, sand and dust, etc.), and is not affected by the ray of light. It is fit for various periods of times and various weather environment, as shown in Fig. 5.


Fig. 5 Foggy day effect by using the infrared thermal imaging automobile driving assistant system

· Pedestrian identification function

This system not only has good identification performance against

pedestrians walking upright or running in front of the automobile, but also has relatively good identification performance against most pedestrian targets riding bicycles, electro-mobiles and motorcycles. When the pedestrian target appears in front of the automobile, the system uses the rectangular frame to mark the pedestrian target position, and judges the hazardous degree of collision. If there is a danger, the system will, according to the target distance, gives alarm prompt in different forms to the driver, as shown in Fig. 6.

Fig. 6 Pedestrian identification icon

· Forward collision

This system has good identification performance against automobiles driving in front and automobiles driving in the opposite direction. When there is automobile target in front, the system uses the rectangular frame to mark the pedestrian target position, and meanwhile judges the hazardous degree of collision. If there is collision risk, the system gives alarm prompt to the driver.

· Identification conditions

The infrared thermal imaging automobile driving assistant system can identify most pedestrians in normal postures or automobiles in front, but its identification ability against few pedestrians in abnormal postures

or automobiles in front will be reduced, or even is unable to identify them. The following is the summary of targets can be and can not be identified by the system.

Under normal circumstances, the system can identify pedestrians walking upright or running, and most pedestrians riding bicycles, electro-mobiles and motorcycles; however, under conditions with extremely bad weather and excessively high environment temperature, types of identifiable targets will be reduced accordingly.

1) Identifiable conditions

· Target in front of the lane is walking upright or running: including the front, the back and the side posture, all genders.

· The target is not sheltered: if the target is partially sheltered, or mainly sheltered, especially the head of the pedestrian target is sheltered, the system is difficult to identify correctly.

· High degree of distinction of target in the thermal imaging area: the pedestrian target is obviously presented in the infrared image, and has certain marked features.

· The pedestrian target has a certain width to height ratio in the infrared thermal image (about 1:2).

· The target is within the specific identification area of the infrared thermal image.

2) Unidentifiable conditions

· The target is under non-upright state, such as heavily bending, and lie-down.

· The target is partially or mainly sheltered.

· The target is not within the specific identification area of the infrared thermal image.

2.5. Alarming strategy

Risk of collision between the vehicle and pedestrian or forward vehicle is mainly divided into two types: relative distance between the target and vehicle decreases sharply; the garget passes through in front of the vehicle at high speed. The system conduct real-time judgment on the above two types of risks of collision and gives an alarm timely which is called proximity alarm.

1) Pedestrian identification

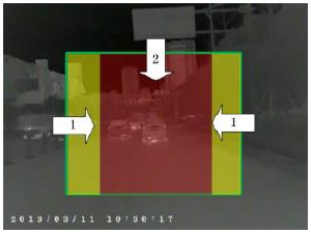


Fig. 7 Scope of pedestrian identification

· The area pointed by arrow 1 and arrow 2 is the scope of identification area. When the pedestrian target imaging is shown in this area, the system will identify this and will mark the location with a rectangular frame.

· The area pointed by arrow 2 is the alarm area. When the system identifies that there will be risk of collision between the pedestrian target and vehicle, it will give a warning prompt to the driver. The area 15-45m ahead of the vehicle is red alarm area; the area 45-90m ahead of the forward vehicle is yellow alarm area.

· The area pointed by arrow 1 is the area for identification but not for alarming. In other words, when the pedestrian target is shown in this area, the system can only identify it and mark the location with a rectangular frame, but it will not judge the level of danger caused by collision.

2) Forward collision

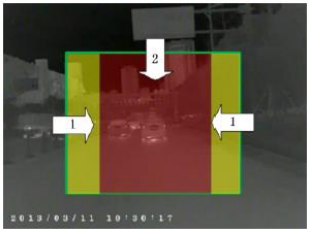


Fig. 8 Scope of identification for forward collision

· The area pointed by arrow 1 and arrow 2 is the full scope of identification area. When the forward target imaging is shown in this area, the system will identify this and will mark the location with a rectangular frame.

· The area pointed by arrow 2 is the alarm area. When the system identifies that there will be risk of collision between the forward vehicle and this vehicle, it will give a warning prompt to the driver. The area 15-60m ahead of the vehicle is red alarm area; the area 60-120m ahead of the forward vehicle is yellow alarm area.

· The area pointed by arrow 1 is the area for identification but not for alarming. In other words, when the pedestrian target is shown in this area, the system can only identify it and mark the location with a rectangular frame, but it will not judge the level of danger caused by collision.

· The area pointed by arrow 2 is the alarm area. When the system identifies that there will be risk of collision between the forward vehicle and this vehicle, it will give a warning prompt to the driver. The area 15-60m ahead of the vehicle is red alarm area; the area 60-120m ahead of the forward vehicle is yellow alarm area.

3) Pedestrian priority

The Infrared thermal imaging automobile driving assistant system integrates pedestrian identification alarm and forward collision alarm, when both of which occur simultaneously, the system will adopt the principle of pedestrian priority:

· When the pedestrian and forward vehicle are in the same level of danger, the system will preferentially give an alarm to the driver to indicate danger of running into pedestrian.

· When the pedestrian and forward vehicle are in the same level of danger, the system will preferentially give an alarm to the driver to indicate danger of collision with the highest danger class.

· When there is no danger of simultaneous collision with pedestrian and forward vehicle, the system will only give an alarm to the driver to remind that there is target of collision risk.

· When there is neither risk of collision between the pedestrian nor the forward vehicle, the system will not given an alarm to the driver.

4) Alarming mode

Mode for pedestrian alarming is shown as below:

· Serious warning will show red pedestrian sign, and the buzzer will beep for three times; early warning will show yellow pedestrian sign,

and the buzzer will beep for once.

Fig. 9 Pedestrian alarming icon

Mode for forward collision alarming is shown as below:

· When the pedestrian and forward vehicle are in the same level of danger, the system will preferentially give an alarm to the driver to indicate danger of collision with the highest danger class.

Fig. 10 Alarming icon for forward collision

5) Image switching in different speed modes

· High speed mode:

When the vehicle runs at a speed of over 80Km/h and run straight forward, the center area of the image will be shown by magnifying by 1.5 times. Pedestrian identification range can reach 135m and forward vehicle identification range can reach 180m, which are shown in Fig. 11.

Fig. 11 Typical drawing of alarming (pedestrian and forward vehicle giving an alarm simultaneously)

· Non-high-speed mode:

When the vehicle runs at a speed of less than 30Km/h, the area on the left side of the image will be shown by magnifying 1.5 times when the vehicle turns left, and the area on the right side of the image will also be shown by magnifying by 1.5 times. As shown in Fig. 12.

Fig. 12 Typical drawing of alarming (pedestrian and forward vehicle giving an alarm simultaneously)

3. Technical Specifications of Product

Detector	
Type of detector	Noncrystalline silicon non-cooling focus plane 384 x 288
Image display performance	
Effective focal distance	19mm
Visual angle	28°x 21°(PAL),27°x 18°(NTSC)
Spatial resolution	1.3mrad
Video output interface	Single-end/difference
Video output format	CVBS
Frame frequency and resolution of output image	50Hz,768×576@PAL or 60Hz,720×480@NTSC
System characteristics	

Time for image formation startup	≤ 8s
Automatic heater	Automatic heating will be started on its own when the window temperature is below 2°C
Shutter	Automatic shutter compensation
Image algorithm	Automatic brightness contrast
	Image enhancement
	Color alarm display
Image identification and alarm algorithm	Pedestrian identification
	Forward collision
Characteristics of power source	
Rated voltage	DC 9V-32V
Power consumption of the whole system	≤3.5W(@12V, heating without window being started)
	≤9W (@12V, heating with window being started)

Environmental parameters		
Operating temperature	-40℃~+70℃	
Storage temperature	-45℃~+85℃	
Level of protection	IP67	
Physical characteristics		
Dimensions (L×W×H) of thermal infrared imager	≤75mm x 58mm x 68mm (excluding connector)	
Weight of thermal infrared imager	≤500g (excluding cable)	
Operating range		
	Human: 1.8 m x 0.5 m	Large family car: 2.3 m x 2.3 m
Detection range (under normal meteorological	≥200m	≥400m

condition)		
Identification range (under normal meteorological condition)	≥100m	≥150m

4. Product Use

4.1. Knowledge on thermal imager system

The thermal imager system is simple in operation. You can fully comprehend contents displayed on the screen by spending some time on reading this part. The image you see on the display screen looks much like black white video image, but in fact, it is not the case. Understanding some tips on the image will help you construct system suitable for you.

· The thermal imager system can automatically adjust to adapt to scene change and optimize the image to provide you the best contrast and brightness.

· The thermal imager system's induction to light is different from traditional cameras; it can only induce different of heat or temperature. When actual operation is carried out at night, difference in image quality can be noticed, which is a normal phenomenon. The thermal imager can induce "nuance" on external radiation of objects within the line of sight, and display hotter objects in white (or in light grey) and display colder objects in black (or heavy grey).

· By adopting advanced artificial intelligence technology, the thermal imager system can automatically detect heating elements on the road ahead, e.g. pedestrian, to provide intimate service for your driving safety.

4.2. Startup of thermal imager system

Please test the instrument after the thermal imager system has been installed to ensure that the system functions normally. Please tear off the protective foil on the window before the test.

A light snapping sound can he heard after the equipment is energized. This is sound from internal image correction, which is caused by opening and closing of mechanical shutter. Correction operation will result in temporary image freezing. Sound and image freezing will occur at regular intervals.

5. Troubleshooting Common Faults

5.1. Non-video image

1) Make sure that power cables are reliably connected;

2) Make sure that video cables are reliably connected;

5.2. “Lines” or double image shown in image

Check and make sure that whether the image is frozen or a “snapping” sound comes from the thermal imager. If image freezing or a “snapping” sound never occurs (it may take several minutes for them to occur), there might be a fault on the internal shutter of the thermal imager. Please maintain it at authorized maintenance point.

5.3. Dithering image

Check and make sure that the installation support is secure and reliable.

5.4. Dim image

Check and make sure that video cables are reliably connected and go to authorized maintenance point for maintenance in case of any damage.

5.5. Repair and maintenance

· Definitions and categories of return and repair products, classification of return machine shall be subject to judgment of professionals of the Company.

1) Replacement type:

New machines: for quality problems found upon case opening or found on the shelf within the value insurance period before products are sold; machines with batch quality problems: return products with batch quality problems.

2) Repair type:

· Damaged machine, refers to return products with faults, which cannot be used properly and require maintenance.

· Self-damaged machines: machines overhauled by the user within the warranty period which causes artificial damage;

Products subject to suspended production, elimination, special price, and products sold at reduced prices: machines beyond the warranty period or self-damaged caused by overhaul by the user himself.

· Replacement principle

Replacement condition: within 30 days after purchasing the machine, the machine can be replaced at each regional distributor for conditions as the following: there are no man-made damages; the machine is not subject to overhaul; the machine body has no damages; the warranty label, the anti-fake label and the label on machine body are complete; failures occur under normal operation; and there are an official purchasing invoice and an effective warranty card.

Replacement procedure: service personnel carefully review accessories, warranty card and purchasing invoice of the damaged machine meeting the replacement condition, replace with a new machine for users and fill in the warranty card of damaged machine as the replacement record.

Precautions:

① If only the main machine is damaged, replace the main machine and the warranty card and do not replace the package and accessories.

② For the machine having man-made appearance damages, based on friendly negotiation with the user, explain the replacement principle to the user and repair for free. Do not replace.

③ For the damaged machine which cannot be replaced with a new one due to off production for a long time, explain to the user and repair. Do not replace.

④ Only repair and do not replace the machines subject to off production and obsolescence and being sold at reduced prices.

⑤ Except the main machine, accessories and promotion products

given with the main machine for free are out of the warranty, repair and replacement range.

· Warranty principle

1) Warranty condition: within one year after purchasing the machine, failures occur under normal operation; the machine is not subject to overhaul; and the anti-fake label is complete.

2) Precautions: do not charge in the warranty period (the promise is only for failures under normal operation, excluding the problem on software program); for the machine subject to overhaul by the user in the warranty period, service personnel shall charge the fees of repair materials.

3) For the machine without an office purchasing invoice, repair as per the production date on the machine body (charge the fees of repair materials).

4) For the same failure of the machine under warranty within three months, the user may enjoy free repair with the warranty card.

5) For the machine out of the warranty range, only repair and charge the material fee and maintenance fee.

· Friendly reminder

The infrared thermal imaging automobile driving assistant system is subject to fully-sealed and waterproof design. Do not disassemble the “night traveller” by yourself. For machine damages due to disassembly by yourself, we will not guarantee repair.

In case of failure of the machine, please contact with the supplier timely or consult Ecor Tech Co., Ltd. to obtain repair advices.

6. Standard Accessories and Optional Accessories

6.1. List of standard accessories and optional accessories

The list of materials in the packing box of infrared thermal imaging automobile driving assistant system is as follows:

Material	Qty.	Remarks
Night-vision device system	1 set	
User's manual	1 copy	
Certificate	1 piece	
Warranty card	1 copy	
Product list card	1 piece	
Installation rack	1 set	Optional accessory
Instructions of installation rack	1 piece	Optional accessory
Decoding box	1 piece	Optional accessory
Display screen	1 piece	Optional accessory
Adapter	1 piece	Optional accessory

There is no display screen in the product package. You can purchase a display screen with a loudspeaker having audio and video input functions or a display screen of Ecor Tech Co., Ltd.

Note: if you applies a display screen selected by yourself, confirm whether the voltage range of display screen is compatible with the infrared thermal imaging automobile driving assistant system, or use an independent power supply way for the display screen.

Optional accessories of the infrared thermal imaging automobile driving assistant system may be changed. For the latest information on the rack, display screen, cable and other accessories, please log in http://www.usmartsensor.com or contact with your supplier.

Annexes

Annex I: Knowledge on Infrared Technology

1) Operating principle of infrared thermal imager

The infrared thermal imager detects infrared energy (heat) through a non-contacting way, converts it to electric signal and generates a thermal image on the display screen. The infrared thermal imager is an inspection device which can be used to calculate the temperature. It can precisely quantize and measure the detected heat, so that you can observe the thermal image and accurately identify and analyze the failure area with heat.

2) What is an infrared thermal imaging automobile driving assistant system?

The infrared thermal imaging automobile driving assistant system is developed from the night-vision device of tank. In 1950s, to improve the nighttime mobility of tank, equipment with night-vision capacity was

installed on the tank to make the tank move freely at night.

The infrared thermal imaging automobile driving assistant system has an infrared detection capacity and can sense infrared rays out of the range of human vision. The vehicle-mounted infrared night-vision system is widely used. Sine the price was too high, it was mainly for military use such as tank, armored carrier and radar vehicle. However, with the scientific and technological progress, market popularity and lower and lower price, common people may own the vehicle-mounted infrared night-vision system.

3) Why to use an infrared thermal imaging automobile driving assistant system?

During driving at night, the road condition is clear in the area before the vehicle illuminated by the headlights on full beam. However, risks exist in the dark area ahead.

Although automobile lighting technology has been improved a lot in recent years, risks of driving at night are higher than that of driving in daytime. The following situation is common: when you discover from the light that someone is exchanging tyres at the roadside or pedestrians or animals are being across the road, it is too late to take measures. General Motors Corporation made a questionnaire survey from drivers and made them grade thirty-to-forty electronic devices on automobile based on their degree of preference. The survey result shows that most drivers have eyes only for the automobile night-vision system and wish to install the system on their automobiles. This is because the airbag and ABS can work only in case of emergency of automobile but the automobile night-vision system is an active safety device and it can discover the accident symptom in advance to nip in the bud and improve safety of automobile in special weather.

As per statistics of NHTSA, although night driving only accounts for 25% of the total road traffic, the number of fatal accidents accounts for 50%.

In addition, the number of accidents due to poor vision at night accounts for 70% (data of 2002). However, if you own a vehicle-mounted infrared night-vision system, it is like that you get eyes of owl with a telescope. The vehicle-mounted infrared night-vision system will help you to see the scene out of the illumination range of headlamp, so you can discover risks in darkness timely and improve the driving safety greatly.

On the display screen, the road edge, mark line in the middle of road, objects on the road and pedestrians at the roadside who are going across the road will be displayed. Therefore, the vehicle-mounted infrared night-vision system can discover more objects than the headlamp and can hold a panoramic view of objects within the distance two times the illumination distance of headlights on full beam.

The largest beneficiaries of infrared night-vision system are automobile drivers at night. Due to expansion of safety distance, they have more time to brake and respond. The vehicle-mounted infrared night-vision system cannot replace your eyes to obtain visual information. It is only used for providing information on road condition in a longer distance in bad weather, specially providing help when you cannot see clearly.

4) Vehicles to which the vehicle-mounted infrared night-vision system is applicable

Passenger cars, commercial trucks, buses and fun vehicles: the infrared thermal imaging automobile driving assistant system can

discover risks in advance, reduce the accident occurrence probability and ensure life safety, property safety and personal safety.

Ambulances: high speed and poor braking distance of ambulances make the accident occurrence probability increase. At a high speed, the infrared thermal imaging automobile driving assistant system can also detect risks front of vehicles.

Passenger trains and freight trains: the infrared thermal imaging automobile driving assistant system can detect obstacles on the railway in a long distance in complete darkness.

Heavy engineering vehicles: for navigation of heavy engineering vehicles, the infrared thermal imaging automobile driving assistant system can improve the sensing capacity of drivers when the camera generating images based on eyesight and sunlight is failed. The infrared thermal imaging automobile driving assistant system can generate clear images penetrating dust and smog and ensure safety of pedestrians and vehicles.

Annex II: Additional Descriptions on Alarm Function

Descriptions on possible risk alarm function of the infrared thermal imaging automobile driving assistant system are as follows:

· The proportion feature of pedestrians on the image shall be clear. If the pedestrian is more than 120m away from the vehicle, the pixel point of pedestrian on the image will be too small and the system cannot confirm it represents a pedestrian. If the pedestrian is less than 15m away from the vehicle, it will account for a large area in the image and the system is hard to accurately confirm it represents a pedestrian.

· If the pedestrian ahead is going away or approaching slowly, it will not impact the vehicle and the system will not give an alarm.

· If limb features are unclear due to holding up an umbrella, riding a bike, bending down, squatting or wearing thermal-insulation clothes, it will prevent accurate identification of pedestrians by the alarm algorithm.

· When the environmental temperature is higher than 28℃, the temperature difference between human and environment will be reduced as well as the contrast ratio on the image and this will cause difficulty on identification of pedestrians by the alarm algorithm.

· Severe weather such as heavy rain and snow will reduce the transmissivity of infrared rays; the system cannot completely present the thermal image features of target objects; and this will reduce efficiency of the alarm algorithm.

· If the front scene of road is too complex, it is hard to extract thermal image features of individual pedestrian by the system and this will prevent accurate identification by the alarm algorithm.

At last, thanks for choosing infrared products of Ecor Tech Co., Ltd. Wish you a happy drive! Ecor Tech Co., Ltd. is sincerely at your service!

Ecor Tech Co., Ltd.

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