



Thermal camera for vehicles

Product description

The Pilote-256/384/640 thermal night vision camera system for cars is primarily used in advanced driver assistance systems. It can capture clear images whilst driving at night or in low-light conditions and provide images and accurate information on potential hazards to help the driver develop greater predictive capabilities.

Key features:

1. High-brightness illumination of non-luminous heat-emitting objects.
2. Anti-glare function.
3. See clearly in total darkness, dense fog, bright light or other adverse weather conditions.
4. Maximum detection range of over 300 m for vehicles and over 150 m for people.
5. IP67 protection rating.

IP67 waterproof: Ensures the camera can withstand harsh weather conditions, making it suitable for outdoor use in all weather conditions.

1080P resolution: Provides high-definition images, ensuring clear and detailed visuals for improved situational awareness.

Thermal imaging: Enables clear imaging in low-visibility conditions such as fog, mist and total darkness, thereby improving driver safety.

Aluminium alloy construction: Offers durability and corrosion resistance, ensuring the camera remains robust and reliable over time.

Specification

Model	Pilote-256	Pilot-384	Pilot-640
Infrared camera specifications			
Detector type	Uncooled Vox thermal detector	Uncooled Vox thermal detector	Uncooled Vox thermal detector
Response band	8–14 µm	8–14 µm	8–14 µm
Package type	Protective packaging	Protective packaging	Protective packaging
DEP	≤ 50 mK at F1.0, 300 K	≤ 50 mK @F1.0, 300 K	≤ 50 mK @F1.0, 300K
Resolution	256*192 pixels	384 × 288 pixels	640×512 pixels
Pixel pitch	12 microns	12 µm	12 µm
Focal length	10 mm/F1:1.0	13.5 mm/F1: 1.0	16 mm/F1: 1.0
Field of view	18°*13°	20°*15°	28°*22°
Frame rate	25 frames per second	50 frames per second	50 frames per second



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Image settings			
Non-uniformity correction	Automatic shutter correction technology	Automatic shutter correction technology	Automatic shutter correction technology
Image enhancement	Yes	Yes	Yes
Noise reduction	Yes	Yes	Yes
Repair of bad spots	Yes	Yes	Yes
Performance and interface			
Shock resistance	25g/11 milliseconds	750 g/1 ms	750 g/1 ms
Video output	UVC/AHD	CVBS analogue video	CVBS analogue video
Window heating	Supported (Starts below 5°C, stops above 7°C)		
System parameters			
Nominal voltage	5V DC	5V DC	5V DC
Operating temperature	-30°C to 70°C	-30°C to 70°C	-30°C–70°C
Storage temperature	-40°C to 80°C	-40°C–80°C	-40°C to 80°C
Dimensions	34*34*52mm	42*42*70mm	42*42*70mm
IP rating	IP67 (sealed housing)	IP67 (sealed housing)	IP67 (sealed housing)
Operating range			
Detection range	<1280 m (vehicle) <1000 m (human)	<1720 m (vehicle) <1350 m (human)	<2050 m (vehicle) <1600 m (human)
Recognition range	<320 m (vehicle) <250 m (human)	<430 m (vehicle) <340 m (human)	<510 m (vehicle) <400 m (human)
AI identification range	>150 m (vehicle) >100 m (human)	>250 m (vehicle) >110 m (human)	>300 m (vehicle) >150 m (human)
Certification	CE, FCC, EMC, RoHS, quality inspection report	CE, FCC, EMC, RoHS, quality inspection report	CE, FCC, EMC, RoHS, quality inspection report

High-definition touchscreen DVR monitor**1. Display performance**

- * 7-inch HD IPS screen, supporting mixed input of four-channel 1080P/960P/720P/CVBS signals.
- * Resolution: 1024x600 with a high brightness of 600 cd/m², ensuring clear images.
- * Supports quad-view display and graphical OSD menu.
- * Single-channel view supports functions such as left-to-right and top-to-bottom image flipping, reverse scaling, reverse triggering and reverse delay.

2. Interactive design

- * Touch function: supports direct finger touch operation, enhancing user interaction flexibility.
- * The display screen uses a full lamination process, with seamless integration between the protective glass panel and the display screen, eliminating mirror reflection to ensure clear and transparent images.

3. Appearance and structure

- * Customised appearance with a patent, using ABS + PC material for the housing, which is heat-resistant.
- * Removable sun visor to prevent direct sunlight from affecting the display.
- * Rust-proof metal bracket with a double-sided, U-shaped anti-vibration clamping design.

4. Electrical performance

- * Automotive-grade industrial digital video processor.
- * Built-in protection against charge discharge surge voltage (DC24V + 17V, 350ms) to prevent damage caused by transient surges in vehicles.
- * Integrated negative pressure and overvoltage protection circuits, supporting a wide operating voltage range of 12 to 32V.
- * Built-in reverse polarity protection for the external power supply and constant current and constant voltage protection for the LED to extend its service life.

Vehicle-mounted HD thermal camera

- * Automotive-grade design: meets automotive-grade environmental requirements.
- * Cost-effective for automotive applications: focused on the in-vehicle industry, offering high performance, compact, lightweight, low-power camera with multiple interface options (1080P AHD output by default).
- * High-performance infrared imaging: utilises resolutions of 256×192, 384×288 and 640×512, a high-performance 12 μm uncooled vanadium oxide infrared detector, combined with 10–16 mm lenses featuring an excellent optical design. The result is exceptional imaging performance that fully meets the requirements of embedded applications.
- * Panoramic focus and wide field of view: provides clear images with a wide field of view and a long detection range. The camera can provide clear infrared images up to 300 metres ahead, improving the driver's visibility and helping to detect potential obstacles earlier.

* Penetration of fog and mist: thermal imaging technology works even in low-visibility conditions such as sandstorms, dense fog and mist, providing clear images in weather that limits human vision and ensuring the vehicle's safety 24/7.

* Night vision: thermal imaging relies on temperature differences, not light. Even in total darkness, it can still provide clear images, improving the driver's ability to anticipate and react to hazards at night, thereby reducing the likelihood of accidents.

* Anti-glare interference: thermal imaging collects infrared radiation from external sources to form images, meaning it is not affected by changes in light or glare.

Thermal imaging features:

Thermal imaging works by capturing temperature differences on the surface of objects, making it independent of light sources. This gives it the ability to effectively manage glare, provide clear images in low-light conditions and penetrate smoke, fog and dense mist, making it suitable for operation in all weather conditions.



Mining Truck



Military Vehicle



Agricultural Machinery



Off-Road Touring Car



Underground Scooper



Sea-Going Yacht

Universal for the entire vehicle series

Passenger cars, RVs, commercial vehicles, construction machinery, mining trucks, special vehicles, fire trucks, etc., can all be used.





┌ ┐
1280X1024
640X512
└ ┘
384X288

Infrared resolution

┌ ┐
IP67、IP69K
└ ┘

Level of protection

┌ ┐
<-40°C~85°C

Operating temperature

┌ ┐
<40mk

┌ ┐
NETD



Human Vision

Robofinity Vision







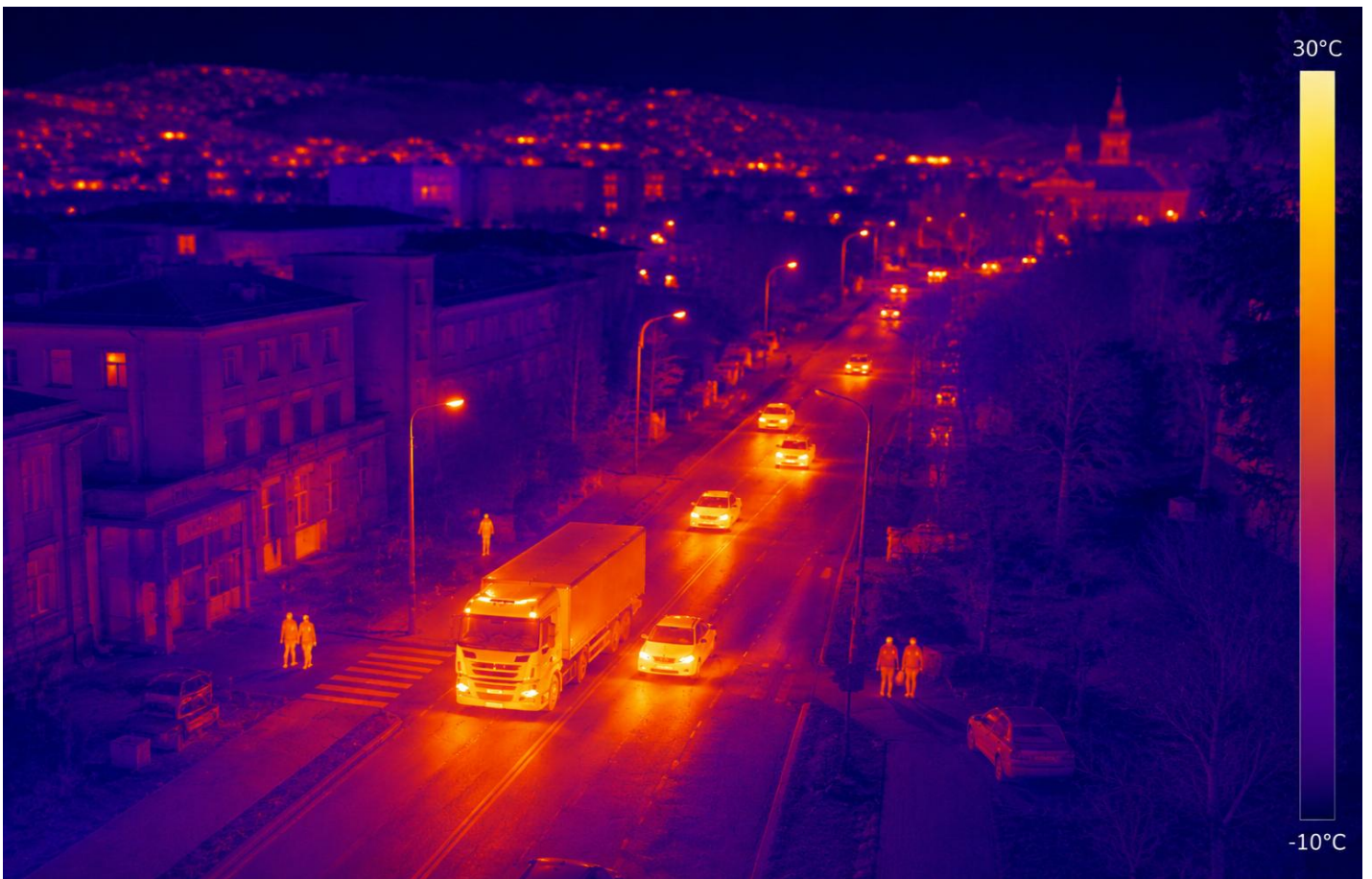


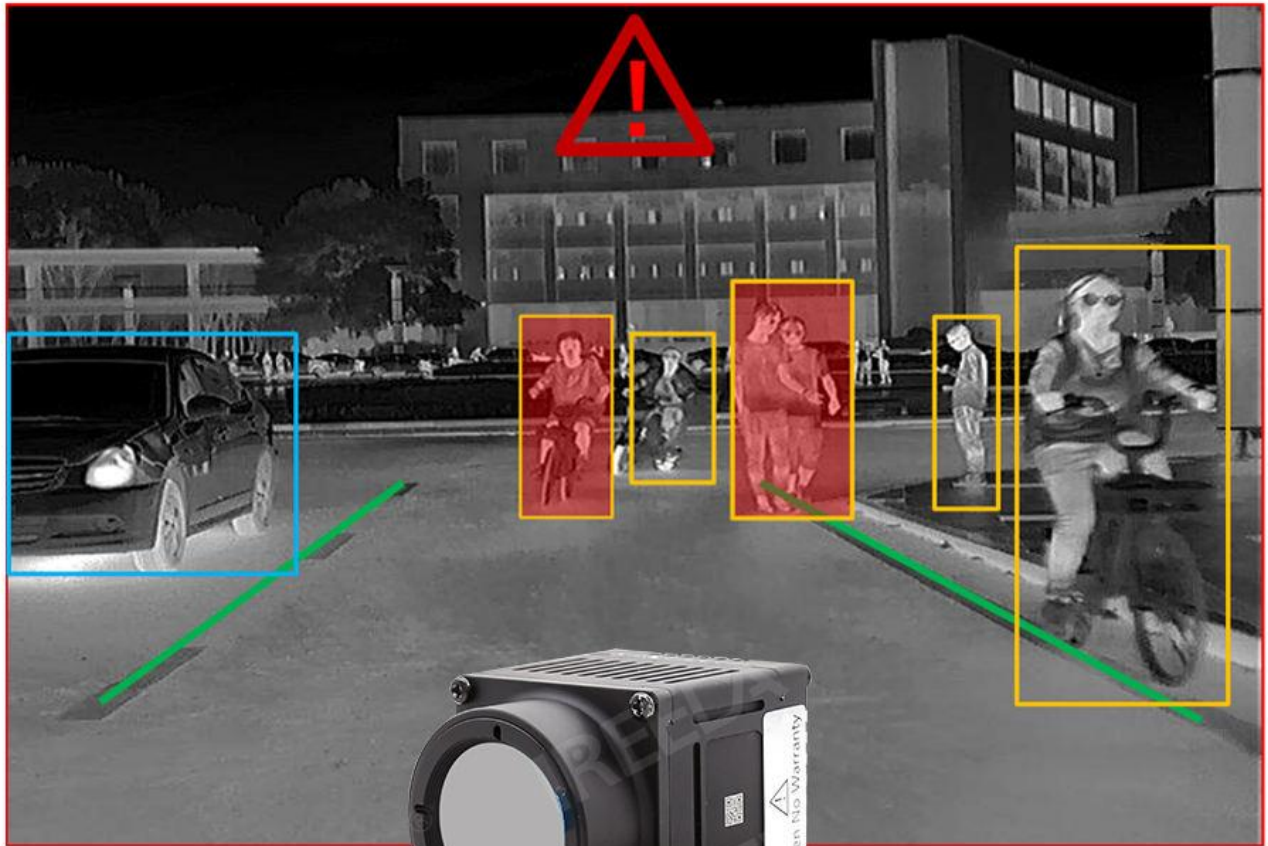
Naked Eye View



**Thermal View
with AI Warning**

See Pedestrian in Complete Darkness





Thermal imaging night vision: the 'X-ray eye' for night driving

All objects emit infrared thermal radiation, and thermal imaging technology captures this invisible 'heat signal' to convert it into a clear visual image. This high-tech innovation, originally from the military field, is revolutionizing night vision safety for automobiles.

In-vehicle display terminal



Some models come with thermal imaging from the factory

Outdoor thermal imaging camera



Installation Position Schematic



Thermal imaging cannot penetrate glass, and the camera is installed outside the vehicle.

LONG RANGE DETECTION



Normal beam distance

Infrared thermal image distance



IP67 Waterproof

⬆ -30°C ~ 65°C

256x192 Resolution



7-inch 1024×600 IPS

IP67 Camera | Wide Voltage 9-24V | -30°C ~ 65°C

Example during the harvest

