Thermal Master



Automotive NV500

AI Thermal Master

Detect Life, Deer Vehicle Collision Prevention

❗ Caution:

Read all instructions before use.

- Do not point the thermal imaging camera at the sun or other strong energy sources for long periods of time.Otherwise there might be damage to the detector in the thermal imaging camera.
- Do not touch the lens with your hands. Do not knock, pry, puncture, or scratch the lens.
- Do not disassemble the thermal imaging camera.

About Thermal Master Brand

Thermal Master

Thermal Master, leading in phone thermal cameras.

We are dedicated to opening a new world of thermal vision for explorers worldwide.

Pursuing excellence and innovation, we continuously revolutionize products in thermal imaging cameras, automotive night vision systems, outdoor night vision gears, and more cutting-edge fields.

We make phone thermal cameras smaller, clearer, and smarter, leading and advancing the global consumer-level thermal imaging market, constantly pushing the boundaries of human perception.

Our products are now sold in 118 countries and regions, including the United States, Europe, Japan, and Australia.

Product Introduction

1.1 Product Description

- Thermal Master NV500: Dual-Spectrum Night Vision System The NV500 is a cutting-edge, aftermarket driving aid that integrates dual-spectrum capabilities into a sleek, vehicle-friendly design.
- It offers: Infrared Thermal Imaging: Day or night, in any weather, this system delivers precise environmental data.
- High-Resolution Visibility: Equipped with both infrared and visible light cameras for clear vision.
- Advanced Alerts: Accurate alerts in challenging conditions, enhancing safety and driving assistance.
- Aesthetic Integration: Its design complements the vehicle's interior, adding both function and style.

1.2 System Components

- NV500 Camera Module: Houses an infrared thermal imager for comprehensive environmental perception.
- In-Car Display Host: Features a 6.4-inch display that presents AI-processed road information and voice alerts for driver safety.

As an ADAS, the NV500 elevates driving safety by providing all-weather hazard alerts, making night driving as safe as day.

1.3 Product Features

Operating temperature range: -20°C to 70°C.

Waterproof rating: IP69K (camera module), IP54 (in-car display).

Target highlighting with icons and voice prompts for efficient information delivery.

High-speed and stable data transmission.

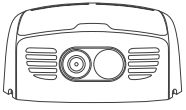
Low power consumption, high stability, shock, and impact resistance.

Shutterless infrared thermal imaging for continuous, all-weather road perception.

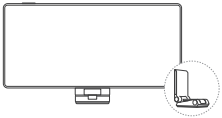
Innovative roof-mounted installation for easy and efficient setup.

AI algorithm for intelligent hazard detection.

1.4 Package Contents



NV500 Camera Module
(with kit)



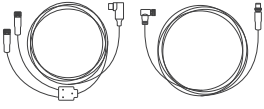
In-Car Display Host
(Magnetic Bracket)



cigarette lighter
power cable



Bluetooth
OBD Module



In-Car/Out-Car
Connection Cable × 2

Installation Guidelines

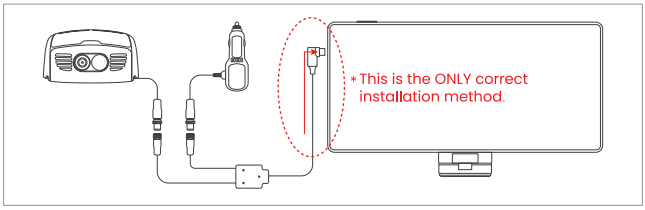
2.1 Installation Overview

The NV500 requires a 12V power supply through the included vehicle charger (supports 12V/24V cigarette lighter). It uses a 6.4-inch in-car OLED touch screen for user interaction, while the roof-mounted dual-spectrum infrared module collects environmental data using visible light and thermal imaging. Both modules store video data independently, with emergency event video recorded in the roof module' s EMMC memory, and loop recordings in the in-car module's TF card.

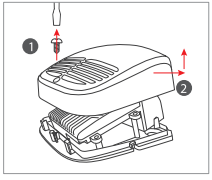
2.2 Installation Suggestions

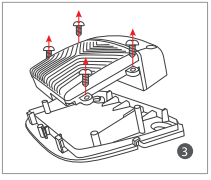
- Power and Interface Requirements: The in-vehicle host module is powered by the vehicle 12V (cigarette lighter), and the camera module is powered by the in-vehicle cue module through the cable, which can be linked to the 12/24V vehicle power system through the cigarette lighter, and should not be directly powered by the host 24V.
- Ensure the front view of the outdoor infrared module is unobstructed (glass or acrylic blocks infrared rays). Use the magnetic roof kit for initial positioning, finalize with foam adhesive after testing positioning and angles via the app.
- The in-car OLED display is mounted using a magnetic foam bracket. Adjust installation to ensure stability and visual clarity.

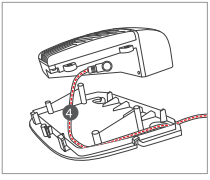
2.3 Installation logic diagram

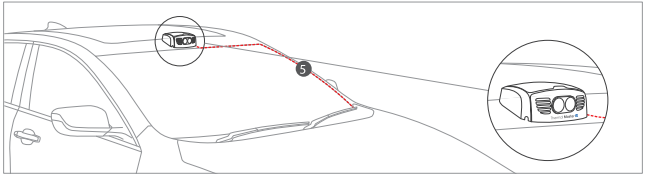


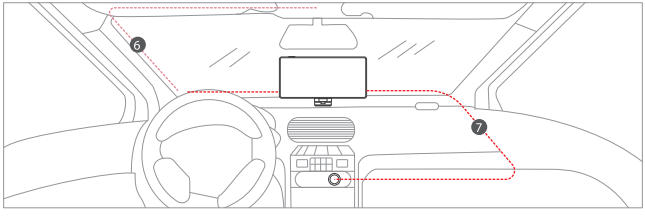
2.4 Installation Procedure Guidelines











Usage Guidelines

3.1 Functional Description

- The in-car display shows dual-spectrum video, Bluetooth OBD information, alarm prompts, Wi-Fi status. It can connect to smart devices through devices's hostpot. The app provides real-time video, screenshots, and storage features.
  Change Hotspot name to: nv, Password: 12345678
- The OLED display adjusts brightness automatically based on ambient lighting, enhancing user experience. This feature can be managed via the app and the touch screen.
- Voice commands enable hands-free operation. Activate with the wake word: "Hi Max" followed by the command.

  Refer to the full list of commands for additional options.

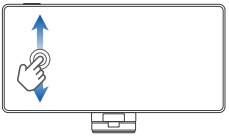
3.2 6.4-inch Touch Screen

The NV500 is equipped with a 6.4-inch high-definition OLED touch screen, allowing you to interact with your device using a smartphone-like operational logic:



Usage Guidelines

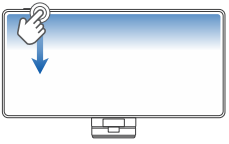
Adjust Brightness:
Swipe along the left edge of the screen to adjust the brightness level.



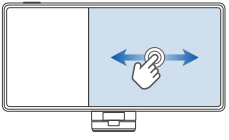
Adjust Volume:
Swipe along the right edge of the screen to control the volume.



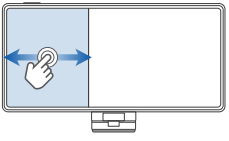
Access Video Library:
Pull down from the top edge of the screen to open the video gallery.



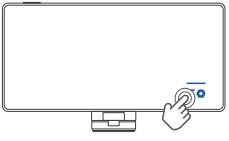
Switch Display Modes:
Swipe to navigate through different display modes.



Toggle OBD Mode:
Slide to toggle speed, rpm, acceleration display（Tap on speed unit to switch between kmh/mph）



Access Settings Menu:
Tap to enter the settings menu.

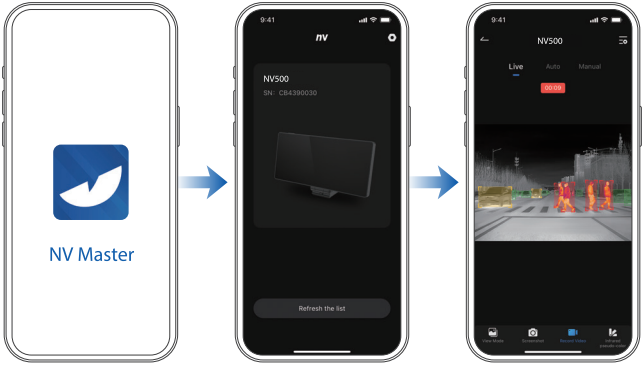


3.3 Mobile App Connection Guide

- Download the "NV Master" App from the Google Play Store or Apple App Store.
- In your phone's settings, set your hotspot name to "nv" and the password to "12345678".
- Tap the Wi-Fi icon on the display screen and wait a few seconds for the connection to be established.
- You are now connected—enjoy your experience!
- If you have difficulty connecting to Wi-Fi, please try restarting the NV500.

Download it from
APP STORE

Scan to Download
Android App



3.4 Smart Voice Control

The NV500 supports Smart Voice Control, with the wake word being "Hi Max!"

Please refer to this list when using the smart voice control function:

Awakening words	Response words
Hi Max	I' m here
Full Screen	Full Screen
Exit Full Screen	Exit Full Screen
Visible Light Mode	Visible Light Mode
Thermal mode	Thermal Mode
Dual Spectrum Mode	Dual Spectrum Mode
Fusion Mode	Fusion Mode
Auto Mode	Auto Mode
Speed Display	Speed Display
RPM Display	RPM Display
Acceleration Display	Acceleration Display
Increase Volume	Increase Volume
Decrease Volume	Decrease Volume
Mute	Mute
Unmute	Unmute
Volume10	Volume10
Volume20	Volume20
Volume30	Volume30
Volume40	Volume40
Volume50	Volume50
Volume60	Volume60

Usage Guidelines

Awakening words	Response words
Volume70	Volume70
Volume80	Volume80
Volume90	Volume90
Volume100	Volume100
Maximum Brightness	Maximum Brightness
Minimum Brightness	Minimum Brightness
Increase Brightness	Increase Brightness
Decrease Brightness	Decrease Brightness
Screen Off	Screen Off
Screen On	Screen On
Brightness 10	Brightness 10
Brightness 20	Brightness 20
Brightness 30	Brightness 30
Brightness 40	Brightness 40
Brightness 50	Brightness 50
Brightness 60	Brightness 60
Brightness 70	Brightness 70
Brightness 80	Brightness 80
Brightness 90	Brightness 90
Brightness 100	Brightness 100
Defrost On	Defrost On
Defrost Off	Defrost Off
High Frequency Alarm	High Frequency Alarm
Medium Frequency Alarm	Medium Frequency Alarm
Low Frequency Alarm	Low Frequency Alarm
Help	Help
Voice Command List	Voice Command List

Performance Parameters

Model	NV500
Name	Dual-Spectrum Automotive AI Night Vision System
Infrared Thermal Imaging Detector	
Infrared Thermal Imaging Detector Type	Vanadium Oxide
Resolution	384x288
NETD	≤25mk
Pixel Pitch	12μm
Wavelength	8-14μm
Lens Focal Length	9.0mm
Field of View	H29° × V21°
Visible Light Camera	
Field of View	H120°
System Performance	
Frame Rate	25fps
Power Supply	DC 12V (vehicle cigarette lighter 12V/24V)
Power Consumption	≤10W (standard) / ≤12W (with defrost)

Safety Information

FCC ID: 2BHGX-NVDSONE

1. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference,

(2) this device must accept any interference received, including interference that may cause undesired operation.

2. Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

EMC Class B :

Note:This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety Information

Frequency range of WLAN radio module: 2.4-2.4835GHz



2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points.

For more information see: www.recyclethis.info



(EU)2023/1542 (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point.

For more information see: www.recyclethis.info

	Tel	+1(346) 247-6555
	E-mail	support@thermalmaster.com
	Website	http://www.thermalmaster.com
	Facebook	@Thermal Master
	Instagram	@Thermal Master Global
	Youtube	@Thermal Master
	Tiktok	@ThermalMaster_Global

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