AI Mobile NVR with 8 PoE Ports

Based on NVIDIA Jetson Nano / TX2 NX / Xavier NX

eNVP-JNN-IV-V0008 (eIVP1570VE)
eNVP-JTX-IV-V0008
eNVP-JNX-IV-V0008

User's Manual

EverFocus

Copyright © EverFocus Electronics Corp.
Release Date: May 2021

AI Mobile NVR with 8 PoE Ports

Based on NVIDIA Jetson Nano / TX2 NX / Xavier NX

eNVP-JNN-IV-V0008 (eIVP1570VE)

eNVP-JTX-IV-V0008

eNVP-JNX-IV-V0008

User's Manual

© 1995-2021 EverFocus Electronics Corp.
www.everfocus.com.tw

Disclaimer

All the images including product pictures or screen shots in this document are for example only. The images may vary depending on the product and software version. Information contained in this document is subject to change without notice.

Copyright

All rights reserved. No part of the contents of this manual may be reproduced or transmitted in any form or by any means without written permission of the EverFocus Electronics Corporation.

Acknowledgements

- NVIDIA is a trademark of the NVIDIA Corporation.
- All other product names or trademarks are properties of their respective owners.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references.

- All cautions and warnings on the device should be noted.
- All cables and adapters supplied by EverFocus are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by EverFocus to prevent system malfunction or fires.
- Make sure the power source matches the power rating of the device.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- Always completely disconnect the power before working on the system's hardware.
- No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
- If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
- Always disconnect this device from any AC supply before cleaning.
- While cleaning, use a damp cloth instead of liquid or spray detergents.
- Make sure the device is installed near a power outlet and is easily accessible.
- Keep this device away from humidity.
- Place the device on a solid surface during installation to prevent falls.
- Do not cover the openings on the device to ensure optimal heat dissipation.
- Watch out for high temperatures when the system is running.
- Do not touch the heat sink or heat spreader when the system is running.
- Never pour any liquid into the openings. This could cause fire or electric shock.
- As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
- If any of the following situations arises, please contact our service personnel (ts@everfocus.com.tw):

  - Damaged power cord or plug
  - Liquid intrusion to the device
  - Exposure to moisture
  - Device is not working as expected or in a manner as described in this manual
  - The device is dropped or damaged
  - Any obvious signs of damage displayed on the device

- DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE SPECIFICATION) TO PREVENT DAMAGE.

FCC Statement

This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.

Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

TABLE OF CONTENTS

Chapter

1

1. Introduction

EverFocus eNVP-JNN-IV-V, eNVP-JTX-IV-V and eNVP-JNX-IV-V are fanless AI mobile NVRs based on NVIDIA® Jetson™ Nano, TX2 NX and Xavier NX respectively, all of the models are fanless and designed for AIoT market including transportation, smart building and etc..

The models can be installed with EverFocus in-house designed NVR software, providing basic NVR functions like real-time live view, video recording, video playback, alarm notification and more. AI functions such as driver fatigue and distraction monitoring, pedestrian detection and vehicle detection can be performed using the NVR software. To cater to the transportation market, this AI mobile NVR supports wireless network, GPS, G-sensor, 9-36V wide DC range and complies with MIL-STD-810G standard.

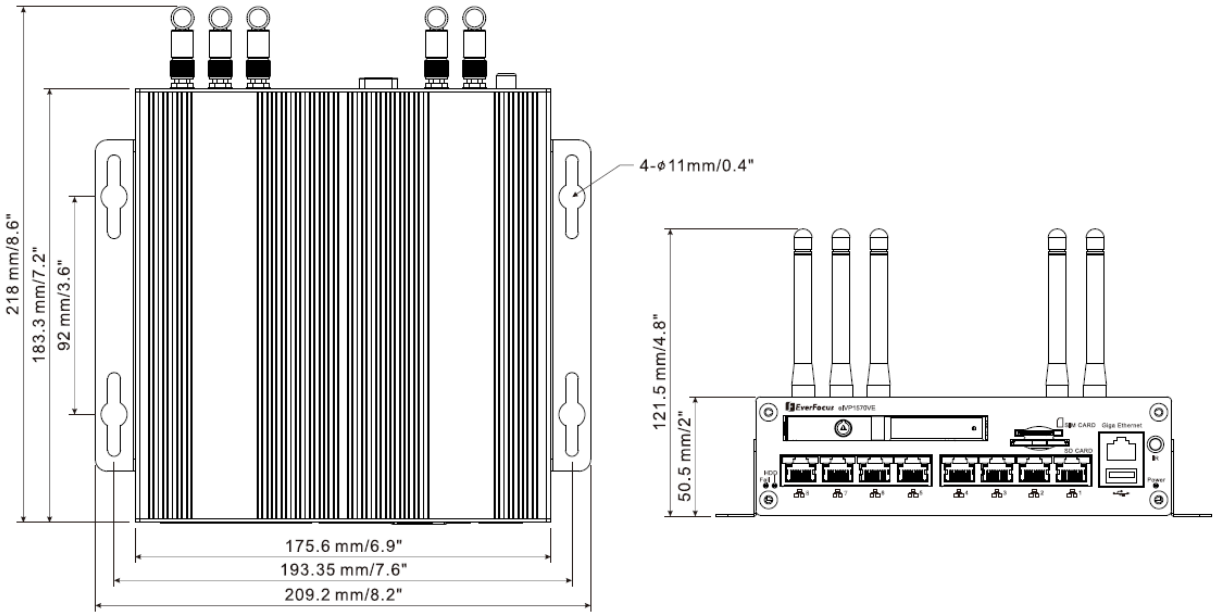
The models support up to 8 PoE ports and wide operating temperature ranging from -20°C to 65°C. It also features one removable 2.5 SATA SSD tray, one SIM card slot, two mini PCIe interfaces and RS-232/RS-485 interfaces, which carries everything you need for computing in your application.

1.1 Key Features and Comparison

Model Name	eNVP-JNN-IV-V0008	eNVP-JTX-IV-V0008	eNVP-JNX-IV-V0008
Jetson Family	NVIDIA® Jetson™ Nano	NVIDIA® Jetson™ TX2 NX	NVIDIA® Jetson™ Xavier NX
AI Performance	472 GFLOPs	1.33 TFLOPs	21 TOPs
CPU	Quad-core ARM® Cortex®-A57 MPCore	Dual-core NVIDIA Denver 2 64-bit CPU and quad-core ARM A57 Complex	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6MB L2 + 4MB L3
GPU	128-core NVIDIA Maxwell™ GPU	NVIDIA Pascal™ Architecture GPU with 256 CUDA cores	384-core NVIDIA Volta™ GPU with 48 Tensor Cores
Memory	Onboard 4 GB 64-bit LPDDR4 25.6GB/s	Onboard 4GB 128-bit LPDDR4, 1600 MHz - 51.2GBs	Onboard 8 GB 128-bit LPDDR4x @ 1600 MHz 51.2GB/s
Storage (OS)	16 GB eMMC 5.1		
Video Input	IP camera x 8	IP camera x 16	
Video Decode	Up to 1 x 4K @60fps	Up to 2 x 4K @60fps	
Video Output	HDMI (2.0 a/b maximum 3840 x 2160) x 1; VGA x 1 (optional)		
Network	GbE port x1, PoE ports (10/100 MbE, total 75W) x 8		
Certificate	CE, FCC, (EN50155, E-Mark project-based)		

For more details about the spec, please refer to *Chapter 3 Specification*.

1.2 Dimensions



1.3 Packing List

• AI Mobile NVR x 1 • Power Harness Cable x 1 (Please refer to *2.2 Vehicle Connection*)	• SSD Lock Key x 2 • Bracket Screw Kit x 1 (with 4 screws and 8 spacers. Please refer to *2.1 Mounting*)

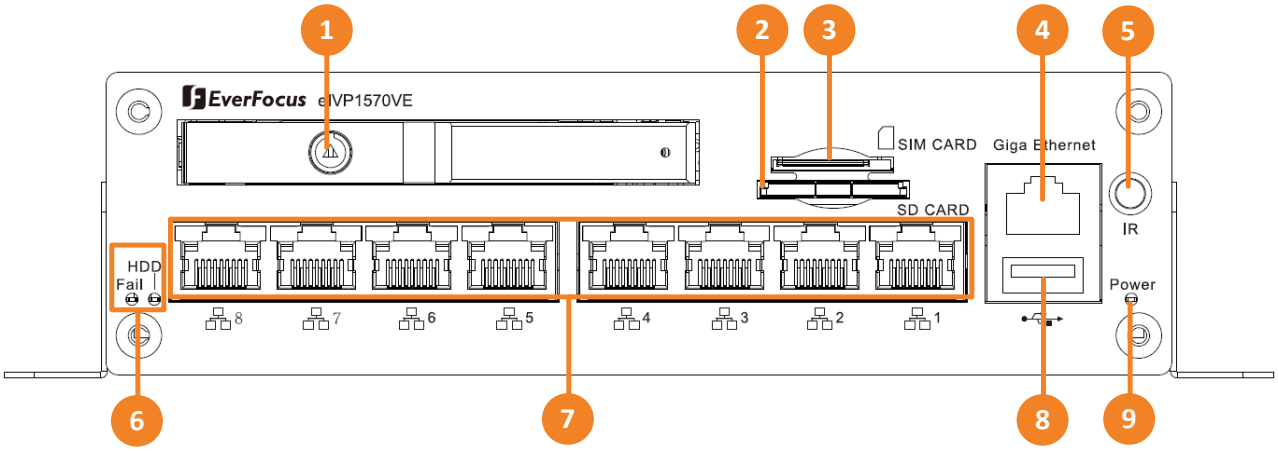
Note:

1. Equipment configurations and supplied accessories vary by country. Please consult your local EverFocus office or agents for more information. Please also keep the shipping carton for possible future use.
2. Contact the shipper if any items appear to have been damaged in the shipping process.

1.4 Optional Accessories

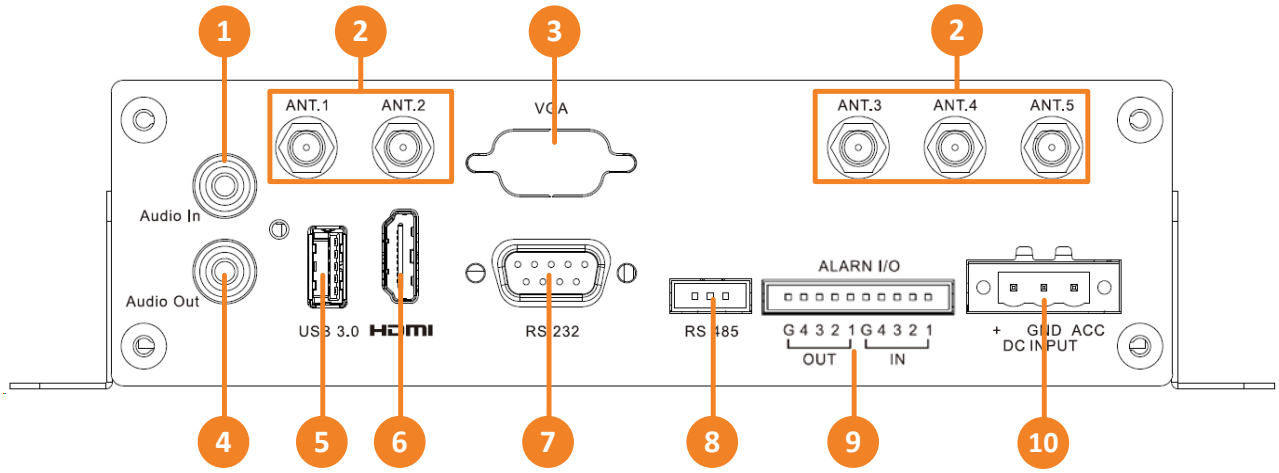
Part Number / Item	
5SSWD1TSA00002R	WD 2.5'' Blue SATA SSD 1TB
4B01XUD19090AS1	Adaptor I:90-264V,47~63Hz O:19V/4.74A
21PLS8EUA00001R	4G module; Gemalto 4G-EU with Packing
3EMV161FST0004R	GPS module package
21SPL273A00001R	AC Wifi module package (EMV1200/800/400 WiFi AC 5G WiFi module)

1.5 Front Panel



No.	Name	Description
1	**SSD Key Lock**	Lock and unlock the SSD tray (see *2.3 SSD Installation*).
2	**SD Card Slot**	Insert a SD card to the card slot.
3	**SIM Card Slot**	Insert a SIM card to the card slot.
4	**LAN/WAN**	One 10/100/1000 Base-Tx Ethernet ports for connecting to the network.
5	**IR**	This function is currently reserved.
6	**LED Indicator**	HDD: HDD LED indicator. Fail: System Fail LED indicator.
7	**PoE Ports**	PoE ports (10/100 MbE, total 75W) for connecting to the IP cameras or other PoE devices.
8	**USB2.0**	USB2.0 port.
9	**Power Indicator**	Power LED indicator.

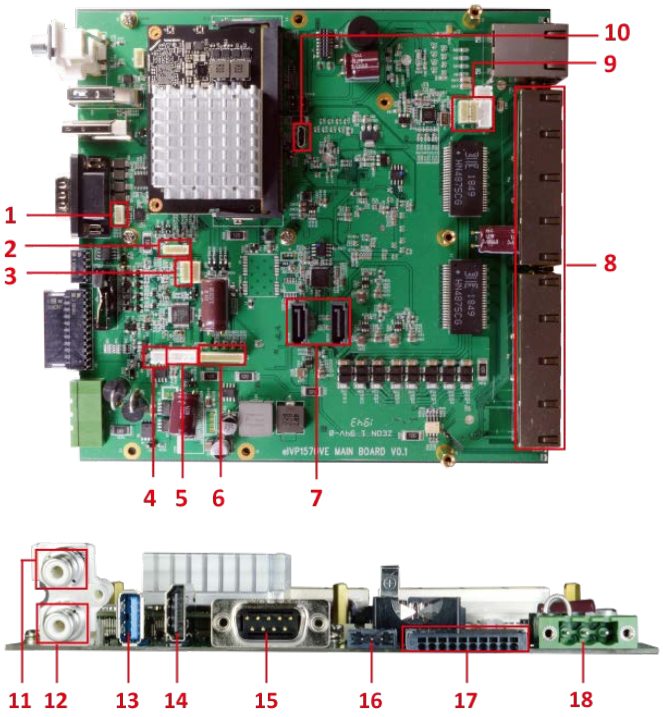
1.6 Rear Panel



No.	Name	Description
1	**Audio Input**	Connects to audio input devices, such as microphones. Note that the microphones with a (built-in) amplifier and external power supply are required.
2	**Antenna**	Connects the antenna to the AI mobile NVR for 3G / 4G / WiFi / GPS functions.
3	**VGA Port**	This port is currently reserved.
4	**Audio Output**	Connects to an audio output device, such as speakers. Note that the speakers with a (built-in) amplifier and external power supply are required.
5	**USB3.0**	USB3.0 port.
6	**HDMI Port**	HDMI display output.
7	**RS-232 Port**	COM port for RS-232.
8	**RS-485 Port**	COM port for RS-485.
9	**Alarm IO**	Provides 4 alarm inputs and 4 alarm outputs.
10	**DC Power Input**	Connecting to the power source. For details, please refer to *2.2 Vehicle Connection*.

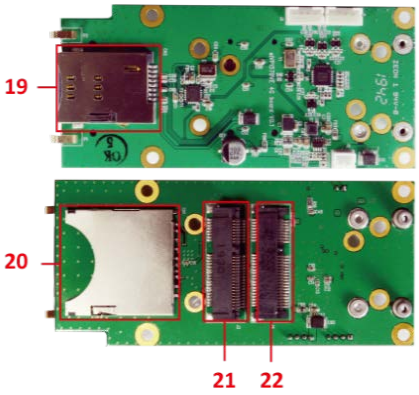
1.7 Carrier Board

Main Board



Power Board

IO Board



eIVP1570VE-CB			
1	Console	12	Audio In
2	VGA	13	USB 3.0
3	HDD Thermal Sensor	14	HDMI
4	HDD Heater (Reserved)	15	RS232
5	HDD Power	16	RS485
6	Video In / Camera Power	17	Alarm IO (4-input, 4-output)
7	SATA Port x 2	18	Power In
8	10/100 Ethernet PoE Port x 8	19	SIM Card slot
9	USB Port	20	SD Card slot
10	OTG	21	3G, 4G
11	Audio Out	22	GPS

Dimensions (W x D x H)

Main Board: 170 x 179.3 x 35 mm / 6.7" x 7.1" x 1.38"
Power Board: 30.1 x 98 x 25 mm / 1.19" x 3.85" x 0.98"
IO Board: 45 x 98.3 x 18 mm / 1.77" x 3.87" x 0.71"

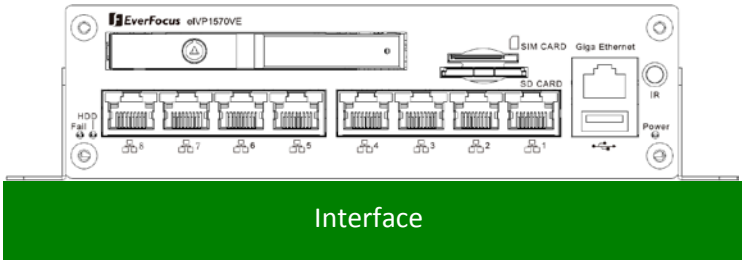
Chapter

2

2. Connection and Installation

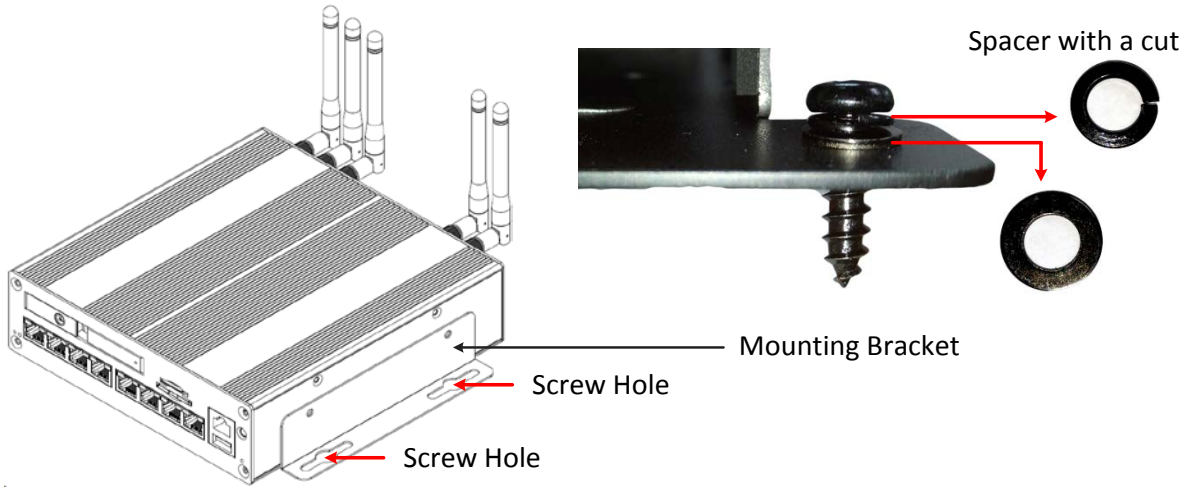
2.1 Mounting

You can mount the AI mobile NVR onto a surface inside the vehicle.



Support-Mount

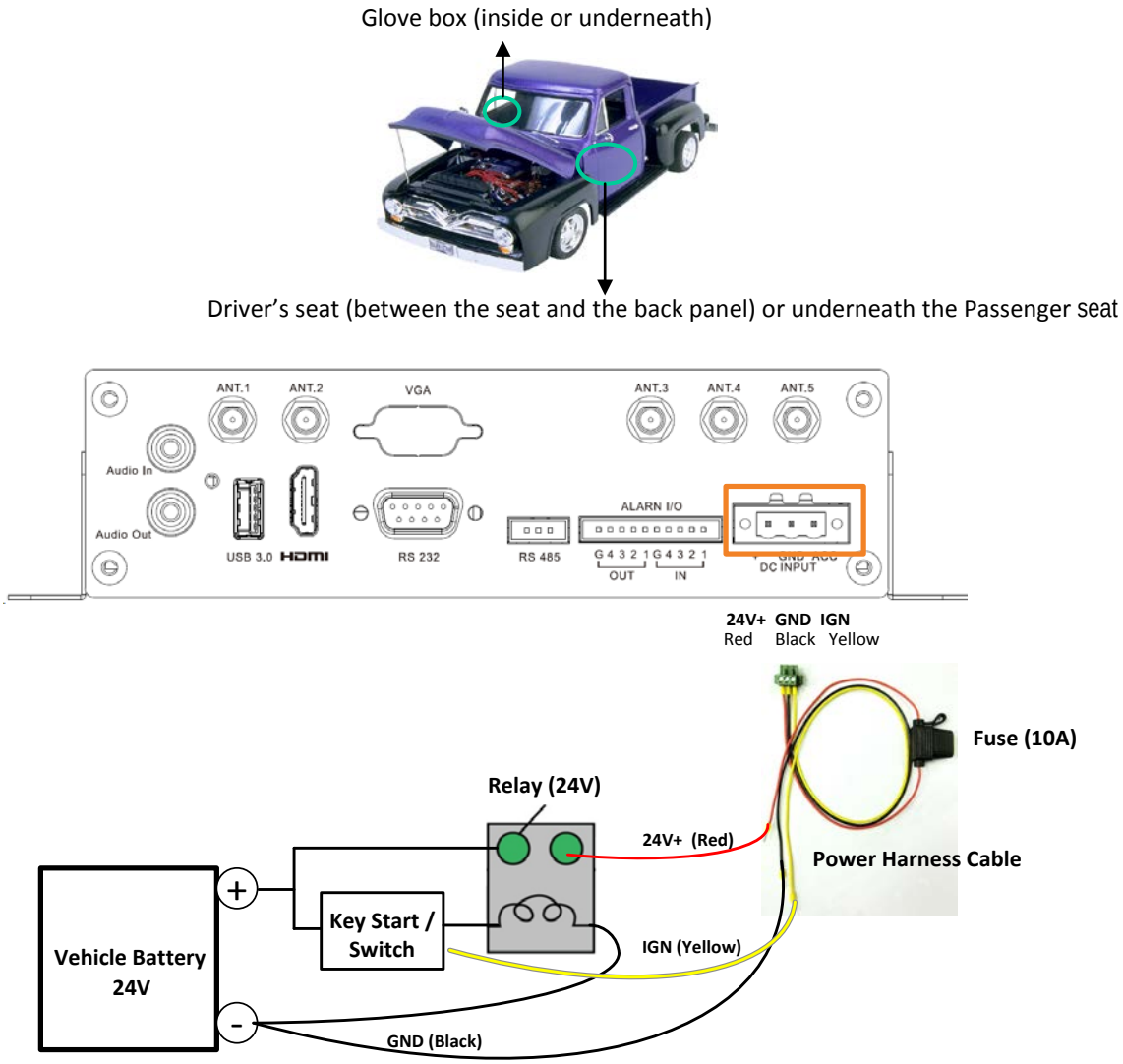
The **Mounting Bracket** is already installed on the AI mobile NVR. To mount the AI mobile NVR onto a surface, use the supplied 4 black screws and 8 spacers (place 2 spacers on each screw hole).



2.2 Vehicle Connection

The AI mobile NVR supports input power voltage between 9VDC ~ 36VDC. You can install the AI mobile NVR in all kinds of vehicles support the above power voltage. The diagrams below are examples to illustrate the connection inside a car / truck with 12VDC / 24VDC.

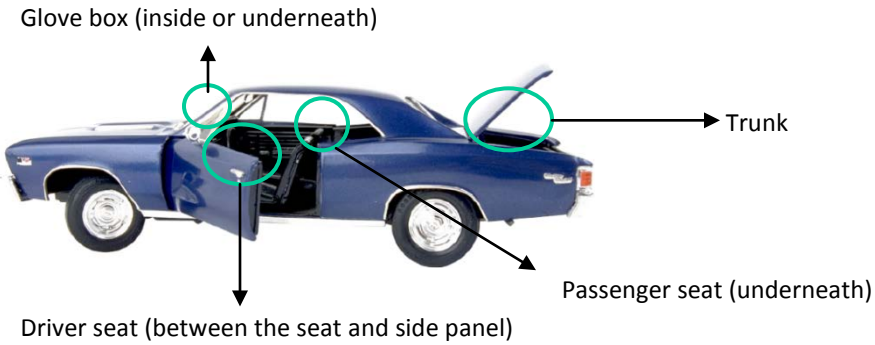
2.2.1 Connecting to a Truck with 24VDC

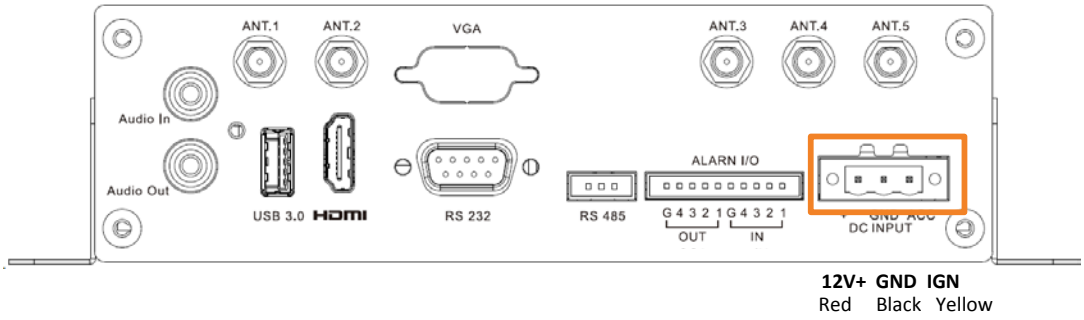


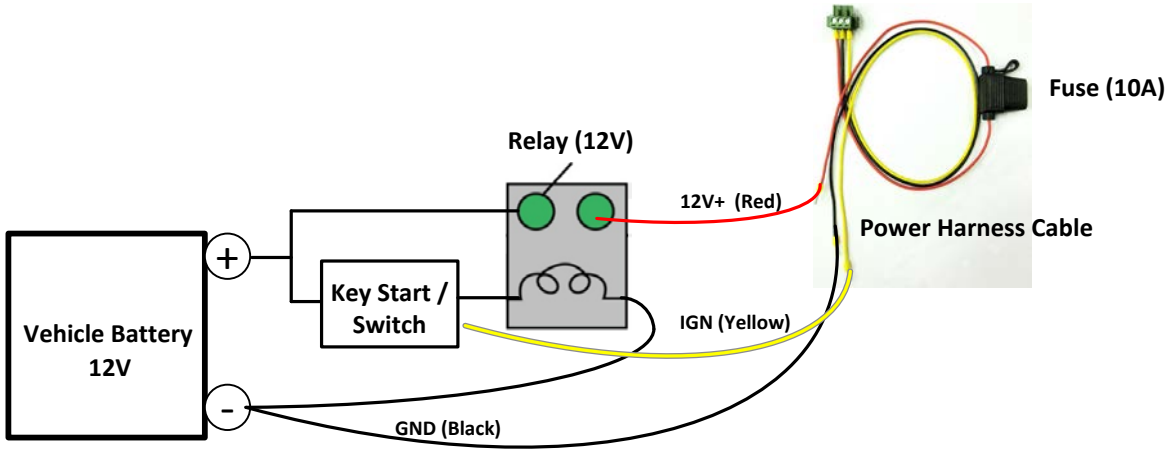
Note:

1. If the car is without an ignition key, please connect the IGN (yellow) wire directly or via a switch to the vehicle battery.
2. It is suggested to use a relay in the installation. Otherwise, the AI mobile NVR will always draw the power from the vehicle battery.

2.2.2 Connecting to a Car with 12VDC







Note:

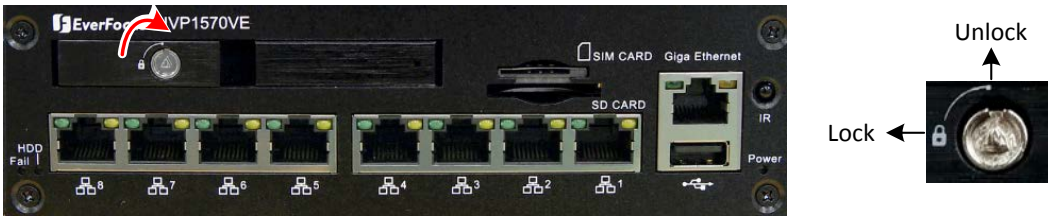
1. If the car is without an ignition key, please connect the IGN (yellow) wire directly or via a switch to the vehicle battery.
2. It is suggested to use a relay in the installation. Otherwise, the AI mobile NVR will always draw the power from the vehicle battery.

2.3 SSD Installation

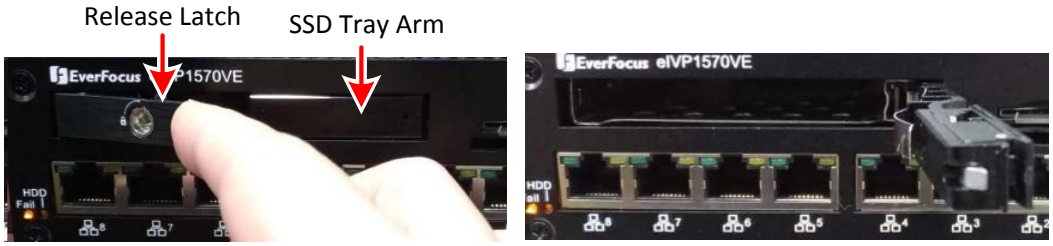
Users can install one 2.5” SSD into the AI mobile NVR for recording. Please follow the steps below to install the SSD.

Note: The AI mobile NVR does not support hot swap for the SSD. Ensure to power off the device before removing the SSD. Also ensure to remove the SSD only after the power was completely shut off. This would protect and extend the operating life of the SSD.

1. Make sure the AI mobile NVR is powered-off. Unlock the SSD Tray (turn clockwise) using the supplied **SSD Lock Key**.



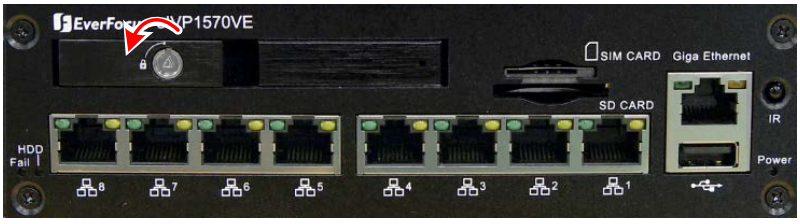
2. To install the SSD, pull the **Release Latch** to open the **SSD Tray Arm**.



3. Insert an SSD into the SSD tray and then push back the **SSD Tray Arm**.

Note: The models support SSD height with 7mm and 9.5mm. If 7mm SSD is in use, it is strongly recommended to use a spacer to increase the SSD height from 7mm to 9.5mm to prevent from wobbling and vibration.

4. Lock the SSD Tray using the supplied **SSD Lock Key**.



Chapter
3

3. Specification

3.1 eNVP-JNN-IV-V0008 (eIVP1570VE)

System	
CPU	Quad-core ARM® Cortex®-A57 MPCore processor
GPU	NVIDIA Maxwell™ architecture with 128 NVIDIA CUDA® cores
Main Memory	Onboard 4 GB 64-bit LPDDR4
OS	16 GB eMMC
Video	
Format	H.264 / H.265
Video Input	SKU1: IP camera x 8 ; SKU2: IP camera x 4, analog camera x 4 (M12 to BNC x 4, with DC-Jack x 4 (total 2A))
Video Output	HDMI 2.0 x 1 max. 3840 x 2160; VGA x 1 (optional)
Resolution	1 x 4K @ 60fps | 2 x 4K @ 30fps | 8 x 1080p @ 30fps
Audio	
Audio Input	RCA x1
Audio Output	RCA x1
Recording	
Format	H.264 / H.265
Resolution	4K @ 60fps | 2x 4K @ 30fps | 8x 1080p @ 30fps
Storage	
SATA SSD	2.5" SATA x 1 (removable)
RAID	N/A
Network	
Ethernet	GbE port x1, PoE ports (10/100 MbE, total 75W): SKU1 x 8 PoE, SKU2 x 4 PoE
Wi-Fi / 3G / 4G	Supported (optional)
GPS / G-sensor	Onboard G-Sensor, GPS (optional)

Alarm	
Alarm In/Out	Input x 4; Output x 4
Interface	
Front I/O Panel	Power button x 1 IR receiver x 1 USB 2.0 x 1 GbE port x 1 PoE port x 8 Micro USB2.0 (Internal OTG) x 1 2.5“ SSD bay x 1 SIM card slot x 1 LED indicator x 2 (HDD, Fail)
Rear I/O Panel	Audio input x 1, Audio output x 1 USB 3.0 x 1 RS-232 x 1, RS485 x 1 HDMI x 1 Alarm IO (4-input, 4-output) x 1 Power input x 1 Antenna port x 5
Expansion Slot	Mini PCIe x 2 (full-size USB2.0 x 1, half-size USB2.0 x 1)
Software Support	
NVR Software	EverFocus AiO NVR (Ubuntu 18.04)
General	
Power Supply	DC 9 – 36V (with ignition pin)
Dimensions (W x D x H)	175.6 x 183.3 x 50.5mm / 6.9“ x 7.2“ x 2“ (without bracket)
Gross Weight	1.8kg / 4lb
Operating Temp.	-4°F ~149°F (-20°C ~+65°C)
Storage Temp.	-4°F ~185°F (-20°C ~+85°C)
Storage Humidity	95% @ 40 °C (non-condensing)
Vibration/Shock	MIL-STD-810G
Certification	CE, FCC, EN50155, E-Mark

Note: All specifications are subject to change without notice.

3.2 eNVP-JTX-IV-V0008

System	
CPU	Dual-core NVIDIA Denver 2 64-bit CPU and quad-core ARM A57 Complex
GPU	NVIDIA Pascal™ Architecture GPU with 256 CUDA cores
Main Memory	Onboard 4GB 128-bit LPDDR4, 1600 MHz - 51.2 GBs
OS	16 GB eMMC 5.1
Video	
Format	H.264 / H.265
Video Input	Based on the installed software EverFocus AiO NVR: up to 8ch
Video Output	HDMI 2.0 a/b x 1 (max. 3840 x 2160) VGA x 1 (optional)
Resolution	4K @ 60fps x 2 | 4K @ 30fps x 4 | 1080p @ 30fps x 16
Audio	
Audio Input	RCA x1
Audio Output	RCA x1
Recording	
Format	H.264 / H.265
Resolution	4K @ 60fps x 2 | 4K @ 30fps x 4 | 1080p @ 30fps x 16
Storage	
SATA SSD	2.5'' SATA x 1 (removable)
RAID	NA
Network	
Ethernet	GbE port x1, PoE ports (10/100 MbE, total 75W): x 8
Wi-Fi / 3G / 4G	Supported (optional)
GPS/ G-Sensor	Onboard G-Sensor, GPS (optional)
Alarm	
Input / Output	Alarm Input x 4, Alarm Output x 4
Interface	
Front I/O Panel	Power button x 1 IR receiver x 1 USB 2.0 x 1 GbE port x 1; PoE port x 8 Micro USB2.0 (Internal OTG) x 1 2.5" SSD bay x 1 SIM card slot x 1 LED indicator x 2 (HDD, Fail)

Rear I/O Panel	Audio input x 1, Audio output x 1 USB 3.0 x 1, RS-232 x 1, RS485 x 1 HDMI x 1 Alarm IO (4-input, 4-output) x 1 Power input x 1 Antenna port x 5
Expansion Slot	Mini PCIe x 2 (full-size USB2.0 x 1, half-size USB2.0 x 1)
Software	
NVR Software	EverFocus AiO NVR
General	
Power Supply	DC 9-36V (with ignition pin)
Dimensions (W x D x H)	175.6 x 183.3 x 50.5mm / 6.9“ x 7.2“ x 2“ (without bracket)
Gross Weight	1.8kg / 4lb
Operating Temp.	-4°F ~149°F (-20°C ~+65°C)
Storage Temp.	-4°F ~185°F (-20°C ~+85°C)
Storage Humidity	95% @ 40 °C (non-condensing)
Vibration/Shock	MIL-STD-810G
Certification	CE, FCC certified; (EN50155, E-Mark project-based)

Note: All specifications are subject to change without notice.

3.3 eNVP-JNX-IV-V0008

System	
CPU	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6MB L2 + 4MB L3 processor
GPU	NVIDIA Volta™ architecture with 384 NVIDIA CUDA® cores (21 TOPS [INT8])
Main Memory	Onboard 8 GB 128-bit LPDDR4x @ 1600 MHz 51.2GB/s
OS	16 GB eMMC 5.1
Video	
Format	H.264 / H.265
Video Input	Based on the installed software EverFocus AiO NVR: up to 8ch
Video Output	HDMI 2.0 a/b x 1 (max. 3840 x 2160) VGA x 1 (optional)
Resolution	4K @ 60fps x 2 | 4K @ 30fps x 4 | 1080p @ 30fps x 16
Audio	
Audio Input	RCA x1
Audio Output	RCA x1
Recording	
Format	H.264 / H.265
Resolution	4K @ 60fps x 2 | 4K @ 30fps x 4 | 1080p @ 30fps x 16
Storage	
SATA SSD	2.5'' SATA x 1 (removable)
RAID	NA
Network	
Ethernet	GbE port x1, PoE ports (10/100 MbE, total 75W) x 8
Wi-Fi / 3G / 4G	Supported (optional)
GPS/ G-Sensor	Onboard G-Sensor, GPS (optional)
Alarm	
Input / Output	Alarm Input x 4, Alarm Output x 4
Interface	
Front I/O Panel	Power button x 1 IR receiver x 1 USB 2.0 x 1 GbE port x 1; PoE port x 8 Micro USB2.0 (Internal OTG) x 1 2.5“ SSD bay x 1 SIM card slot x 1 LED indicator x 2 (HDD, Fail)

Rear I/O Panel	Audio input x 1, Audio output x 1 USB 3.0 x 1, RS-232 x 1, RS485 x 1 HDMI x 1 Alarm IO (4-input, 4-output) x 1 Power input x 1 Antenna port x 5
Expansion Slot	Mini PCIe x 2 (full-size USB2.0 x 1, half-size USB2.0 x 1)
Software	
NVR Software	EverFocus AiO NVR
General	
Power Supply	DC 9-36V (with ignition pin)
Dimensions (W x D x H)	175.6 x 183.3 x 50.5mm / 6.9“ x 7.2“ x 2“ (without bracket)
Gross Weight	1.8kg / 4lb
Operating Temp.	-4°F ~149°F (-20°C ~+65°C)
Storage Temp.	-4°F ~185°F (-20°C ~+85°C)
Storage Humidity	95% @ 40 °C (non-condensing)
Vibration/Shock	MIL-STD-810G
Certification	CE, FCC certified; (EN50155, E-Mark project-based)

Note: All specifications are subject to change without notice.

EverFocus Electronics Corp.

EverFocus Taiwan:
2F., No.12, Ln. 270, Sec. 3, Beishen Rd., Shenkeng Dist., New Taipei City 222, Taiwan
TEL: +886 2 2662 2338
FAX: +886 2 2662 3632
www.everfocus.com.tw
marketing@everfocus.com.tw

EverFocus China - Shenzhen:
3F, Building 7, Longcheng Industrial Park, No.39, Longguan No.7 Road, Dalang Street, Longhua, Shenzhen, Guangdong, China
TEL: +86 755 2765 1313
FAX: +86 755 2765 0337
www.everfocus.com.cn
marketing@everfocus.com.cn

EverFocus USA - California:
324 W Blueridge Avenue, Orange, CA 92865, USA
TEL: +1 626 844 8888
FAX: +1 714 792 0481
www.everfocus.com
sales@everfocus.com

EverFocus Japan:
3F, Kuramochi, Building II, 2-2-3 Koto-Bashi,Sumida-Ku, Tokyo, 130-0022, Japan
TEL: +81 3 5625 8188
FAX: +81 3 5625 8189
www.everfocus.co.jp
info@everfocus.co.jp

Your EverFocus product is designed and manufactured with high quality materials and components which can be recycled and reused.
This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.
Please, dispose of this equipment at your local community waste collection/recycling centre.
In the European Union there are separate collection systems for used electrical and electronic product.
Please, help us to conserve the environment we live in!

Ihr EverFocus Produkt wurde entwickelt und hergestellt mit qualitativ hochwertigen Materialien und Komponenten, die recycelt und wieder verwendet werden können.
Dieses Symbol bedeutet, dass elektrische und elektronische Geräte am Ende ihrer Nutzungsdauer vom Hausmüll getrennt entsorgt werden sollen.
Bitte entsorgen Sie dieses Gerät bei Ihrer örtlichen kommunalen Sammelstelle oder im Recycling Centre.
Helfen Sie uns bitte, die Umwelt zu erhalten, in der wir leben!

EverFocus