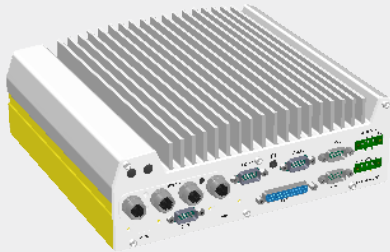


# Nuvo-9100VTC Series

Intel® 13th/ 12th-Gen Core™ in-vehicle controller with 4x M12/ 4x RJ45 / 8x RJ45 PoE+ ports

## Preliminary



### Key Features

- Supports Intel® 13th/12th-Gen Core™ 24C/ 32T 35W/ 65W LGA1700 CPU
- 4x or 8x 802.3at PoE+ ports via M12 or RJ45 connectors
- 1x USB 3.2 Gen2x2 type-C and 8x USB 3.2/ 2.0 type-A ports
- On-board isolated CAN bus for in-vehicle communication
- 4-CH isolated DI and 4-CH isolated DO
- M.2 Gen4 x4 NVMe SSD slot
- 8V to 48V wide-range DC input with built-in ignition power control
- 2x SATA ports with 1x hot-swappable HDD tray, supporting RAID 0/1
- E-Mark certified and EN 50155 EMC compliant

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### Introduction

Nuvo-9100VTC is Neosys' latest rugged in-vehicle controller based on Intel® 13<sup>th</sup>/ 12<sup>th</sup>-Gen Core™ processors. Benefiting from cutting-edge Intel® 7 photolithography, the latest Core™ desktop processors come with up to 24 cores/ 32 threads, offering an incredible boost of computational performance. Combining DDR5 memory bandwidth throughput and PCIe Gen4 NVMe high-speed disk read/write, users can expect an overall system performance improvement of up to 1.8x when compared to previous 10th or 11th-Gen platforms.

Nuvo-9100VTC provides flexibility to support a range of peripherals and connections. It has 2.5Gb and 1Gb Ethernet ports, and four or eight 802.3at PoE+ ports to supply 25W of power to connected devices such as IP cameras. The system also has x-coded M12 connectors and screw-lock mechanisms on the computer I/Os like Gigabit Ethernet, USB 3.2 Gen1 and USB 3.2 Gen2 to guarantee extreme rugged connectivity in shock/ vibration environments. Wireless connectivity is essential for modern-day in-vehicle applications, and you can simultaneously utilize two M.2 and three mini-PCIe sockets with corresponding wireless modules for 5G/ 4G, WiFi, GPS, and CAN module for communication.

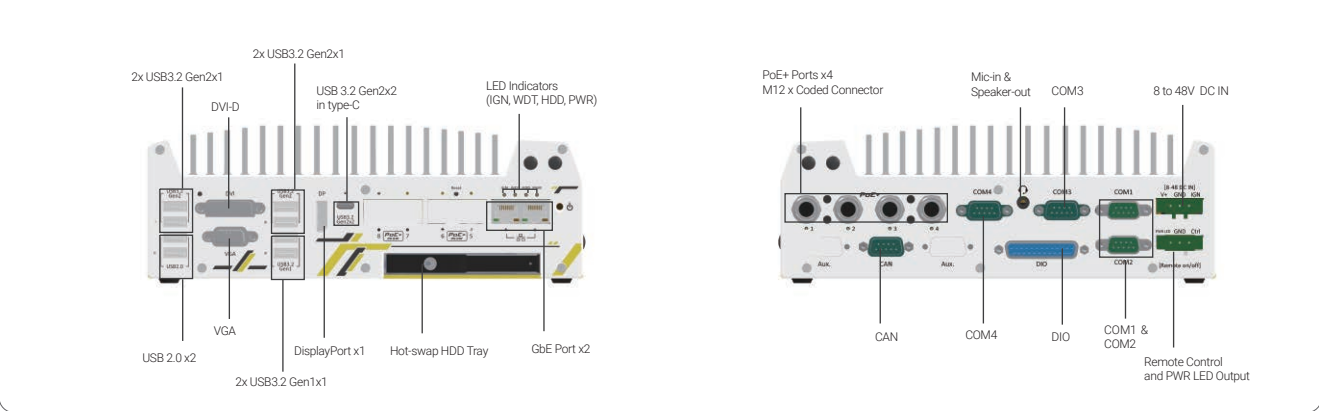
On top of all that, Nuvo-9100VTC also features an isolated CAN bus for in-vehicle communication, isolated DIO for sensor/ actuator control, 8V to 48V wide-range DC input with ignition power control, and is E-Mark certified, making it the perfect solution with extraordinary reliability for various in-vehicle applications.

### Specifications

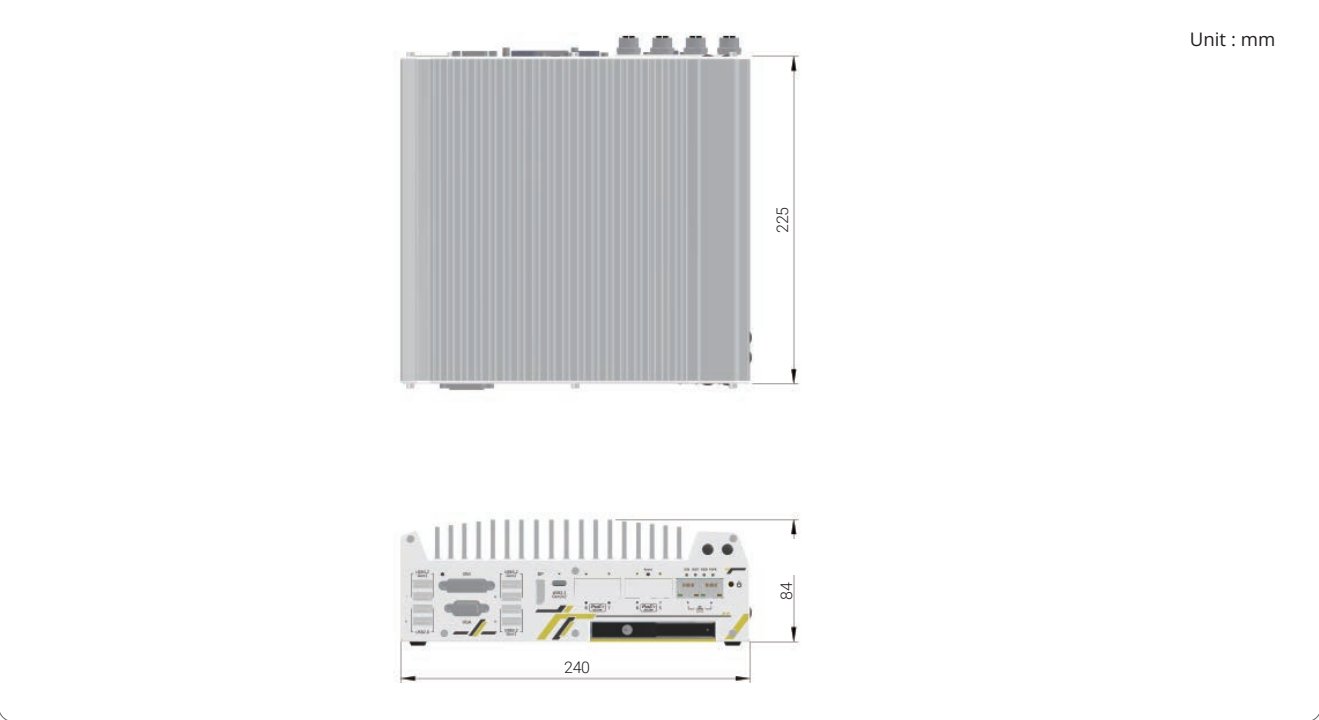
System Core		Expansion Bus	
<b>Processor</b>	Supporting Intel® 13th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-13900E/ i9-13900TE - Intel® Core™ i7-13700E/ i7-13700TE - Intel® Core™ i5-13500E/ i5-13400E/ i5-13500TE - Intel® Core™ i3-13100E/ i3-13100TE	Support Intel® 12th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-12900E/ i9-12900TE - Intel® Core™ i7-12700E/ i7-12700TE - Intel® Core™ i5-12500E/ i5-12500TE - Intel® Core™ i3-12100E/ i3-12100TE - Intel® Pentium® G7400E/ G7400TE - Intel® Celeron® G6900E/ G6900TE	<b>Mini PCI Express</b> 1x full-size mini-PCIe socket 2x full-size mini-PCIe sockets (USB signals only) with internal SIM sockets
<b>Chipset</b>	Intel® Q670E platform controller hub	<b>M.2</b> 1x M.2 2242/3052 B key socket with SIM slot for M.2 5G/ 4G module 1x M.2 2242/3052 B key socket with SIM slot for M.2 4G module	<b>Power Supply</b>
<b>Graphics</b>	Integrated Intel® UHD Graphics 770 (32EU)	<b>DC Input</b> 1x 3-pin pluggable terminal block for 8V to 48V DC input (IGN/ GND/ V+)	<b>Ignition Control</b> Built-in ignition power control
<b>Memory</b>	Up to 64 GB DDR5 4800 SDRAM (two SODIMM slots)	<b>Remote Ctrl. &amp; LED Output</b> 1x 3-pin pluggable terminal block for remote control and PWR LED output	<b>Mechanical</b>
<b>AMT</b>	Supports Intel vPro/ AMT 16.0	<b>Dimension</b> 240 mm (W) x 225 mm (D) x 84 mm (H)	<b>Weight</b> 3.7kg
<b>TPM</b>	Supports dTPM 2.0	<b>Mounting</b> Wall-mount with damping bracket	<b>Environmental</b>
<b>I/O Interface</b>		<b>Operating Temperature</b> With 35W CPU -40°C ~ 70°C <sup>[1]</sup> (with 1 memory module installed) -40°C ~ 60°C <sup>[2][3]</sup> ((with 2 memory modules installed)	<b>Storage Temperature</b> -40°C to 85°C
<b>Ethernet port</b>	1x 2.5G Ethernet by I225-IT and 1x Gigabit Ethernet by I219-LM with screw-lock	<b>Humidity</b> 10% to 90% , non-condensing	<b>Vibration</b> MIL-STD-810H, 514.8, Category 4
<b>PoE+</b>	4x IEEE 802.3at Gigabit PoE+ ports by Intel® I210 - M12 X-coded connector (Nuvo-9100VTC) - RJ45 connector (Nuvo-9104VTC) 4x IEEE 802.3at Gigabit PoE+ ports by Intel® I210 and 4x 2.5G PoE+ ports by I225-IT - RJ45 connector (Nuvo-9108VTC)	<b>Shock</b> MIL-STD-810H, 516.8, Procedure I	<b>EMC</b> E-Mark, EN 50121 (EN 50155 EMC) CE/FCC Class A, according to EN 55032 & EN 55035
<b>USB 3.2</b>	1x USB 3.2 Gen2x2 (20 Gbps) port in type-C connector with screw-lock 4x USB 3.2 Gen2x1 (10 Gbps) ports in type-A connectors 2x USB 3.2 Gen1x1 (5 Gbps) ports in type-A connectors		
<b>USB 2.0</b>	2x USB 2.0 ports		
<b>CAN Bus</b>	1x isolated CAN 2.0 port		
<b>Video Port (Integrated Graphics)</b>	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution		
<b>Serial Port</b>	2x software-programmable RS-232/ 422/ 485 ports (COM1/COM2) 2x RS-232 ports (COM3/COM4)		
<b>Audio</b>	1x 3.5 mm jack for mic-in and speaker-out		
<b>Storage Interface</b>			
<b>SATA HDD</b>	1x hot-swappable 2.5" HDD tray (7mm HDD/ SSD) and 1x internal 2.5" SATA ports		
<b>M.2</b>	1x M.2 2280 M key socket (PCIe Gen4 x4) for NVMe SSD		

<sup>[1]</sup> Due to high heat generation of DDR5 memory, please configure the CPU to 35W mode and utilize only one memory slot, while operating at a temperature of 70°C.  
<sup>[2]</sup> For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.  
<sup>[3]</sup> For CPU operating at 65W mode, the highest operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-loading applied. Users can configure CPU power in BIOS to allow higher operating temperature.

## Appearance



## Dimensions



## Ordering Information

Model No.	Product Description
Nuvo-9100VTC	Intel® 13th/ 12th-Gen Core™ in-vehicle controller with 4x M12 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-9104VTC	Intel® 13th/ 12th-Gen Core™ in-vehicle controller with 4x RJ45 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-9108VTC	Intel® 13th/ 12th-Gen Core™ in-vehicle controller with 8x RJ45 PoE+ Ports, DIO, CAN bus and RAID

## Optional Accessories

Cbl-M12X8M-RJ45F-100CM	M12 (8-pole-X-coded) to RJ45 Female, CAT6A, Length : 100CM
Cbl-M12X8M-RJ45-CAT6A-500CM	M12 (8-pole-X-coded) to RJ45, CAT6A, Length : 500CM
PA-280W-ET2	280W AC/DC power adapter 24V/ 11.67A; 16AWG/ 100cm; cord end terminals for terminal block, operating temperature : -30°C to 60°C.