Nuvo-9100VTC Series

Intel® 14th/ 13th/ 12th-Gen Core™ in-vehicle controller with 4x M12/ 4x RJ45 / 8x RJ45 PoE+ ports

Key Features

- **Supports Intel® 14th/ 13th/ 12th-Gen Core™ 24C/ 32T 35W/ 65W 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/ EN 45545 certified and EN 50155 EMC compliant**

Introduction

Nuvo-9100VTC is Neousys' latest rugged in-vehicle controller based on Intel® 14th/ 13th/ 12th-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/ EN 45545 certified and EN 50155 EMC compliant, making it the perfect solution with extraordinary reliability for various in-vehicle applications.

Specifications

System Core		
Processor	Supporting Intel® 14th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-14900/ i9-14900T - Intel® Core™ i7-14700/ i7-14700T - Intel® Core™ i5-14500/ i5-14400/ i5-14500T - Intel® Core™ i3-14100/ i3-14100T	
	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
Chipset	Intel® Q670E platform controller hub	
Graphics	Integrated Intel® UHD Graphics 770 (32EU)	
Memory	Up to 128 GB DDR5 4800 SDRAM (two SODIMM slots)	
AMT	Supports Intel vPro/ AMT 16.0	
TPM	Supports dTPM 2.0	

I/O Interface	
Ethernet port	1x 2.5G Ethernet by I226-IT/ I225-IT and 1x Gigabit Ethernet by I219-LM with screw-lock
PoE+	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 I226-IT/ I225-IT - RJ45 connector (Nuvo-9108VTC)
USB 3.2	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
USB 2.0	2x USB 2.0 ports
CAN Bus	1x isolated CAN 2.0 port
Video Port (Integrated Graphics)	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1/COM2) 2x RS-232 ports (COM3/COM4)
Isolated DIO	4-CH isolated DI and 4-CH isolated DO
Audio	1x 3.5 mm jack for mic-in and speaker-out

Storage Interface	
M.2	1x M.2 2280 M key socket (PCIe Gen4 x4) for NVMe SSD
SATA HDD	1x hot-swappable 2.5" HDD tray (7mm HDD/ SSD) and 1x internal 2.5" SATA ports

Expansion Bus	
Mini PCI Express	1x full-size mini-PCIe socket 2x full-size mini-PCIe sockets (USB signals only) with internal SIM sockets
M.2	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

Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8V to 48V DC input (IGN/ GND/ V+)
Ignition Control	Built-in ignition power control
Remote Ctrl. & LED Output	1x 3-pin pluggable terminal block for remote control and PWR LED output

Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 84 mm (H)
Weight	3.7kg
Mounting	Wall-mount with damping bracket

Environmental	
Operating Temperature	**With 35W CPU** -40°C ~ 70°C[1] (with 1 memory module installed) -40°C ~ 60°C[2][3] ((with 2 memory modules installed) **With 65W CPU** -40°C ~ 50°C[2][3] (configured as 65W TDP with 2-slots memory)
Storage Temperature	-40°C to 85°C
Humidity	10% to 90% , non-condensing
Vibration	EN 50155:2017/ IEC 61373, Category I, Class B - Body mounted
Shock	EN 50155:2017/ IEC 61373, Category I, Class B - Body mounted
EMC	E-Mark, EN 50121 (EN 50155 EMC) CE/FCC Class A, according to EN 55032 & EN 55035
EN 45545	EN 45545-2

[1] 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.
[2] For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.
[3] 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.

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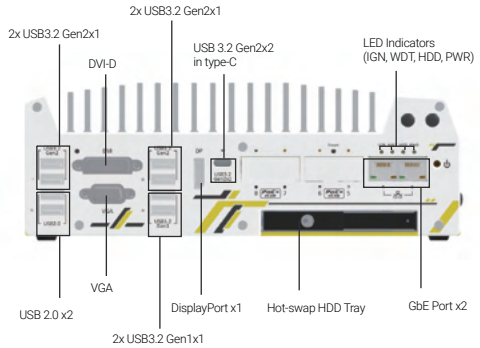
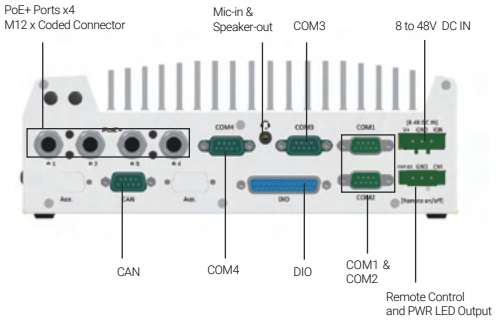
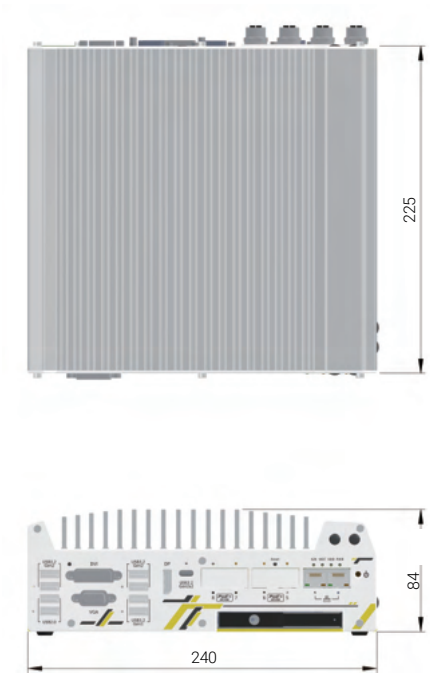
Appearance





Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-9100VTC	Intel® 14th/ 13th/ 12th-Gen Core™ in-vehicle controller with 4x M12 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-9104VTC	Intel® 14th/ 13th/ 12th-Gen Core™ in-vehicle controller with 4x RJ45 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-9108VTC	Intel® 14th/ 13th/ 12th-Gen Core™ in-vehicle controller with 8x RJ45 PoE+ Ports, DIO, CAN bus and RAID

Optional Accessories

Cbl-M12X8M-RJ45-CAT5e-500CM	M12 (8-pole-X-coded) to RJ45, CAT5e. Length : 500cm
Cbl-M12X8M-RJ45-CAT5e-1000CM	M12 (8-pole-X-coded) to RJ45, CAT5e. Length : 1000cm
PA-280W-ET3	280W AC-DC power Adapter(GST280A24-YI), 24V 11.67A, 85~264VAC 120~370VDC, C6P Plug, w/ terminal block, -30°C to 70°C