NEXCOM

Committed to Customer Success

2024
Mobile Computing Solutions
Product Selection Guide

About NEXCOM
Mobile Computing Solutions

Founded in 1992, NEXCOM is committed to being your trustworthy partner in building the intelligent business. NEXCOM makes the difference by utilizing its industrial computing experience, a highly talented R&D team, strong world-class ODM services, and rapid support to customers. NEXCOM has worldwide customers from more than 50 countries and we never stop growth with our business partners. As we accelerate towards the future, NEXCOM has been playing an important role in bringing intelligence to transportation.

NEXCOM's Mobile Computing Solutions (MCS) has extended and developed many products for use in AI, 5G, and safety related applications. We're creating a safer working environment and saving operational costs through improvements in logistics for more efficient fleet management. Through the application and development of 5G, a better internet experience can be realized. We support our business partners to further promote edge AI computing for ADAS, AMR, and autonomous driving.

We focus on developing practical technologies, and constant growth brings us many advantages in the automotive sphere:

- Superior power designed for uninterrupted operations
- Smart and effective patented designs, resistant to very extreme environments
- Various communication module options (LoRa, V2X, NB-IoT, LTE, 5G NR, Wi-Fi 6/6E)
- Modular designs for the ease of maintenance
- Customized firmware and specialized ODM hardware solutions

NEXCOM has the passion, hope and dedication to keep moving forward making daily lives better through innovation. NEXCOM is forging ahead into the future and making it a success with our business partners!

Always Moving Forward

Our Core Competencies -

Building a Foundation for Interconnected IoV and Value-Added Innovation

TAIWAN EXCELLENCE 2022

Vehicle Mount Computer
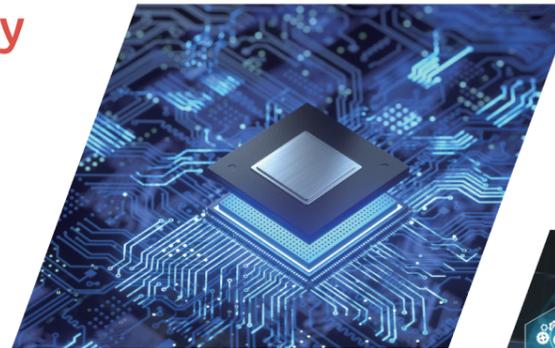VMC 2020

Railway Computer
aROK 5510

Railway Computer
aROK 8110

Premium Computing Design Capability

Computing power drives vehicle applications, which is why NEXCOM offers a wide range of computing platforms to meet different vehicle needs

- RISC platform (NXP i.MX6, i.MX8. Rockchip, TI)
- Intel Atom® platform (Bay Trail, Apollo Lake, Elkhart Lake, Alder Lake-N)
- Intel® Core™ i platform (Core i 8th, 9th, 11th,12th, 13 th Gen)
- Intel® high-end Xeon® platform
- NVIDIA® Jetson TX2, Xavier™ NX, Orin™ NX, AGX Orin™ integrated
- Over 20 years of experience in designing rugged devices and vehicle/railway computers

RF Communication Expansion

For the array of wireless usage cases, NEXCOM specializes in RF communication expansion, providing a comprehensive series of proprietary mini-PCIe/M.2 modules, allow users maximum flexibility in optimizing vehicle configurations

- GNSS (RTK, Dead reckoning)
- NB-IoT, 4G LTE, 5G NR
- DSRC/C-V2X, LoRa
- Wi-Fi 6/6E

Software Solutions

- SDK (API, programming guide, demo AP) supports for Linux, Android and Windows OS
- BSP (bootloader, kernel driver, OS (Android, Yocto, Ubuntu))
- MCU (customized MCU firmware for small quantities)
- BIOS (customized BIOS for small quantities)
- Secure System Development (TPM, Secure Boot, Boot Guard)

QUALITY ASSURANCE

Reliability Quality

- Fanless design and IP67 protection for extreme environmental conditions
- IK08 impact resistance rating on external mechanics
- Meets CISPR25 standard
- Vehicle (E mark) and railway (EN50155, EN45545-2) certifications
- CE EMC (Electromagnetic Compatibility) and FCC conducted and radiated emissions certifications
- Supporting more certifications (Safety, RED, LVD, MIL-STD-810, etc.)

OEM/ODM Services

- Over 20 years of experience in industrial-grade computer design and manufacturing
- Seasoned design capabilities in customized system and software integration
- Certificated, 100%-owned manufacturing facilities in Taiwan
- Expertise in mobile transport technologies, with vertical domain know-how
- Acceptance of small to medium quantities, with fast time-to-market delivery

Specialization in AI Technology

- Specialize in NVIDIA® (GeForce/Quadro, PCIe x16/MXM, Jetson), Google Coral (M.2, mini-PCIe), and Hailo AI accelerators (M.2, mini-PCIe, onboard)
- Support partners to drive deeper customer engagement in AI + mobile edge computing applications
- Provide edge processing and AI capabilities to software partners/developers to innovate and create new business models

Our Product Portfolio

Product Series

—

- Edge AI Telematics Solution
- Vehicle Telematics Computer
- Railway Computer
- Vehicle Mount Computer
- Modular Vehicle Computer System
- Vehicle Mount Display
- In-Vehicle Networking
- In-Vehicle HDMI Extender over IP

ATC Series
Advanced Telematics Computer w/ GPU

- Designed for AI applications: ANPR, video analytics
- Selected NVIDIA GPU, MXM, Google TPU, and Hailo module add-ons
- 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, PoE, and multi-SIM integration

VTC Series
In-Vehicle Telematics Computer

- General purpose, high-performance telematics computer
- 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, PoE, and multi-SIM integration
- IP65/67 ingress protection
- Power management
- Backup battery kit

nROK/aROK/ vROK Series
Railway Computer

- Box/Panel PC with fanless and rugged design
- 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, PoE, and multi-SIM integration
- Optional isolated 24~110VDC power input
- EN50155 & EN45545-2 certifications

MVS Series
Modular Vehicle Computer Systems

- Modular CPU board + I/O board + expandable I/O board
- Flexible integration of LTE, Wi-Fi, BT, PoE, and other I/Os
- Easy customization of different I/O interfaces, with quick re-spins for faster time-to-market
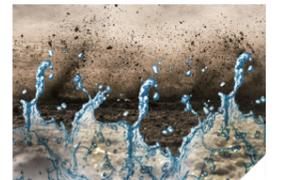
VMC Series
Rugged Vehicle Terminal

- Driver's operational display
- Designed for outdoor applications
- Full IP65 certification
- IK08-rated screens
- Vibration-, shock-, dust-, and water-resistant
- 5G/LTE, Wi-Fi 6/6E, CAN/OBD, GNSS + DR

PoE/10G LAN and RTSP Solutions

- Extends Full HD HDMI over IP for Passenger Infotainment Systems
- Design for video surveillance and AI video analytics applications
- Comply with 802.3af/ at with RJ45 or M12 connector (D, X-coded)
- Mobile PoE switch and 10G PoE cards

Premium Solutions

- IP65/IP67 protection against water and dust
- IK ratings protection provided by panel PC against external mechanical impacts to display
- Performing conformal coating protection against moisture, dust and chemicals

2024 New Products

ATC 3750-IP7-6C/WI6CR

NVIDIA® Jetson AGX™ Orin, In-vehicle/Rail Performance Edge AI Computing

- Up to 200/275 TOPS of AI computing power, JetPack 5.1.1
- 6 PoE+ & 2 CANBus for CAM/LiDAR/Radar sensors, one selectable 10GbE
- Rugged, fanless and IP67 rated
- Support GNSS/LTE/5G NR & Wi-Fi 5/6 expansion modules
- CE/FCC, UKCA, E-mark/ EN50155, EN45545-2 Certified

ATC 3750-IP7-8M/WI8MR

NVIDIA® Jetson AGX™ Orin, In-vehicle/Rail Performance Edge AI Computing

- Up to 200/275 TOPS of AI computing power, JetPack 5.1.1
- 2.5GbE, 8 GMSL2 & 2 CANBus for CAM/LiDAR/Radar sensors
- Rugged, fanless and IP67 rated
- Support GNSS/LTE/5G NR & Wi-Fi 5/6 expansion modules
- CE/FCC, UKCA, E-mark/ EN50155, EN45545-2 Certified

ATC 3750-6C/A6CR

NVIDIA® Jetson AGX™ Orin, In-vehicle/Rail Performance Edge AI Computing

- Up to 200/275 TOPS of AI computing power, JetPack 5.1.1
- 6 PoE+ & 2 CANBus for CAM/LiDAR/Radar sensors, one selectable 10GbE
- Rugged, fanless
- Support GNSS/LTE/5G NR & Wi-Fi 5/6 expansion modules
- CE/FCC, UKCA, E-mark/ EN50155, EN45545-2,E13 Certified

VMC 320

10.1" Rugged Vehicle Mount Computer with Projected Capacitive Touch Screen

- Built-in NXP i.MX 8M Plus low-power processor, 4-core
- 10.1" 1280 x 800 resolution TFT LCD with projected capacitive touch screen
- Touch panel cover thickness 3mm for IK08 protection
- HDMI output for 2nd display
- Wide range DC input 9V ~ 60V

VMC 3030

10.1" Rugged Vehicle Mount Computer with Projected Capacitive Touch Screen

- Built-in Intel Atom® x7433RE processor, 4-core
- 10.1" 1280 x 800 resolution TFT LCD with projected capacitive touch screen
- Touch panel cover thickness 3mm for IK08 protection
- HDMI output for 2nd display
- Wide range DC input 9V ~ 60V

nROK 7270-A/AC4

Fanless Rolling Stock Computer with 12/13th Gen Intel® Core™ CPU

- Fanless, compact and rugged design
- Designed with DDR5, excellent memory bandwidth, lower latency
- 2 x 2.5" SSD for data integrity (compatible with 15mm disk)
- 5G/Wi-Fi, PoE, 10GbE, daughter board expansion support
- 4 x Independent 100/1000/2500 Mbps PoE 802.3 af/at, total 60W (nROK 7270-AC4)

nROK 7271-WI/WIC4

Fanless Rolling Stock Computer with 12/13th Gen Intel® Core™ i CPU

- Designed with DDR5, excellent memory bandwidth, lower latency
- 2 x 2.5" SSD for data integrity (compatible with 15mm disk)
- 5G/Wi-Fi, PoE, 10GbE, daughter board expansion support
- 4 x Independent 100/1000/2500 Mbps PoE 802.3af/at, total 60W/30W (nROK 7271-WIC4)
- Wide voltage input 24~110VDC (w/ isolation). Optional up to 3-sec protection against temporary voltage dips

VTC 1920

Fanless In-vehicle Telematics Computer

- Intel® x7211RE quad-core processor (codenamed Amston Lake)
- HDMI output and 2.5GbE LAN ports
- Built-in 1 x isolated CAN FD
- Three expansion slots for 5G NR, LTE, Wi-Fi 6E
- Wide range DC input from 9~36V

VTC 6231/6231-IP

Fanless In-vehicle Telematics Computer

- Intel® x7433RE quad-core processor (codenamed Amston Lake)
- Triple display outputs and dual 2.5GbE LAN ports
- Built-in 1 x isolated CAN FD
- Five expansion slots for 5G NR, LTE, Wi-Fi 6E
- Full IP65 protection (VTC6231-IP)

VTK-SCAP

Smart UPS with Supercap for Vehicle & Railway

- High capacity supercapacitor for stable system operation
- 9~60V Wide Voltage Input
- 24V@8A max (up to 200W) power output
- Expandable Design (master/slave)
- Operating Temperature: -35~80℃

Industrial Edge AI Telematics Computer

ATC/aROK Series Brief Product Introduction

Product Description

AI has become an essential component of automated vehicle technologies. With built-in state of the art AI accelerator, ATC and aROK series are expertise for edge AI in-vehicle/railway applications. Besides, ATC/

aROK features with extreme wide-range operating temperature, military standard anti-vibration/shock and dust/water proof IP67 rating making it constantly perform 100% workload in harsh environments.

NVIDIA® Jetson SOM, Quadro MXM/PCIe x16 AI accelerator support

5G/LTE, Wi-Fi 6/6E, BT, PoE, CAN function support

EN50155 & E-Mark certification

Optional railway isolated power input

Application

ATC: ADAS, ANPR, AMR, autonomous driving

aROK: Pantograph inspection, track obstacle inspection, traffic sign recognition

Product Hightlight

Edge AI, inference accelerator

Sturdy system with securing cards/SOM for OHV and train

Strong ingress protection, IP65/IP67

MIPI SerDes solution support

		aROK 5510	aROK 8110
	Model		
System	CPU	Intel® Coffee Lake S/ Refresh Core™/Xeon®	Intel® Coffee Lake S/ Refresh Core™/Xeon®
	Chipset	Intel® C246	Intel® C246
	Fan/Fanless	Fan (fan-kit pre-installed)	Fan (fan-kit pre-installed)
	Memory	4 x DDR4 2666 SO-DIMM, up to 32GB + 32GB + 32GB + 32GB	2 x DDR4 2666 SO-DIMM, up to 32GB + 32GB
	Storage	6 x 2.5" SATA SSD (removable, 9.5mmn)	4 x 2.5" SATA 3.0 SSD/HDD (removable, 15mm), or 3 x 2.5" SATA 3.0 SSD/ HDD + 2 x M.2 2280/2242/2260 Key M NVMe SSD (PCIe 3.0 x2), or 3 x 2.5"SATA 3.0 SSD/HDD + 1 x U.2 NVMe SSD (PCIe 3.0 x2)
	Second Storage	1 x mSATA. 1 x M.2 2280/2242/2260 Key M NVMe SSD (PCIe 3.0 x4). 1 x Removable SD 3.0	1 x CFast (removable)
	GPU/VPU/TPU Coprocessor	One PCIe 3.0 x16 lane for optional NVIDIA Graphics card (100W)	One PCIe 3.0 x16 lane for optional NVIDIA Graphics card (350W)
I/O Interface	Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Audio	1 x Mic-in, 2 x Line-out	1 x Mic-in, 1 x Line-out
	Ethernet	2 x Intel® 10/100/1000 (M12, X-coded). 2 x 10GbE SFP+ card (optional)	2 x Intel® 10/100/1000 (M12, X-coded)
	PoE	4 x M12 GbE independent (802.3af/at). Total 60W (optional)	Up to 3 x GEM640 card (optional), each card with 4 x M12 Intel® GbE (w/ 802.3af/at). Total 60W+60W+60W
	USB	2 x USB 2.0, 3 x USB 3.2 (Gen2), 1 x USB 3.2 (Gen1)	2 x USB 2.0, 3 x USB 3.2 (Gen2), 1 x USB 2.0
	COM	2 x RS-232 (full), 1 x RS232 (Full)/422/485. (w/ isolation)	4 x RS232 (full)/422/485. (w/ isolation)
	DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	SIM Socket	8 (BOM option up to 10, eSIM BOM optional)	4 (eSIM BOM optional)
	DC Output	N/A	N/A
	MIPI Inteface	N/A	N/A
Expansion	WWAN	4 (BOM option up to 5)	2
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0) - 1 x (USB 2.0, PCIe 3.0). - BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G.	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE. - BOM option to 1 x M.2 3042 Key B (USB 2.0) for LTE
	M.2 Socket	3 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
	Expansion PCIe Slot	- 1 x PCIe 3.0 x16	- 1 x PCIe 3.0 x16 - 3 x PCIe 3.0 x4
	GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 24/110V (w/ isolation)	DC 24/36V (w/o isolation)
Environment	Ingress Protection	N/A	N/A
	Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-40℃ to 70℃ (OT4)	-40℃ to 70℃ (OT4)
Others	TPM	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	483 x 400 x 95	215 x 205 x 385

10   Product appearance and specifications are subject to change without notice.

Product appearance and specifications are subject to change without notice.   11

Industrial Edge AI Telematics Computer

		ATC 8010	ATC 8010-F	ATC 8110	ATC 8110-F
System	Model				
	CPU	Intel® Coffee Lake S/ Refresh Core™/Xeon®	Intel® Coffee Lake S/Refresh Core™/Xeon®	Intel® Coffee Lake S/ Refresh Core™/Xeon®	Intel® Coffee Lake S/ Refresh Core™/Xeon®
	Chipset	Intel® Q370	Intel® Q370	Intel® C246	Intel® C246
	Fan/Fanless	Fanless	Fan (fan-kit pre-installed)	Fanless	Fan (fan-kit pre-installed)
	Memory	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB	2 x DDR4 2400/2666 SO-DIMM, up to 32GB + 32GB
	Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	3 x 2.5" SATA 3.0 SSD/HDD (removable, 15mm) or 2 x 2.5" SATA 3.0 SSD/HDD + 1 x 2.5" U.2/NVMe M.2 2280	3 x 2.5" SATA 3.0 SSD/HDD (removable, 15mm) or 2 x 2.5" SATA 3.0 SSD/HDD + 1 x 2.5" U.2/NVMe M.2 2280
	Second Storage	2 x mSATA (occupied mini-PCIe socket)	2 x mSATA (occupied mini-PCIe socket)	1 x CFast (removable)	1 x CFast (removable)
	GPU/VPU/TPU Coprocessor	NVIDIA Quadro® MXM module (RTX A1000/RTX A2000)	NVIDIA Quadro® MXM module, Quadro (RTX A4500)	One 3-slot width PCIe 3.0 x16 lane for optional NVIDIA Graphics card	One 3-slot width PCIe 3.0 x16 lane for optional NVIDIA Graphics card
I/O Interface	Video Out	1 x VGA, * 5 x HDMI, 1 x ultraONE+	1 x VGA, * 5 x HDMI, 1 x ultraONE+	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	2 x Mic-in, 2 x Line-out
	Ethernet	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
	PoE	8 x Independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	8 x Independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	N/A	N/A
	USB	6 x USB 3.2 (Gen2)	6 x USB 3.2 (Gen2)	5 x USB 3.2 (Gen2), 1 x USB2.0	5 x USB 3.2 (Gen2), 1 x USB2.0
	COM	2 x RS232 (full), 1 x RS232 (Full)/422/485	2 x RS232 (full), 1 x RS232 (Full)/422/485	4 x RS232 (Full)/422/485	4 x RS232 (Full)/422/485
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI (w/ isolation) 4 x DO (w/ isolation)	4 x DI (w/ isolation) 4 x DO (w/ isolation)
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	SIM Socket	3 (eSIM BOM optional)	3 (eSIM BOM optional)	4 (eSIM BOM optional)	4 (eSIM BOM optional)
	DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)
	MIPI Inteface	N/A	N/A	N/A	N/A
Expansion	WWAN	2	2	2	2
	mini-PCIe Socket	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 2.0)	- 1 x (USB 2.0) for LTE - 1 x (USB 2.0, PCIe 2.0)
	M.2 Socket	1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
	Expansion PCIe Slot	N/A	N/A	- 1 x PCIe 3.0 x16, - 1 x PCIe 3.0 x4 + proprietary, - 1 x PCIe 3.0 x4	1 x PCIe x16, 1 x PCIe x4 + propriotory, 1 x PCIe x4
	GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Environment	Ingress Protection	N/A	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-30℃ to 60℃	-30℃ to 60℃	-30℃ to 60℃	-30℃ to 60℃
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260 x 259.7 x 90.1	260 x 259.7 x 99 (w/ fan kit)	191.2 x 176 x 350	207.4 x 176 x 350 (w/ fan kit)

Based on different MXM for ATC 8010 and ATC 8010-F, the quantity will be different.

		ATC 3520-IP7-4C	ATC3520-IP7-AI4CR (Rail)	ATC 3530-IP7-4M	ATC 3530-IP7-4C
System	Model				
	CPU	NVIDIA® Jetson Orin™ Nano	NVIDIA® Jetson Orin™ Nano	NVIDIA® Jetson Xavier™ NX	NVIDIA® Jetson Xavier™ NX
	Chipset	N/A	N/A	N/A	N/A
	Fan/Fanless	Fanless	Fanless	Fanless	Fanless
	Memory	Onboard LPDDR5, 4GB	Onboard LPDDR5, 4GB	Onboard LPDDR4, 8GB/16GB	Onboard LPDDR4, 8GB/16GB
	Storage	N/A	N/A	16GB eMMC 5.1	16GB eMMC 5.1
	Second Storage	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD, 1 x M.2 2280 Key M NVMe SSD (PCIe 3.0 x4)	1 x Removable microSD, 1 x M.2 2280 Key M NVMe SSD (PCIe 3.0 x4)
	GPU/VPU/TPU Coprocessor	NVIDIA®Ampere 512/1024-core, 16/32 Tensor-core integrated GPU @625MHz	NVIDIA®Ampere 512/1024-core, 16/32 Tensor-core integrated GPU @625MHz	NVIDIA®Volta 384-core, 48 Tensor-core integrated GPU @1.1GHz	NVIDIA®Volta 384-core, 48 Tensor-core integrated GPU @1.1GHz
I/O Interface	Video Out	1 x HDMI	1 x HDMI	1 x HDMI	1 x HDMI
	Audio	N/A	N/A	N/A	N/A
	Ethernet	1 x Intel® 10/100/1000 (M12 X-coded)	1 x Intel® 10/100/1000 (M12 X-coded)	2 x Intel® 10/100/1000 (M12 X-coded)	1 x Intel® 10/100/1000 (M12 X-coded)
	PoE	4 x GbE M12 X-coded (802.3af/at). Total 30W	4 x GbE M12 X-coded (802.3af/at). Total 30W	Option for PoE (w/ 802.3af/at). Total 30W	4 x GbE M12 X-coded (802.3af/at). Total 30W
	USB	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG
	COM	2 x RS232, 1 x Console	2 x RS232, 1 x Console	2 x RS232, 1 x Console	2 x RS232, 1 x Console
	DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	SIM Socket	2	2	2	2
	DC Output	N/A	N/A	N/A	N/A
	MIPI Inteface	N/A	N/A	4 (Thine, V-by-One HS)	N/A
Expansion	WWAN	1	1	1	1
	mini-PCIe Socket	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 3.0)	1 x (USB 2.0, PCIe 3.0)
	M.2 Socket	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
	Expansion PCIe Slot	N/A	N/A	N/A	N/A
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 9V to 36V	DC 24V w/Power isolation box (PWA10-01) installed	DC 9V to 36V	DC 9V to 36V
Environment	Ingress Protection	IP67	IP67	IP67	IP67
	Certification	CE, FCC Class A, UKCA	CE, FCC Class A, UKCA, EN50121-3-2	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-30℃ to 70℃	-30℃ to 70℃ (OT3)	-30℃ to 70℃	-30℃ to 70℃
Others	TPM	N/A	N/A	N/A	N/A
	OS	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1, Ubuntu 20.04 @kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1, Ubuntu 20.04 @kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 4.6, Ubuntu 18.04 @kernel 4.9.140	Nexcom Accelerator Linux (NAL) w/ JetPack 4.6, Ubuntu 18.04 @kernel 4.9.140
	Dimensions (mm)	213.0 x 167.0 x 82.8	213.0 x 167.0 x 122.8	213.0 x 167.0 x 82.8	213.0 x 167.0 x 82.8

12 Product appearance and specifications are subject to change without notice.

Product appearance and specifications are subject to change without notice. 13

Industrial Edge AI Telematics Computer

		ATC 3540-IP7-4C [NEW]	ATC 3540-IP7-AI4CR (Rail) [NEW]	ATC 3750-6C [NEW]	ATC 3750-A6CR (Rail) [NEW]
System	Model				
	CPU	NVIDIA® Jetson Orin™ NX	NVIDIA® Jetson Orin™ NX	NVIDIA® Jetson AGX™ Orin	NVIDIA® Jetson AGX™ Orin
	Chipset	N/A	N/A	N/A	N/A
	Fan/Fanless	Fanless	Fanless	Fanless	Fanless
	Memory	Onboard LPDDR5, 8GB/16GB	Onboard LPDDR5, 8GB/16GB	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB
	Storage	N/A	N/A	64GB eMMC 5.1	64GB eMMC 5.1
	Second Storage	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x 128GB M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	"1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)"	"1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)"
	GPU/VPU/TPU Coprocessor	NVIDIA®Ampere 1024-core, 32 Tensor-core integrated GPU @918MHz	NVIDIA®Ampere 1024-core, 32 Tensor-core integrated GPU @918MHz	NVIDIA®Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA®Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz
	Video Out	1 x HDMI	1 x HDMI	1 x HDMI	1 x HDMI
	Audio	N/A	N/A	N/A	N/A
I/O interface	Ethernet	1 x Intel® 10/100/1000 (M12 X-coded)	1 x Intel® 10/100/1000 (M12 X-coded)	1 x 10GbE RJ45 (option)	1 x 10GbE M12 X-coded (option)
	PoE	4 x GbE M12 X-coded (802.3af/at). Total 30W"	4 x GbE M12 X-coded (802.3af/at). Total 30W"	6 x GbE RJ45 (802.3af/at). Total 80W	6 x GbE M12 X-coded (802.3af/at). Total 80W"
	USB	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen1), 2 x USB 2.0 (reserved), 1 x OTG	2 x USB 3.2 (Gen2), 1 x OTG	2 x USB 3.2 (Gen2), 1 x OTG
	COM	2 x RS232 1 x Console	2 x RS232 1 x Console	2 x RS232 1 x Console	2 x RS232 1 x Console
	DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
	SIM Socket	2	2	2	2
	DC Output	N/A	N/A	N/A	N/A
	MIPI Inteface	N/A	N/A	N/A	N/A
Expansion	WWAN	1	1	1	1
	mini-PCIe Socket	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)	1 x (USB 2.0, PCIe 4.0)
	M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe4.0, USB2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe4.0, USB2.0)
	Expansion PCIe Slot	N/A	N/A	N/A	N/A
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
Environment	Power Input	DC 9V to 36V	DC 24V w/ Power isolation box (PWA10-01) installed	DC 9V to 36V	DC 24V Power isolation box (PWA20-01) in option
	Ingress Protection	IP67	IP67	IP50	IP50
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, EN50155, EN45545-2
	Operating Temperature	-30℃ to 70℃	-30℃ to 70℃ (OT3)	-25℃ to 70℃	-25℃ to 70℃ (OT3)
Others	TPM	N/A	N/A	N/A	N/A
	OS	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1, Ubuntu 20.04 @kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1, Ubuntu 20.04 @kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1 Ubuntu 20.04 @Kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1 Ubuntu 20.04 @Kernel 5.10
	Dimensions (mm)	213.0 x 167.0 x 82.8	213.0 x 167.0 x 122.8	234.0 x 172.8 x 80.5	234.0 x 172.8 x 80.5 234.0 x 172.8 x 114.5 (w/ option power isolation box)

		ATC 3750-IP7-6C (In-vehicle/Rail) [NEW]	ATC 3750-IP7-WI6CR (Rail) [NEW]	ATC 3750-IP7-8M (In-vehicle/Rail) [NEW]	ATC 3750-IP7-WI8MR (Rail) [NEW]
System	Model				
	CPU	NVIDIA® Jetson AGX™ Orin	NVIDIA® Jetson AGX™ Orin	NVIDIA® Jetson AGX™ Orin	NVIDIA® Jetson AGX™ Orin
	Chipset	N/A	N/A	N/A	N/A
	Fan/Fanless	Fanless	Fanless	Fanless	Fanless
	Memory	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB	Onboard LPDDR5, 32GB/64GB
	Storage	64GB eMMC 5.1	64GB eMMC 5.1	64GB eMMC 5.1	64GB eMMC 5.1
	Second Storage	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)	1 x Removable microSD 1 x M.2 2280 Key M NVMe SSD (PCIe 4.0 x4)
	GPU/VPU/TPU Coprocessor	NVIDIA®Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA®Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA®Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz	NVIDIA®Ampere 1792/2048-core, 56/64 Tensor-core integrated GPU @939MHz/1.3GHz
	Video Out	1 x HDMI	1 x HDMI	1 x HDMI	1 x HDMI
	Audio	N/A	N/A	N/A	N/A
I/O interface	Ethernet	1 x 10GbE M12 X-coded (option)	1 x 10GbE M12 X-coded (option)	1 x 10/100/1000 (M12 X-coded) 1 x Intel® 10/100/1000/2500 (M12 X-coded)	1 x 10/100/1000 (M12 X-coded) 1 x Intel® 10/100/1000/2500 (M12 X-coded)
	PoE	6 x GbE M12 X-coded (802.3af/at). Total 80W	6 x GbE M12 X-coded (802.3af/at). Total 80W	N/A	N/A
	USB	2 x USB 3.2 (Gen2), M12 X-coded) 1 x OTG	2 x USB 3.2 (Gen2), M12 X-coded) 1 x OTG	2 x USB 3.2 (Gen2), 2 x USB2.0 (M12), 1 x OTG	2 x USB 3.2 (Gen2), 2 x USB2.0 (M12), 1 x OTG
	COM	2 x RS232, 1 x Console	2 x RS232, 1 x Console	1 x RS232, 1 x RS232 /422/485, 1 x Console	1 x RS232, 1 x RS232 /422/485, 1 x Console
	DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO	4 x DI, 4 x DO
	CAN Bus	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
	SIM Socket	2	2	2	2
	DC Output	5V (2A)	5V (2A)	N/A	N/A
	MIPI Inteface	N/A	N/A	8 (GMSL2)	8 (GMSL2)
Expansion	WWAN	1	1	1	1
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 4.0)	- 1 x (USB 2.0, PCIe 4.0)	- 1 x (USB 2.0, PCIe 4.0)	- 1 x (USB 2.0, PCIe 4.0)
	M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe4.0, USB2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe4.0, USB2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe4.0, USB2.0)	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe4.0, USB2.0)
	Expansion PCIe Slot	N/A	N/A	N/A	N/A
	GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)
Environment	Power Input	DC 9V to 36V/ 24V Rail	DC 24V to 110V	DC 9V to 36V/ 24V Rail	DC 24V to 110V
	Ingress Protection	IP67	IP67	IP67	IP67
	Certification	CE, FCC Class A, UKCA, E13, EN50155 (OT3)	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, E13, EN50155 (OT3)	CE, FCC Class A, UKCA, EN50155, EN45545-2
	Operating Temperature	-25℃ to 70℃	-25℃ to 70℃ (OT3)	-25℃ to 70℃	-25℃ to 70℃ (OT3)
Others	TPM	N/A	N/A	N/A	N/A
	OS	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1 Ubuntu 20.04 @Kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1 Ubuntu 20.04 @Kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1 Ubuntu 20.04 @Kernel 5.10	Nexcom Accelerator Linux (NAL) w/ JetPack 5.1.1 Ubuntu 20.04 @Kernel 5.10
	Dimensions (mm)	260.0 x 153.0 x 66.5	260.0 x 155.0 x 88.0	260.0 x 155.0 x 66.5	260.0 x 155.0 x 88.0

Based on different MXM for ATC 8010 and ATC 8010-F, the quantity will be different.

14   Product appearance and specifications are subject to change without notice.

Product appearance and specifications are subject to change without notice.   15

Vehicle Telematics Computer

VTC Series Brief Product Introduction

Product Description

VTC and MVS series are fanless embedded telematics system which can sustain in harsh environment, with rich I/O connectivity for external peripherals, and easy RF communication expansion. The modular design makes the

MVS series very flexible to adopt other expansion boards and thus extend I/O functions. Besides, we provide MUT (MCU Utility Tools) SDK for power management & control, which greatly reduces Time-To-Market.

- **WWAN** 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD module support
- **IP** IP65/67 ingress protection
- Ignition power management
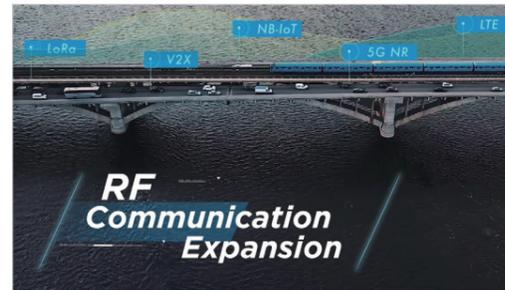- **AI** AI accelerator module support

Application

- Fleet management
- Vehicle gateway
- Video surveillance
- Passenger information system
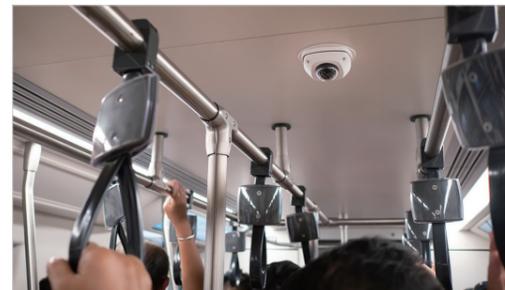- Infotainment applications.

Product Hightlight

Rugged design for harsh environment

Flexible RF communication expansion

Dead reckoning & RTK precise positioning

802.3 af/at PoE+ support

	Model	VTC 210	VTC 1910-S	VTC 1920 *(Coming soon)*	VTC 1921-IP *(Coming soon)*
System	CPU	Rockchip RK3328	Intel Atom® E3815, 1-core, 1.46GHz	Intel Atom® x7211RE, 2-core, 1.0GHz	Intel Atom® x7211RE, 2-core, 1.0GHz
	Chipset	N/A	N/A	N/A	N/A
	Memory	DDR4 2GB onboard up to 4GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR4 3200 SO-DIMM, 4GB (default) up to 16GB, in-band ECC support	1 x DDR4 3200 SO-DIMM, 4GB (default) up to 16GB, in-band ECC support
	Storage	eMMC 5.1, 16GB	1 x SATA 2.0 mSATA	1 x M.2 2242 Key M SSD (SATA 3.0)	1 x 2.5" SATA 3.0 SSD (9.5mm)
	Second Storage	1 x Micro SD	1 x SATA DOM	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x mSATA (occupied mini-PCIe socket)
I/O Interface	Video Out	1 x HDMI	1 x VGA	1 x HDMI	1 x VGA. 1 x HDMI (optional)
	Audio	N/A	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
	Ethernet	2 x Intel® 10/100/1000 LAN Switch	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000/2500	2 x Intel® 10/100/1000/2500
	PoE	N/A	N/A	N/A	N/A
	USB	1 x external USB 2.0 1 x internal USB 2.0 for WIFI	1 x USB 3.0, 1 x USB 2.0	2 x USB 3.2 (Gen 2)	1 x USB 3.2 (Gen 2), 1 x USB 2.0
	COM	1 x RS232 (Full)	2 x RS232, 1 x RS485	2 x RS232, 1 x RS485	2 x RS232, 1 x RS485
	DIO	N/A	3 x DI, 3 x DO	3 x DI, 3 x DO	4 x DI, 4 x DO
	CAN Bus	N/A	1 x CAN Bus 2.0B	1 x CAN FD, 1 x CAN Bus 2.0B (w/ isolation)	1 x CAN FD, 1 x CAN Bus 2.0B (w/ isolation)
	DC Output	N/A	N/A	N/A	N/A
	SMBus	N/A	N/A	N/A	N/A
	SIM Socket	1	2	2 (BOM optional up to 3, eSIM BOM optional)	2 (eSIM BOM optional)
Expansion	WWAN	1	1	1 (BOM optional up to 2)	2
	mini-PCIe Socket	N/A	- 1 x (PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0), BOM optional to 1 x M.2 3042/3052 Key B (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe3.0/SATA 2.0)
	M.2 Socket	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x1)	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x1)
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	Onboard u-blox NEO-M8N	Onboard u-blox NEO-M9N	Onboard u-blox NEO-M9N
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
	Back Up Battery	N/A	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A	IP67
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, E13	CE, FCC Class A, E13	CE, FCC Class A, E13, EN50155
	Operating Temperature	-20℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃
Others	TPM	N/A	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	130.0 x 100.0 x 31.0	130.0 x 120.0 x 32.0	130.0 x 120.0 x 32.0	185.0 x 167.0 x 56.5

Vehicle Telematics Computer

Model	VTC 1921-C2SIP (Coming soon)	VTC 1911-IPK	VTC 1011-C2K	VTC 1011-C2VK
System				
CPU	Intel Atom® x7211RE, 2-core, 1.0GHz	Intel Atom® E3815, 1-core, 1.46GHz	Intel Atom® E3825, 2-core, 1.33GHz	Intel Atom® E3825, 2-core, 1.33GHz
Chipset	N/A	N/A	N/A	N/A
Memory	1 x DDR4 3200 SO-DIMM, 4GB (default) up to 16GB, in-band ECC support	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB
Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x SATA 2.0 mSATA	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)
Second Storage	1 x mSATA (occupied mini-PCIe socket)	1 x 2.5" SSD (9.5mm) or 1 x SATA DOM	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)
I/O Interface				
Video Out	1 x VGA	1 x VGA. 1 x HDMI (optional)	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI, 1 x ultraONE+
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	2 x Intel® 10/100/1000/2500	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000 (exclusion with PoE)	2 x Intel® 10/100/1000 (exclusion with PoE)
PoE	2 x Intel® 2.5GbE (w/ 802.3af/at). Total 10W	N/A	2 x Intel® 10/100/1000 (w/ 802.3af/at). Total 30W	2 x Intel® 10/100/1000 (w/ 802.3af/at). Total 30W
USB	1 x USB 3.2 (Gen 2), 1 x USB 2.0	1 x USB 2.0	2 x USB 2.0	2 x USB 2.0
COM	2 x RS232, 1 x RS485	2 x RS232, 1 x RS485	1 x RS232 (full), 1 x RS232/RS422/485	1 x RS232 (full), 1 x RS232/RS422/485
DIO	4 x DI, 4 x DO	3 x DI, 3 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
CAN Bus	1 x CAN FD, 1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B
DC Output	N/A	N/A	12V (2A)	12V (2A)
SMBus	N/A	N/A	1	1
SIM Socket	2 (eSIM BOM optional)	2	2	2
Expansion				
WWAN	2	1	1	1
mini-PCIe Socket	- 1 x (USB 2.0, PCIe3.0/SATA 2.0)	- 1 x (USB 2.0, PCIe2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA2.0) - 1 x (USB 2.0) for LTE
M.2 Socket	1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x1)	N/A	N/A	N/A
GNSS	Onboard u-blox NEO-M9N	Onboard u-blox NEO-M8N	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A	N/A
Environment				
Ingress Protection	IP67	IP67	N/A	N/A
Certification	CE, FCC Class A, E13, EN50155	CE, FCC Class A, E13, EN50155	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C (LAN mode) -40°C to 60°C (PoE mode)	-40°C to 70°C (LAN mode) -40°C to 60°C (PoE mode)
Others				
TPM	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
OS	Win 10/11, Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)
Dimensions (mm)	185.0 x 167.0 x 56.5	185.0 x 167.0 x 56.5	185.0 x 150.9 x 45.0	185.0 x 150.9 x 45.0

Model	VTC 1020	VTC 1020-PA	VTC 1010
System			
CPU	Intel Atom® x5-E3930, 2-core, 1.3GHz	Intel Atom® x5-E3930, 2-core, 1.3GHz	Intel Atom® E3827, 2-core, 1.75GHz
Chipset	N/A	N/A	N/A
Memory	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB
Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (15mm)	1 x 2.5" SATA 2.0 SSD (9.5mm)
Second Storage	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)	1 x SD (external accessible)
I/O Interface			
Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI, 1 x LVDS	1 x VGA, 1 x DP
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 3 x Line-out (selectable)	2 x Mic-in, 2 x Line-out
Ethernet	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000
PoE	N/A	N/A	N/A
USB	2 x USB 3.2 (Gen1)	2 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen1), 2 x USB 2.0
COM	5 x RS232, 2 x RS485	5 x RS232, 2 x RS485	2 x RS232 (full), 1 x RS422/485
DIO	5 x Programmable DIO	5 x Programmable DIO	6 x Programmable DIO
CAN Bus	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B
DC Output	12V (2A)	12V (2A)	12V (1A)
SMBus	1	1	N/A
SIM Socket	1	1	2
Expansion			
WWAN	1	1	2
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0/SATA2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0) for LTE	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0/SATA 2.0) - 1 x (USB 2.0) for LTE
M.2 Socket	N/A	N/A	N/A
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power			
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Back Up Battery	N/A	N/A	N/A
Environment			
Ingress Protection	N/A	N/A	N/A
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class B, UKCA, E13
Operating Temperature	-40°C to 70°C	-40°C to 70°C	-30°C to 70°C
Others			
TPM	TPM 2.0	TPM 2.0	N/A
OS	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)
Dimensions (mm)	185.0 x 120.0 x 45.0	185.0 x 120.0 x 50.0	180.0 x 180.0 x 50.0

18   Product appearance and specifications are subject to change without notice.

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Vehicle Telematics Computer

	Model	VTC 1021-BK	VTC 1021-C2K	VTC 1030
System	CPU	Intel Atom® x5-E3940, 4-core, 1.6GHz	Intel Atom® x5-E3940, 4-core, 1.6GHz	Intel Atom® x6211E, 2-core, 1.3GHz
	Chipset	N/A	N/A	N/A
	Memory	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support
	Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)
	Second Storage	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)
I/O Interface	Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
	Ethernet	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000/2500
	PoE	N/A	2 x Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	N/A
	USB	1 x USB 3.2 (Gen1), 2 x USB 2.0	1 x USB 3.2 (Gen1), 2 x USB 2.0	2 x USB 3.2 (Gen 2)
	COM	1 x RS232 (full), 1 x RS232, 1 x RS422/485	1 x RS232 (full), 1 x RS232, 1 x RS422/485	2 x RS232 (full)/422/485
	DIO	3 x DI, 3 x DO	3 x DI, 3 x DO	5 x DI, 4 x DO
	CAN Bus	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	12V (2A)	12V (2A)	12V (2A)
	SMBus	1	1	N/A
	SIM Socket	2	2	2 (eSIM BOM optional)
Expansion	WWAN	1	1	1
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
	M.2 Socket	N/A	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM optional to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
	GNSS	Onboard u-blox NEO-M8N	Onboard u-blox NEO-M8N	VIOB-GPS-06 module (u-blox NEO-M9N)
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
	Back Up Battery	Optional	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-40℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	180.0 x 180.0 x 50.0	180.0 x 180.0 x 50.0	185.0 x 120.0 x 45.0

Coming soon

	Model	VTC 1031	VTC 1031-C2	VTC 1040-C2	VTC 6210-BK
System	CPU	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® x7211RE, 2-core, 1.0GHz	Intel Atom® E3845, 4-core, 1.91GHz
	Chipset	N/A	N/A	N/A	N/A
	Memory	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support	1 x DDR4 3200 SO-DIMM, 4GB (default) up to 16GB, in-band ECC support	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB
	Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 2.0 SSD (removable, 9.5mm)"
	Second Storage	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x mSATA (occupied mini-PCIe socket)	1 x CFast (external accessible)
I/O Interface	Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x DP
	Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	2 x Mic-in, 2 x Line-out
	Ethernet	1 x Intel® 10/100/1000/2500 1 x 10/100/1000	1 x Intel® 10/100/1000/2500 1 x 10/100/1000	3 x Intel® 10/100/1000 (exclusion with PoE)	2 x Intel® 10/100/1000
	PoE	N/A	2 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	3 x Independent Intel® 2.5GbE (w/ 802.3af/at). Total 30W	N/A
	USB	1 x USB 3.2 (Gen 2), 3 x USB 2.0	1 x USB 3.2 (Gen 2), 3 x USB 2.0	1 x USB 3.2 (Gen 2), 1 x USB 2.0	1 x USB 3.2 (Gen1), 2 x USB 2.0
	COM	1 x RS232 (Full)/422/485, 1 x RS232, 2 x RS485	1 x RS232 (Full)/422/485, 1 x RS232, 2 x RS485	2 x RS232 (Full)/422/485, 1 x RS232	2 x RS232 (full), 1 x RS422/485
	DIO	5 x DI, 4 x DO	5 x DI, 4 x DO	5 x DI, 4 x DO	8 x Programmable PC GPIO, 2 x MCU-DI, 2 x MCU-DO
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN FD, 1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B
	DC Output	12V (2A)	12V (2A)	N/A	12V (2A)
	SMBus	N/A	N/A	N/A	1
	SIM Socket	2 (eSIM BOM optional)	2 (eSIM BOM optional)	2 (eSIM BOM optional)	3
Expansion	WWAN	1	1	2	2
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0). BOM optional to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0). BOM optional to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 Gen 2) for LTE/5G NR	- 1 x (USB 2.0, PCIe3.0/SATA 2.0)	- 2 x (USB 2.0, PCIe 2.0) - 2 x (USB 2.0) for LTE
	M.2 Socket	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM optional to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM optional to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x1)	N/A
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	Onboard u-blox NEO-M9N	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
	Back Up Battery	N/A	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class B, E13
	Operating Temperature	-40℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃	-30℃ to 70℃
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0	N/A
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	WES 7, Win 7/8/10 Linux (Kernel 4.x)
	Dimensions (mm)	180.0 x 180.0 x 50.0	180.0 x 180.0 x 50.0	185.0 x 120.0 x 45.0	260.0 x 176.0 x 50.0

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Vehicle Telematics Computer

Vehicle Telematics Computer

		VTC 6210-VR4	VTC 6220-BK	VTC 6221	VTC 6231 (Coming soon)
System	CPU	Intel Atom® E3845, 4-core, 1.91GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7433RE, 4-core, 1.5GHz
	Chipset	N/A	N/A	N/A	N/A
	Memory	1 x DDR3L 1333 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support
	Storage	1 x 2.5" SATA 2.0 SSD (removable, 9.5mm)	2 x 2.5" SATA 3.0 SSD (removable, 9.5mm)	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)
	Second Storage	1 x CFast (external accessible)	N/A	1 x CFast (external accessible), 1 x mSATA (occupied Cfast, BOM optional)	1 x mSATA (occupied mini-PCIe socket)
I/O Interface	Video Out	VGA, DP, 4 x (Video-in + Audio-in)	1 x VGA, 1 x HDMI, 1 x LVDS (optional), 1 x ultraONE+ (optional)	2 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI, 1 x DP
	Audio	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out
	Ethernet	2 x Intel® 10/100/1000	3 x Intel® 10/100/1000 (2 x LAN exclusion with PoE)	2 x Intel® 10/100/1000, (3 BOM optional)	2 x Intel® 10/100/1000/2500
	PoE	N/A	2 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 30W (BOM optional)	N/A	N/A
	USB	1 x USB 3.2 (Gen1), 2 x USB 2.0	2 x USB 3.2 (Gen1), 1 x USB 2.0	3 x USB 2.0, 1 x USB 3.2 (Gen1)	2 x USB 2.0, 2 x USB 3.2 (Gen2)
	COM	1 x RS232 (full), 1 x RS422/485	2 x RS232 (full), 1 x RS422/485	1 x RS232 (full), 1 x RS232, 1 x RS485	2 x RS232(full)/422/485, 1 x RS232 (full)
	DIO	8 x Programmable PC GPIO, 2 x MCU-DI, 2 x MCU-DO"	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
	CAN Bus	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN FD (w/ isolation)
	DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)
	SMBus	1	1	N/A	N/A
	SIM Socket	3	4	6 (BOM option up to 8, eSIM BOM optional)	8 (eSIM BOM optional)
Expansion	WWAN	2	2	3 (BOM optional up to 4)	3 (BOM optional up to 4)
	mini-PCIe Socket	- 2 x (USB 2.0, PCIe 2.0) - 2 x (USB 2.0) for LTE	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE. BOM Option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0). BOM optional to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, SATA 3.0/PCIe 3.0) default for mSATA, BIOS select (USB 2.0) for LTE, BOM optional (USB 2.0, PCIe 3.0) - 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G
	M.2 Socket	N/A	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 2 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module
Power	GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)
	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 48V	DC 9V to 36V
	Back Up Battery	N/A	Optional	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A	N/A
	Certification	CE, FCC Class B, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-30℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃
Others	TPM	N/A	TPM 2.0	TPM 2.0, optional	TPM 2.0
	OS	WES 7, Win 7/8/ 10 Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 176.0 x 50.0	260.0 x 196.0 x 50.0	260.0 x 196.0 x 50.0	260.0 x 196.0 x 50.0

		VTC 6231-IP (Coming soon)	VTC 6232-C4S (Coming soon)	VTC 6232-C4S-BAT (Coming soon)
System	CPU	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz
	Chipset	N/A	N/A	N/A
	Memory	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support
	Storage	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)	eMMC 5.1, 64GB	eMMC 5.1, 64GB
	Second Storage	1 x mSATA (occupied mini-PCIe socket)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	1 x 2.5" SATA 3.0 SSD (removable, 15mm), 1 x M.2 2242 Key B (SATA)
I/O Interface	Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP
	Audio	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out
	Ethernet	2 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000/2500
	PoE	N/A	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W
	USB	2 x USB 2.0, 2 x USB 3.2 (Gen2)	2 x USB 2.0, 2 x USB 3.2 (Gen2)	2 x USB 2.0, 2 x USB 3.2 (Gen2)
	COM	2 x RS232(full)/422/485, 1 x RS232 (full)	2 x RS232(full)/422/485, 1 x RS232, 1 x RS422/485	2 x RS232(full)/422/485, 1 x RS232, 1 x RS422/485
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
	CAN Bus	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)
	DC Output	12V (2A)	12V (2A)	12V (2A)
	SMBus	N/A	N/A	N/A
	SIM Socket	8 (eSIM BOM optional)	4 (eSIM BOM optional)	4 (eSIM BOM optional)
Expansion	WWAN	3 (BOM optional up to 4)	2	2
	mini-PCIe Socket	- 1 x (USB 2.0, SATA 3.0/PCIe 3.0) default for mSATA, BIOS select (USB 2.0) for LTE, BOM optional (USB 2.0, PCIe 3.0) - 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G
	M.2 Socket	- 2 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module
Power	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)
	Power Input	DC 9V to 36V	DC 9V to 48V	DC 9V to 48V
	Back Up Battery	N/A	N/A	YES
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-40℃ to 70℃	-40℃ to 70℃	-40℃ to 70℃
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 196.0 x 70.0	260.0 x 196.0 x 66.5	260.0 x 196.0 x 66.5

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Vehicle Telematics Computer

	Model	VTC 6232-C4SIP (Coming Soon)	VTC 6232-C4SIP-BAT (Coming Soon)	VTC 6222-C4S	VTC 7250-7C8
System	CPU	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel® Core™ i7-8700T, 6-core, 2.4GHz
	Chipset	N/A	N/A	N/A	Intel® Q370
	Memory	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB
	Storage	eMMC 5.1, 64GB	eMMC 5.1, 64GB	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
	Second Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	1 x 2.5" SATA 3.0 SSD (removable, 15mm), 1 x M.2 2242 Key B (SATA)	1 x SD (external accessible), 1 x Internal USB DOM	2 x mSATA 3.0 (BIOS selection)
I/O Interface	Video Out	1 x VGA, 1 x HDMI (optional)	1 x VGA, 1 x HDMI (optional)	1 x VGA, 2 x HDMI	1 x VGA, 1 x HDMI, 1 x ultraONE+
	Audio	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 2 x Line-out	1 x Mic-in, 1 x Line-out
	Ethernet	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000
	PoE	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	8 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W
	USB	2 x USB 2.0, 1 x USB 3.2 (Gen2)	2 x USB 2.0, 1 x USB 3.2 (Gen2)	1 x USB 3.2 (Gen1), 2 x USB 2.0	6 x USB 3.2 (Gen2)
	COM	2 x RS232(Full)/422/485, 1 x RS232, 1 x RS422/485	2 x RS232(Full)/422/485, 1 x RS232, 1 x RS422/485	1 x RS232 (Full), 1 x RS232, 1 x RS422/485	2 x RS232 (Full), 1 x RS232 (Full)/422/485
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO
	CAN Bus	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)
	SMBus	N/A	N/A	N/A	N/A
	SIM Socket	4 (eSIM BOM optional)	4 (eSIM BOM optional)	2 (eSIM BOM optional)	3 (eSIM BOM optional)
Expansion	WWAN	2	2	1	2
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE, BOM optional to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) LTE/5G	- 2 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0) for LTE, BOM optional to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
	M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module	N/A	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G
	GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	u-blox NEO-M8N on board	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 9V to 48V	DC 9V to 48V	DC 9V to 48V	DC 9V to 36V
	Back Up Battery	N/A	YES	N/A	N/A
Environment	Ingress Protection	IP67	IP67	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-30°C to 60°C
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0, optional	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 196.0 x 86.5	260.0 x 196.0 x 86.5	260.0 x 196.0 x 66.5	260.0 x 256.0 x 90.1

	Model	VTC 7251	VTC 7251-7C4	VTC 7252-7C4IP
System	CPU	Intel® Core™ i7-8700T, 6-core, 2.4GHz	Intel® Core™ i7-8700T, 6-core, 2.4GHz	Intel® Core™ i7-9700TE, 8-core, 1.8GHz
	Chipset	Intel® Q370	Intel® Q370	Intel® C246
	Memory	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB	2 x DDR4 2666 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB
	Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (15mm)
	Second Storage	2 x mSATA 3.0 (BIOS selection)	2 x mSATA 3.0 (BIOS selection)	2 x mSATA 3.0 (BIOS selection), 1 x CFast (external accessible)
I/O Interface	Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI (optional)
	Audio	1 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out
	Ethernet	2 x Intel® 10/100/1000	1 x Intel® 10/100/1000	2 x Intel® 10/100/1000
	PoE	N/A	4 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W	4 x independent Intel® 10/100/1000 (w/ 802.3af/at). Total 60W
	USB	6 x USB 3.2 (Gen2)	6 x USB 3.2 (Gen2)	2 x USB 3.2 (Gen2), 2 x USB 2.0
	COM	2 x RS232 (Full), 1 x RS232 (Full)/422/485	2 x RS232 (Full), 1 x RS232 (Full)/422/485	2 x RS232 (Full), 1 x RS232 (Full)/422/485
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	3 x DI, 3 x DO
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	2 x CAN Bus 2.0B (w/ isolation)
	DC Output	12V (2A)	12V (2A)	12V (2A)
	SMBus	N/A	N/A	N/A
	SIM Socket	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	2 (eSIM BOM optional)
Expansion	WWAN	3 (BOM optional up to 4)	3	1
	mini-PCIe Socket	- 2 x (USB 2.0, PCIe 3.0/SATA 3.0) - 2 x (USB 2.0) for LTE, BOM optional to 2 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 2 x (USB 2.0, PCIe 3.0/SATA 3.0) - 2 x (USB 2.0) for LTE, BOM optional to M.2 3042 Key B (USB 2.0, USB 3.2(Gen1)) for LTE/5G	- 2 x (USB 2.0, PCIe 3.0/SATA 3.0)
	M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, 2 x PCIe 3.0). BOM optional to 1 x mini-PCIe(USB 2.0, PCIe 3.0).
	GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
	Back Up Battery	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	IP65
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-30°C to 70°C	-30°C to 60°C	-30°C to 60°C
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 256.0 x 83.5	260.0 x 256.0 x 83.5	260.0 x 256.0 x 66.5

24　Product appearance and specifications are subject to change without notice.

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Vehicle Telematics Computer

	Model	VTC 7260-5	VTC 7260-5C4	VTC 7260-7
System	CPU	Intel® Core™ i5-1145GRE, 4-core, 1.5GHz	Intel® Core™ i5-1145GRE, 4-core, 1.5GHz	Intel® Core™ i7-1185GRE, 4-core, 1.8GHz
	Chipset	N/A	N/A	N/A
	Memory	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support
	Storage	1 x 2.5" SATA 3.0 SSD (15mm)	1 x 2.5" SATA 3.0 SSD (15mm)	1 x 2.5" SATA 3.0 SSD (15mm)
	Second Storage	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe4.0 x4)
I/O Interface	Video Out	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP
	Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
	Ethernet	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support), 2 x independent Intel® 2.5GbE	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support)	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support), 2 x independent Intel® 2.5GbE
	PoE	N/A	4 x independent Intel® 2.5GbE (w/ 802.3af/at). Total 60W	N/A
	USB	3 x USB 3.2 (Gen1), 1 x USB 2.0	3 x USB 3.2 (Gen1), 1 x USB 2.0	3 x USB 3.2 (Gen1), 1 x USB 2.0
	COM	1 x RS232 (full), 2 x RS232 (full)/422/485	2 x RS232 (full)/422/485	1 x RS232 (full), 2 x RS232 (full)/422/485
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	N/A	N/A	N/A
	SMBus	N/A	N/A	N/A
	SIM Socket	4	4	4
Expansion	WWAN	2	2	2
	mini-PCIe Socket	- 1 x (PCIe 3.0/USB3.2, USB 2.0) for LTE/5G	- 1 x (PCIe 3.0/USB3.2, USB 2.0) for LTE/5G	- 1 x (PCIe 3.0/USB3.2, USB 2.0) for LTE/5G
	M.2 Socket	- 1 x M.2 3042 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3042 Key E (PCIe3.0 x2, USB2.0) for WiFi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3042 Key E (PCIe3.0 x2, USB2.0) for WiFi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3042 Key E (PCIe3.0 x2, USB2.0) for WiFi/Hailo AI card
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
	Back Up Battery	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-30℃ to 65/70℃ (15W/12W TDP)	-30℃ to 60℃ (15W TDP & PoE)	-30℃ to 65/70℃ (15W/12W TDP)
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)
	Dimensions (mm)	210.0 x 173.0 x 75.0	210.0 x 173.0 x 75.0	210.0 x 173.0 x 75.0

	Model	VTC 7260-7C4	VTC 7270	VTC 7270-C4/C8
System	CPU	Intel® Core™ i7-1185GRE, 4-core, 1.8GHz	12/13th Gen Intel® Core™ i	12/13th Gen Intel® Core™ i
	Chipset	N/A	R680E	R680E
	Memory	2 x DDR4 3200 SO-DIMM, 4GB+4GB (default) up to 32GB+32GB, in-band ECC support	2 x DDR5 4800 SO-DIMM, up to 32GB+32GB, ECC support	2 x DDR5 4800 SO-DIMM, up to 32GB+32GB, ECC support
	Storage	1 x 2.5" SATA 3.0 SSD (15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
	Second Storage	1 x mSATA 3.0, 1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)	1 x M.2 2280 Key M NVMe (PCIe4.0 x4)
I/O Interface	Video Out	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP
	Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out
	Ethernet	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support)	1 x Intel® 10/100/1000 (WoL, PXE, iAMT support), 2 x independent Intel® 2.5GbE	1 x Intel® 10/100/1000 (WoL, PXE, Iamt support)
	PoE	4 x independent Intel® 2.5GbE (w/ 802.3af/at). Total 60W	N/A	4/8 x independent Intel® 2.5GbE (w/ 802.3af/at, total 60W/120W)
	USB	3 x USB 3.2 (Gen1), 1 x USB 2.0	6 x USB 3.2 (Gen2)	6 x USB 3.2 (Gen2)
	COM	2 x RS232 (full)/422/485	2 x RS232 (full), 2 x RS232 (full)/422/485	2 x RS232 (full), 2 x RS232 (full)/422/485
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
	DC Output	N/A	12V (2A)	12V (2A)
	SMBus	N/A	N/A	N/A
	SIM Socket	4	4	4
Expansion	WWAN	2	2	2
	mini-PCIe Socket	- 1 x (PCIe 3.0/USB3.2, USB 2.0) for LTE/5G	- 1 x (PCIe 3.0, SATA 3.0, USB3.2), default PCIe 3.0 - 1 x (USB 3.2, PCIe 3.0, SATA 3.0), default USB 3.2 for LTE	- 1 x (PCIe 3.0, SATA 3.0, USB3.2), default PCIe 3.0 - 1 x (USB 3.2, PCIe 3.0, SATA 3.0), default USB 3.2 for LTE
	M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3042 Key E (PCIe3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card	- 1 x M.2 3042/3052 Key B (USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 3030 Key E (PCIe 3.0 x2, USB 2.0) for Wi-Fi/Hailo AI card
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
	Back Up Battery	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-30℃ to 60℃ (15W TDP & PoE)	-35℃ to 70℃ (35W TDP, fanless; 65W CPU, w/ fan)	-35℃ to 60℃/65℃ (35W CPU, fanless, POW/60W; POE: 65W CPU w/ fan, 120W/60W PoE)
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)	Win 10/11, Linux (Kernel 5.x)
	Dimensions (mm)	210.0 x 173.0 x 75.0	260.0 x 210.0 x 81.0	260.0 x 210.0 x 81.0

Modular Vehicle Computer System

		MVS 2620-IP	MVS 5600-3BU	MVS 5600-7BU	MVS 5600-3IPK	MVS 5600-7IPK
System	CPU	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel® Core™ i3-6100U, 2-core, 2.3GHz	Intel® Core™ i7-6600U, 2-core, 2.6GHz	Intel® Core™ i3-6100U, 2-core, 2.3GHz	Intel® Core™ i7-6600U, 2-core, 2.6GHz
	Chipset	N/A	N/A	N/A	N/A	N/A
	Memory	1 x DDR3L 1600/1866 SO-DIMM, 4GB (default) up to 8GB	2 x DDR3L 1600/1866 SO-DIMM, 2GB (default) up to 16GB	2 x DDR3L 1600/1866 SO-DIMM, 2GB (default) up to 16GB	2 x DDR3L 1600/1866 SO-DIMM, 2GB (default) up to 16GB	2 x DDR3L 1600 SO-DIMM, 2GB (default) up to 16GB
	Storage	1 x 2.5" SATA 3.0 SSD/HDD	1 x 2.5" SATA 3.0 SSD/HDD (removable, 9.5mm)	1 x 2.5" SATA 3.0 SSD/HDD (removable, 9.5mm)	1 x 2.5" SATA 3.0 SSD/HDD	1 x 2.5" SATA 3.0 SSD/HDD
	Second Storage	1 x CFast (removable)	1 x CFast (removable)	1 x CFast (removable)	1 x CFast (removable)	1 x CFast (removable)
I/O Interface	Video Out	1 x VGA	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA	1 x VGA
	Audio	1 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	2 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out	1 x Mic-in, 2 x Line-out
	Ethernet	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000
	PoE	N/A	N/A	N/A	N/A	N/A
	USB	3 x USB 2.0	4 x USB 3.2 (Gen1)	4 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen1), 2 x USB 2.0	1 x USB 3.2 (Gen1), 2 x USB 2.0
	COM	2 x RS232 (full), 1 x RS232, 2 x RS485	2 x RS232 (full), 1 x RS232 (full)/422/485	2 x RS232 (full), 1 x RS232 (full)/422/485	2 x RS232 (full), 1 x RS232, 2 x RS485	2 x RS232 (full), 1 x RS232, 2 x RS485
	DIO	3 x DI, 3 x DO (w/ isolation)	8 x Programmable DIO MCU: 2 x DI, 2 x DO, 1 x Speed frequency	8 x Programmable DIO MCU: 2 x DI, 2 x DO, 1 x Speed frequency	3 x DI, 3 x DO (w/ isolation)	3 x DI, 3 x DO (w/ isolation)
	CAN Bus	1 x CANBus 2.0B (w/ isolation)	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	12V (2A)	12V (2A)	12V (2A)	12V (2A)	12V (2A)
	SIM Socket	3	3	3	3	3
Expansion	WWAN	2	2	2	2	2
	mini-PCIe Socket	- 1 x (USB2.0, PCIe2.0) for LTE - 1 x (USB2.0) for LTE - 1 x (USB2.0, PCIe2.0) - 1 x (USB2.0)	- 1 x (USB2.0, PCIe2.0) for LTE - 1 x (USB2.0) for LTE - 1 x (USB2.0, PCIe2.0)	- 1 x (USB2.0, PCIe2.0) for LTE - 1 x (USB2.0) for LTE - 1 x (USB2.0, PCIe2.0)	- 1 x (USB2.0, PCIe2.0) for LTE - 1 x (USB2.0) for LTE - 1 x (USB2.0, PCIe2.0) - 1 x (USB2.0)	- 1 x (USB2.0, PCIe2.0) for LTE - 1 x (USB2.0) for LTE - 1 x (USB2.0, PCIe2.0) - 1 x (USB2.0)
	M.2 Socket	N/A	N/A	N/A	N/A	N/A
	GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
	Back Up Battery	N/A	Internal (optional)	Internal (optional)	N/A	N/A
Environment	Ingress Protection	IP65	N/A	N/A	IP65	IP65
	Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
	Operating Temperature	-40℃ to 70℃	-30℃ to 60℃	-30℃ to 60℃	-30℃ to 60℃	-30℃ to 60℃
Others	TPM	N/A	TPM 2.0, optional	TPM 2.0, optional	TPM 2.0, optional	TPM 2.0, optional
	OS	Win 10, Linux (Kernel 4.x)	Win 7/8/10, WES 7/8, WLinux (Kernel 4.x)	Win 7/8/10, WES 7/8, WLinux (Kernel 4.x)	Win 7/8/10, WES 7/8, WLinux (Kernel 4.x)	Win 7/8/10, WES 7/8, WLinux (Kernel 4.x)
	Dimensions (mm)	260.0 x 198.0 x 50.0	260.0 x 196.0 x 66.5	260.0 x 196.0 x 66.5	260.0 x 198.0 x 66.5	260.0 x 198.0 x 66.5

Railway Computer - Box PC/Panel PC

nROK/vROK Series Brief Product Introduction

Product Description

nROK series, railway computer, in an extended operating temperature range of -40 to 70℃ certified EN50155 and IP65 protection depended on models. The SKU with PoE integrated all-in-one computer can also work as a PoE switch and power supply for PoE cameras. Wide-range power input SKU from 24 to 110VDC includes isolation and protection against power dips. Multiple Wi-Fi 6/6E and 5G/LTE cellular networks handle the connectivity that provides uninterrupted internet access and more transmission bandwidth, vROK series, all in one railway open frame panel computer, is designed for human machine interface (HMI) and passenger information system aimed at railway onboard infotainment applications.

Module — 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, POE, and multi-SIM integration

SSD — Front accessible SSD storage

Optional isolated 24~110VDC power input

Global navigation satellite system for precise and real-time location

Application

nROK: Communications hub, passenger information system, onboard video surveillance, digital radio data/voice transmission system, freight management system, rail analytics system, rail maintenance applications.

vROK: Human machine interface (HMI), passenger information system, infotainment.

Product Hightlight

EN50155 certificated system

Protection for voltage dips

M12 X-coded/D-coded PoE port for IP cameras

Open frame design railway panel computer

28   Product appearance and specifications are subject to change without notice.

Product appearance and specifications are subject to change without notice.   29

Railway Computer - Box PC

		VTC 1911-IPK	nROK 1020-A	nROK 1030-A
	Model			
System	CPU	Intel Atom® E3815, 1-core, 1.46GHz	Intel Atom® x5-E3930, 2-core, 1.3GHz	Intel Atom® x6211E, 2-core, 1.3GHz
	Chipset	N/A	N/A	N/A
	Memory	1 x DDR3L 1333 SO-DIMM, 2GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support
	Storage	1 x mSATA	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)
	Second Storage	1 x 2.5" SATA 3.0 SSD (9.5mm) or 1 x SATA 3.0 SATA DOM	1 x mSATA (occupied mini-PCIe socket)	1 x mSATA (occupied mini-PCIe socket)
I/O Interface	Video Out	1 x VGA. 1 x HDMI (optional)	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Audio	1 x Mic-in, 1 x Line-out (DB15)	1 x Mic-in, 1 x Line-out (M12)	1 x Mic-in, 1 x Line-out (DB9)
	Ethernet	2 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000 (M12)	2 x Intel® 10/100/1000/2500 (M12)
	PoE	N/A	N/A	N/A
	USB	1 x USB 2.0	2 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen2), 1 x USB 2.0
	COM	2 x RS232, 1 x RS485	5 x RS232, 2 x RS485	2 x RS232 (full)/422/485
	DIO	3 x DI, 3 x DO	5 x Programmable DIO	5 x DI, 4 x DO
	CAN Bus	1 x CAN Bus 2.0B (w/o isolation)	1 x CAN Bus 2.0B (w/o isolation)	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	N/A	12V (2A)	12V (2A)
	SMBus	N/A	1	N/A
	SIM Socket	2	1	2 (eSIM BOM optional)
Expansion	WWAN	1	1	1
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe2.0/SATA 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0/SATA 3.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
	M.2 Socket	N/A	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
	GNSS	Onboard u-blox NEO-M8N	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)
Power	Power Input	DC 9V to 36V	DC 24V (w/o isolation)	DC 24V (w/o isolation)
	Backup Battery	N/A	N/A	N/A
Environment	Ingress Protection	IP67	N/A	N/A
	Certification	CE, FCC Class A, UKCA, E13, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN45545-2, EN50155
	Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 7/8/10, WES 7, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10/11 64-bit, Linux (Kernel 5.x)
	Dimensions (mm)	185.0 x 167.0 x 56.5	185.0 x 120.0 x 45.0	185.0 x 120.0 x 50.0

		nROK 1031-A	nROK 1031-AC2	VTC 6210-R
	Model			
System	CPU	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® x6413E, 4-core, 1.5GHz	Intel Atom® E3845, 4-core, 1.91GHz
	Chipset	N/A	N/A	N/A
	Memory	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 3200MHz 32GB, in-band ECC support	1 x DDR3 1333 SO-DIMM, 2GB (default) up to 8GB	1 x DDR3 1333 SO-DIMM, 2GB (default) up to 8GB
	Storage	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (9.5mm)	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)
	Second Storage	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x M.2 2280 Key M SSD (SATA 3.0)	1 x CFast (external accessible)
I/O Interface	Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x DP
	Audio	1 x Mic-in, 1 x Line-out (DB9)	1 x Mic-in, 1 x Line-out (DB9)	2 x Mic-in, 2 x Line-out (Phone Jack)
	Ethernet	1 x Intel® 10/100/1000/2500 1 x 10/100/1000 (M12)	1 x Intel® 10/100/1000/2500 1 x 10/100/1000 (M12)	2 x Intel® 10/100/1000 (M12)
	PoE	N/A	2 x M12 Independent Intel® 10/100/1000/2500 (802.3af/at). Total 60W	N/A
	USB	1 x M12 with 2 x USB 2.0 signal, 1 x USB 2.0, 1 x USB 3.2 (Gen 2)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 2.0, 1 x USB 3.2 (Gen 2)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen1)
	COM	1 x RS232 (full)/422/485, 1 x RS232, 2 x RS485	1 x RS232 (full)/422/485, 1 x RS232, 2 x RS485	2 x RS232 (full), 1 x RS422/485. (w/ isolation)
	DIO	5 x DI, 4 x DO	5 x DI, 4 x DO	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	12V (2A)	12V (2A)	N/A
	SMBus	N/A	N/A	N/A
	SIM Socket	2 (eSIM BOM optional)	2 (eSIM BOM optional)	3
Expansion	WWAN	1	1	2
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0). BOM option to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G NR	- 1 x (USB 2.0, PCIe 3.0). BOM option to 1 x M.2 3042 Key B socket (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G NR	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0) for LTE - 1 x (USB 2.0) for LTE
	M.2 Socket	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	N/A
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 24V (w/o isolation)	DC 24V (w/o isolation)	DC 24/36V (w/o isolaiton), 110V (w/ isolation)
	Backup Battery	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
Others	TPM	TPM 2.0	TPM 2.0	N/A
	OS	Win 10/11 64-bit, Linux (Kernel 5.x)	Win 10/11 64-bit, Linux (Kernel 5.x)	Win 7/8/10, WES 7, Linux (Kernel 4.x)
	Dimensions (mm)	180.0 x 180.0 x 60.0	180.0 x 180.0 x 60.0	260.0 x 176.0 x 70.0

Railway Computer - Box PC

	Model	nROK 6221	nROK 6221-IP	nROK 6222-AC4S
System	CPU	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz
	Chipset	N/A	N/A	N/A
	Memory	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB
	Storage	1 x 2.5" SATA 3.0 SSD (removable, 15mm)	1 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
	Second Storage	1 x CFast (external accessible, default) or 1 x mSATA (occupied CFast, BOM optional)	1 x CFast (external accessible, default) or 1 x mSATA (occupied CFast, BOM optional)	1 x SD (external accessible), 1 x internal USB DOM
	Video Out	2 x VGA, 1 x HDMI	2 x VGA	1 x VGA, 2 x HDMI
	Audio	1 x Mic-in, 2 x Line-out (DB9)	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)
I/O Interface	Ethernet	2 x Intel® 10/100/1000 (M12). (additional 1 x Intel®10/100/1000 (M12), BOM optional)	2 x Intel® 10/100/1000 (M12). (additional 1 x Intel® 10/100/1000 (M12), BOM optional)	1 x Intel® 10/100/1000 (M12)
	PoE	N/A	N/A	4 x M12 Intel® 10/100/1000 (802.3af/at). Total 60W
	USB	1 x M12 with 2 x USB 2.0 signal, 1 x USB 2.0, 1 x USB 3.2 (Gen1)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen1)	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen1)
	COM	1 x RS232 (full), 1 x RS232, 1 x RS485. (w/ isolation)	1 x RS232 (full), 1 x RS232, 1 x RS485. (w/ isolation)	1 x RS232 (full), 1 x RS232, 1 x RS422/485. (w/ isolation)
	DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 3 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	N/A	N/A	N/A
	SIM Socket	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	2 (eSIM BOM optional)
Expansion	WWAN	3 (BOM option up to 4)	3 (BOM option up to 4)	1
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE	- 1x (USB2.0, PCIe2.0) - 1x (USB2.0, PCIe2.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1x (USB2.0) for LTE	- 2 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) LTE/5G
	M.2 Socket	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G - 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G	- 1x M.2 3042 Key B - (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G - 1x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G	- 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen 1)) for LTE/5G (BOM optional)
	GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	u-blox NEO-M8N onboard
Power	Power Input	DC 24/36V (w/o isolation), DC 24/110V (w/ isolation, optional)	DC 24 (w/ isolation), DC 24/36V (w/o isolation, optional), DC 110V (w/ isolation, optional)	DC 24/36V (w/o isolation) DC 24/110V (w/ isolation, external power kit, optional)
	Backup Battery	N/A	N/A	N/A
Environment	Ingress Protection	N/A	IP65	N/A
	Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-40℃ to 70℃ (OT4)	-40℃ to 70℃ (OT4)	-40℃ to 70℃ (OT4)
Others	TPM	TPM 2.0, optional	TPM 2.0, optional	TPM 2.0, optional
	OS	Win 10 64-bit, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 196.0 x 70.0	260.0 x 198.0 x 70.0	260.0 x 196.0 x 66.5

	Model	nROK 6231-A *(Coming Soon)*	nROK 6232-AC4S *(Coming Soon)*	nROK 6232-AC4S-BAT *(Coming Soon)*
System	CPU	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7433RE, 4-core, 1.5GHz
	Chipset	N/A	N/A	N/A
	Memory	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support
	Storage	1 x 2.5" SATA 3.0 SSD (removable, 9.5mm)	eMMC 5.1, 64GB	eMMC 5.1, 64GB
	Second Storage	1 x mSATA (occupied mini-PCIe socket)	2 x 2.5"" SATA 3.0 SSD (removable, 15mm)	1 x 2.5" SATA 3.0 SSD (removable, 15mm), 1 x M.2 2242 Key B (SATA)
	Video Out	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI, 1 x DP
	Audio	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-in, 1 x Line-out
I/O Interface	Ethernet	2 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000/2500
	PoE	N/A	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W
	USB	2 x USB 2.0, 2 x USB 3.2 (Gen2)	2 x USB 2.0, 2 x USB 3.2 (Gen2)	2 x USB 2.0, 2 x USB 3.2 (Gen2)
	COM	2 x RS232(full)/422/485, 1 x RS232 (full)	2 x RS232(full)/422/485, 1 x RS232, 1 x RS422/485	2 x RS232(Full)/422/485, 1 x RS232, 1 x RS422/485
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO	4 x DI, 4 x DO
	CAN Bus	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)	1 x CAN FD (w/ isolation)
	DC Output	12V (2A)	12V (2A)	12V (2A)
	SIM Socket	8 (eSIM BOM optional)	4 (eSIM BOM optional)	4 (eSIM BOM optional)
Expansion	WWAN	3 (BOM option up to 4)	2	2
	mini-PCIe Socket	- 1 x (USB 2.0, SATA 3.0/PCIe 3.0) default for mSATA, BIOS select (USB 2.0) for LTE, BOM option (USB 2.0, PCIe 3.0) for WiFi - 1 x (USB 2.0, PCIe 3.0) for WiFi, BOM option to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2x1) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G
	M.2 Socket	- 2 x M.2 3042/3052 Key B (USB 2.0, USB 3.2) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0) for Wi-Fi. BOM option mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-07 module (u-blox NEO-M9N)
Power	Power Input	DC 24V (w/o isolation), DC 24/110V (w/ isolation, optional)	DC 24V (w/o isolation)	DC 24V (w/o isolation)
	Backup Battery	N/A	N/A	YES
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155, EN45545-2
	Operating Temperature	-40℃ to 70℃ (OT4)	-40℃ to 70℃	-40℃ to 70℃
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 196.0 x 70.0	260.0 x 196.0 x 66.5	260.0 x 196.0 x 66.5

32   Product appearance and specifications are subject to change without notice.

Product appearance and specifications are subject to change without notice.   33

Railway Computer - Box PC

Coming Soon

		nROK 6232-WIC4S	nROK 7251-7A	nROK 7251-7C4
System	CPU	Intel Atom™ x7433RE, 4-core, 1.5GHz	Intel® Core™ i7-9700TE, 8-core, 1.8GHz	Intel® Core™ i7-9700TE, 8-core, 1.8GHz
	Chipset	N/A	Intel® Q370	Intel® Q370
	Memory	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB, in-band ECC support	2 x DDR4 2666 SO-DIMM, 8GB (default) up to 64GB	2 x DDR4 2666 SO-DIMM, 8GB (default) up to 64 GB
	Storage	eMMC 5.1, 64GB	2 x 2.5" SATA 3.0 SSD (removable, 15mmn)	2 x 2.5" SATA 3.0 SSD (removable, 15mmn)
	Second Storage	1 x 2.5" SATA 3.0 SSD (removable, 15mm), 1 x M.2 2242 Key B (SATA)	2 x mSATA (occupied mini-PCIe socket)	2 x mSATA (occupied mini-PCIe socket)
	Video Out	1 x VGA, 1 x HDMI, 1 x DP	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Audio	1 x Mic-in, 1 x Line-in, 1 x Line-out	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)
I/O Interface	Ethernet	1 x Intel® 10/100/1000/2500	2 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000 (M12)
	PoE	4 x Intel® 2.5GbE (w/ 802.3af/at/bt). Total 90W	N/A	4 x M12 independent Intel® 10/100/1000 (802.3af/at). Total 60W
	USB	2 x USB 2.0, 2 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)
	COM	2 x RS232(full)/422/485, 1 x RS232, 1 x RS422/485	2 x RS232 (full), 1 x RS232 (Full)/422/485. (w/ isolation)	2 x RS232 (full), 1 x RS232 (Full)/422/485. (w/ isolation)
	DIO	4 x DI, 4 x DO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	1 x CAN FD (w/ isolation)	N/A	N/A
	DC Output	12V (2A)	N/A	N/A
	SIM Socket	4 (eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)
Expansion	WWAN	2	3 (BOM option up to 4)	3 (BOM option up to 4)
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0), BOM optional to 1 x M.2 3052 Key B (USB 2.0, USB 3.2 Gen 2) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
	M.2 Socket	- 1 x M.2 3042/3052 Key B (USB 2.0, USB 3.2(Gen2)) for LTE/5G - 1 x M.2 2230 Key E (PCIe 3.0 x 1, USB 2.0), BOM optional mPCIe (PCIe 3.0 x 1, USB2.0) for Hailo module	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
	GNSS	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 24 to 110V (w/ isolation)	DC 24V (w/o isolation)	DC 24V (w/o isolation)
	Backup Battery	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-40℃ to 70℃	-40℃ to 70℃ (OT4)	-40℃ to 70℃ (OT4)
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 196.0 x 66.5	260.0 x 256.0 x 84.0	260.0 x 256.0 x 84.0

		nROK 7251-WI-7C4IP	nROK 7252-AC8S	nROK 7252-WI2-C8S
System	CPU	Intel® Core™ i7-9700TE, 8-core, 1.8GHz	8/9th Gen Intel® Core™/Xeon® (AI Hailo-8™ onboard option)	8/9th Gen Intel® Core™/Xeon® (AI Hailo-8™ onboard option)
	Chipset	Intel® Q370	Intel® C246	Intel® C246
	Memory	2 x DDR4 2666 SO-DIMM, 8GB (default) up to 64GB	2 x DDR4 2666 SO-DIMM, up to 64GB	2 x DDR4 2666 SO-DIMM, up to 64GB
	Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mmn)	4 x 2.5" SATA 3.0 SSD (removable, 15mmn)	2 x 2.5" SATA 3.0 SSD (removable, 15mmn)
	Second Storage	2 x mSATA (occupied mini-PCIe socket)	2 x mSATA (occupied mini-PCIe socket) 1 x Removable SD 3.0	2 x mSATA (occupied mini-PCIe socket) 1 x Removable SD 3.0
	Video Out	1 x VGA	1 x VGA, 2 x HDMI	1 x VGA, 2 x HDMI
	Audio	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 2 x Line-out (DB9)	1 x Mic-in, 2 x Line-out (DB9)
I/O Interface	Ethernet	1 x Intel® 10/100/1000 (M12)	2 x Intel® 10/100/1000 (M12)	2 x Intel® 10/100/1000 (M12)
	PoE	4 x M12 independent Intel® 10/100/1000 (802.3af/at). Total 60W	8 x M12 10/100/1000 (802.3af/at). Total 60W	8 x M12 10/100/1000 (802.3af/at). Total 60W
	USB	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 4 x USB 3.2 (Gen2)
	COM	2 x RS232 (full), 1 x RS232 (Full)/422/485. (w/ isolation)	2 x RS232 (full), 1 x RS232 (Full)/422/485. (w/ isolation)	2 x RS232 (full), 1 x RS232 (Full)/422/485. (w/ isolation)
	DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	N/A	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
	DC Output	N/A	N/A	N/A
	SIM Socket	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)	6 (BOM option up to 8, eSIM BOM optional)
Expansion	WWAN	3 (BOM option up to 4)	3 (BOM option up to 4)	3 (BOM option up to 4)
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x mini-PCIe (USB 2.0) for LTE - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0) - 1 x (USB 2.0, PCIe 3.0/SATA 3.0). BOM option to 1 x M.2 3042 Key B (USB 2.0, USB 3.2 (Gen1)) for LTE/5G - 1 x (USB 2.0) for LTE. BOM option to 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
	M.2 Socket	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G
	GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power	Power Input	DC 24V to 110V (w/ isolation)	DC 24/36V (w/o isolation)	DC 24V to 110V (w/ isolation, 3-second protection against temporary voltage dips)
	Backup Battery	N/A	N/A	N/A
Environment	Ingress Protection	IP65	N/A	N/A
	Certification	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-40℃ to 70℃ (OT4)	-40℃ to 70℃ (OT4)	-40℃ to 70℃ (OT4)
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 256.0 x 110.0	260.0 x 266.0 x110.0	260.0 x 266.0 x110.0

34   Product appearance and specifications are subject to change without notice.

Product appearance and specifications are subject to change without notice.   35

Railway Computer - Box PC

	Model	nROK 7270-A [NEW]	nROK 7270-AC4 [NEW]	nROK 7271-WI [NEW]
System	CPU	Intel® Core™ 12th/13th Gen	Intel® Core™ 12th/13th Gen	Intel® Core™ 12th/13th Gen
	Chipset	Intel® R680E	Intel® R680E	Intel® R680E
	Memory	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support
	Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
	Second Storage	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01
I/O Interface	Video Out	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI	1 x VGA, 1 x HDMI
	Audio	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)	1 x Mic-in, 1 x Line-out (M8)
	Ethernet	2 x Intel® 10/100/1000/2500 (M12, WoL support)	1 x Intel® 10/100/1000/2500 (M12, WoL support)	2 x Intel® 10/100/1000/2500 (M12, WoL support)
	PoE	N/A	4 x independent Intel® 2.5GbE (802.3af/at). Total 60W	N/A
	USB	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)
	COM	2 x RS232 (full)/422/485. (w/ isolation)	2 x RS232 (full)/422/485. (w/ isolation)	2 x RS232 (full)/422/485. (w/ isolation)
	DIO	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)	2 x CAN FD (w/ isolation)
	DC Output	N/A	N/A	N/A
	SIM Socket	4 (eSIM BOM optional)	4 (eSIM BOM optional)	4 (eSIM BOM optional)
Expansion	WWAN	2	2	2
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
	M.2 Socket	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-06 module (u-blox NEO-M9N)
Power	Power Input	DC 24/36V (w/o isolation)	DC 24/36V (w/o isolation)	DC 24V to 110V (w/ isolation, optional 3-second protection against temporary voltage dips)
	Backup Battery	N/A	N/A	N/A
Environment	Ingress Protection	N/A	N/A	N/A
	Certification	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155, EN45545-2	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-35°C to 70°C (OT3)	-35°C to 70°C (OT3)	-35°C to 70°C (OT3)
Others	TPM	TPM 2.0	TPM 2.0	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 210.0 x 80.0	260.0 x 210.0 x 80.0	260.0 x 210.0 x 110.0

Railway Computer - Panel PC

	Model	nROK 7271-WIC4 [NEW]
System	CPU	Intel® Core™ 12th/13th Gen
	Chipset	Intel® R680E
	Memory	2 x DDR5 4800 SO-DIMM, up to 64GB, ECC support
	Storage	2 x 2.5" SATA 3.0 SSD (removable, 15mm)
	Second Storage	1 x mSATA (occupied mini-PCIe socket) 2 x M.2 Key B (occupied M.2 socket) 1 x microSD card slot, SDXC v3.01
I/O Interface	Video Out	1 x VGA, 1 x HDMI
	Audio	1 x Mic-in, 1 x Line-out (M8)
	Ethernet	1 x Intel® 10/100/1000/2500 (M12, WoL support)
	PoE	4 x Independent Intel® 2.5GbE (802.3af/at). Total 60W
	USB	1 x M12 with 2 x USB 2.0 signal, 2 x USB 3.2 (Gen2)
	COM	2 x RS232 (full)/422/485. (w/ isolation)
	DIO	4 x DI, 4 x DO (w/ isolation)
	CAN Bus	2 x CAN FD (w/ isolation)
	DC Output	N/A
	SIM Socket	4 (eSIM BOM optional)
Expansion	WWAN	2
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
	M.2 Socket	- 2 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)
Power	Power Input	DC 24V to 110V (w/ isolation, optional 3-second protection against temporary voltage dips)
	Backup Battery	N/A
Environment	Ingress Protection	N/A
	Certification	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-35°C to 70°C (OT3)
Others	TPM	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)
	Dimensions (mm)	260.0 x 210.0 x 110.0

	Model	vROK 3030
Display	LCD Size	10.4" TFT LCD
	Resolution	1024 x 768
	Brightness (Typ.)	1200cd/m²
	Contrast Ratio	900:1
	View Angle	V: 85/85 H: 85/85
	Brightness Adjustment	Auto via light sensor (BOM optional)
	Touch Screen	Projected capacitive, anti-glare (BOM optional)
System	CPU	Intel Atom® x6414RE, 4-core, 1.50GHz
	Chipset	N/A
	Memory	1 x DDR4 2666 SO-DIMM, 4GB (default) up to 32GB
	Storage	1 x mSATA (occupied mini-PCIe socket) 1 x M.2 2280 Key M NVMe SSD (PCIe 3.0 x1, SATA 3.0)
I/O Interface	Speaker	N/A
	Control Button	BOM optional
	Video Out	1 x HDMI, 1 x DP
	Video Input	4 x CVBS
	Audio	1 x Line-in, 2 x Line-out (DB9)
	Ethernet	2 x Intel® 10/100/1000/2500 (M12)
	PoE	Optional
	USB	1 x M12 with 2 x USB 2.0 signal, 1 x USB 3.2 (Gen 2)
	COM	2 x RS232 (full)/422/485
	DIO	4 x DI, 2 x DO (w/ isolation)
	CAN Bus	1 x CAN Bus 2.0B (w/ isolation)
	SIM Socket	2
Expansion	WWAN	1
	mini-PCIe Socket	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)
	M.2 Socket	- 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0) - 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen 2)) for LTE/5G
	GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)
Power	Power Input	DC 24/36V (w/o isolation) DC 24/110V (w/ isolation, optional)
	Back Up Battery	N/A
Environment	Ingress Protection	N/A
	Certification	CE, FCC Class A, UKCA, EN50155
	Operating Temperature	-30°C to 70°C (OT3), w/o PoE -30°C to 60°C (OT1), w/ PoE
Others	TPM	TPM 2.0
	OS	Win 10/11, Linux (Kernel 4.x)
	Mounting	VESA 75
	Dimensions (mm)	309.0 x 230.6 x 67.7

Railway Computer

Vehicle Network Switch

VES Series Brief Product Introduction

Product Description

VES Series is the unmanaged mobile vehicle and railway PoE switch that ensures stable network service for telematics applications. Enclosed in a fanless rugged chassis, they support a wide voltage input range, fully operable under shock, vibration, and a harsh temperature range. The reliable mobile vehicle and railway PoE switch is certified with E-Mark and EN50155.

EN50155 EN50155 and E-Mark certification

-40~70°C operating temperature

M12 X-coded LAN connector

Compact and ruggedized enclosure design
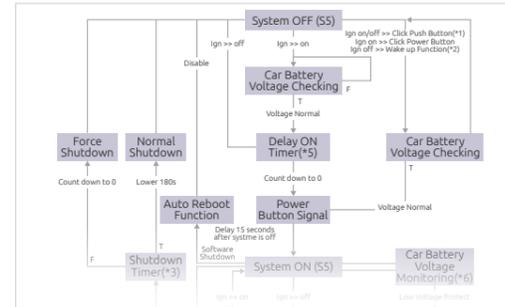
Application

- Video surveillance
- Wireless gateway
- Passenger infotainment system

Product Hightlight

Dedicated for onboard vehicle/train systems

Ignition power management: power on/off delay, wide voltage input 9~36VDC, low voltage protection

Ultra-rugged enclosure, comply with MIL-STD-810H against vibration and shock impact

Rich 4/8-port IEEE 802.3af/at compliant PoE, up to 30W/port

		Model	VES31-4S	VES31-8S	VES31-4SR	VES31-8SR
System		Architecture	Unmanaged GbE switch	Unmanaged GbE switch	Unmanaged GbE switch	Unmanaged GbE switch
		PoE	4 x 10/100/1000 (w/ 802.3af/at). Total 120W.	8 x 10/100/1000 (w/ 802.3af/at). Total 120W.	4 x M12 10/100/1000 (w/ 802.3af/at). Total 120W.	8 x M12 10/100/1000 (w/ 802.3af/at). Total 120W.
		Ethernet	2 x 10/100/1000	2 x 10/100/1000	2 x Intel® 10/100/1000 (M12)	2 x Intel® 10/100/1000 (M12)
		LED	1 x Power indicator 4 x PoE indicator 1 x Low voltage protection indicator 8 x Active/link indicator	1 x Power indicator 8 x PoE indicator 1 x Low voltage protection indicator 12 x Active/link indicator	1 x Power indicator 4 x PoE indicator 1 x Low voltage protection indicator 6 x Active/link indicator	1 x Power indicator 8 x PoE indicator 1 x Low voltage protection indicator 10 x Active/link indicator
		Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V
Environment		Certification	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, EN50155	CE, FCC Class B, UKCA, EN50155
		Operating Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C (OT4)	-40°C to 70°C (OT4)
Others		Dimensions (mm)	167.0 x 140.0 x 52.0	167.0 x 140.0 x 52.0	167.0 x 140.0 x 62.0	167.0 x 140.0 x 62.0

38   Product appearance and specifications are subject to change without notice.

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Vehicle Mount Computer and Display

VMC and VMD Series Brief Product Introduction

Product Description

The VMC series is a durable vehicle mount computer suitable for warehouse, ports, logistics, and material handling markets. Its IP65 rating protects against water/dust damage and its sunlight readability ensures display visibility. Optional back-up battery preserves data when car power battery fails, while wide-range power input (9~60VDC) allows for use in various facilities, forklifts, and vehicles. The VMD series is a tough TFT LCD monitor with a resistant or projected capacitive touchscreen, ideal for in-vehicle use. Its high-brightness display and automatic brightness control make it suitable for use in various lighting conditions. With an IP65 rating it is protected against water/dust damage, and its over 1000 nits display ensures excellent visibility.

IP65 Full IP65 compliance

Vibration and shock resistant
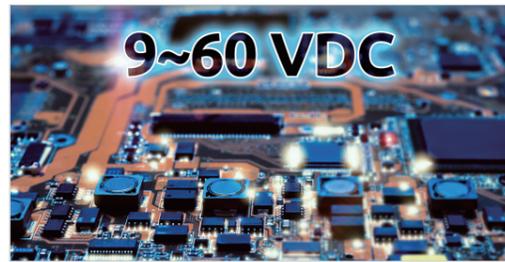
Module 5G/LTE, Wi-Fi 6/6E, BT, CAN/OBD, GNSS + DR, and multi-SIM integration

E13 Mark E-Mark certification

Application

- Fleet management
- Warehouse management
- Port management applications

Product Hightlight

Wide range power input 9~60VDC

Back-up battery provides uninterrupted power

Sunlight readability & high brightness

Impact protection IK08

Vehicle Mount Computer

	VMC 110 / 111	VMC 1100-PR0	VMC 1110-PR0	VMC 220-PC1
Display				
LCD Size	7" TFT LCD	7" TFT LCD	7" TFT LCD	8" TFT LCD
Resolution	1024 x 600	800 x 480	1024 x 600	1280 x 720
Brightness (Typ.)	500cd/m²	400cd/m²	1200cd/m²	1000cd/m²
Contrast Ratio	800:1	600:1	600:1	1000:1
View Angle	V: 70/75 H: 75/75	V: 50/70 H: 70/70	V: 85/85 H: 85/85	V: 85/85 H: 85/85
Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor	Auto via light sensor
Touch Screen	4-wire resistive, anti-glare	4-wire resistive, anti-glare	4-wire resistive, anti-glare	Projected capacitive, anti-glare
System				
CPU	NXP i.MX6 Dual Lite, 2-core, 800 MHz	Intel Atom® E3825, 2-core, 1.33GHz	Intel Atom® x7211RE, 2-core, 1.0GHz	NXP i.MX 8M Quad, 4-core, 1.3GHz
Chipset	N/A	N/A	N/A	N/A
Memory	1 x 2GB DDR3L onboard	1 x DDR3L 1600 SO-DIMM, 4GB (default) up to 8GB	1 x DDR5 4800 SO-DIMM, 8GB (default) up to 16GB	1 x LPDDR4 2400 SDRAM 3GB onboard
Storage	1 x 8GB eMMC 5.1 1 x Micro SD	1 x SATA 3.0 SATA DOM	1 x 128GB eMMC 5.1 1 x Micro SDXC 2 x M.2 Key B (SATA 3.0, occupied M.2 socket)	1 x 32GB eMMC 5.1 1 x Micro SD
I/O Interface				
Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
Control Button	F1~F5 function key 1 x Power button 2 x Brightness/volume control 1 x System reset button	F1~F5 function key 1 x Power button 2 x Brightness/volume control 1 x System reset button	F1~F5 function key 1 x Power button 2 x Brightness/volume control 1 x System reset button	F1~F4 function key (2 x brightness/ 2 x volume control) 1 x Shift key 1 x Power button 1 x System reset button
Video Out	N/A	N/A	1 x HDMI	N/A
Video Input	N/A	N/A	N/A	4 x CVBS
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000	1 x Intel® 10/100/1000/2500	1 x Intel® 10/100/1000 (M12)
PoE	N/A	N/A	N/A	N/A
USB	3 x USB 2.0	1 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen2)	3 x USB 2.0
COM	1 x RS232 (full), 1 x RS232/485	1 x RS232 (full), 1 x RS232 (Tx, Rx) or 1 x RS485	1 x RS232 (full)/RS422/RS485 1 x RS232, 1 x RS485	1 x RS232 (full), 1 x RS232, 1 x RS232/RS422/RS485
DIO	3 x DI, 3 x DO	2 x PWM, 2 x AI, 2 x DI, 2 x DO	3 x DI, 2 x DO	1 x PWM, 1 x Direction, 2 x DI, 2 x DO
CAN	2 x CAN Bus 2.0B (w/o isolation)	2 x CAN Bus 2.0B (w/o isolation)	1 x CAN FD (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
Expansion				
SIM Socket	1	1	1	2
WWAN	1	1	1	1
mini-PCIe Socket	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	N/A	N/A
M.2 Socket	N/A	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2), SATA 3.0) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0) - 1 x M.2 2242 Key B (USB 2.0, PCIe3.0/SATA 3.0 (auto detect))	- 1 x M.2 2230 Key E (PCIe 2.0, SDIO 3.0, UART) - 1 x M.2 3042/3050/3052 Key B (USB 3.2 (Gen1)) for LTE/5G
GNSS	Onboard u-blox NEO-M8N	Onboard u-blox NEO-M8N	VIOB-GPS-07 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Environment				
Power Input	DC 9V to 36V	DC 9V to 36V	DC 9V to 36V	DC 9V to 60V
Back Up Battery	N/A	N/A	N/A	N/A
Ingress Protection	Front panel IP54	Front panel IP54	Front panel IP54	IP65
Certification	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13, SAE J1113, SAE J1455, ISO7637-2, EN 60950-1 LVD	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13, IK08
Operating Temperature	-20℃ to 70℃	-20℃ to 60℃	-30℃ to 60℃	-40℃ to 70℃
Others				
TPM	N/A	N/A	TPM 2.0	TPM 2.0, optional
OS	Android 5.1	Win 7/8/10, WES 7/8, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Linux (Kernel 5.4.47)
Mounting	VESA 75	VESA 75	VESA 75	VESA 75
Dimensions (mm)	213.0 x 145.0 x 40.0	213.0 x 145.0 x 50.0	213.0 x 145.0 x 50.0	250.0 x 179.0 x 68.0

Coming soon

40   Product appearance and specifications are subject to change without notice.

Product appearance and specifications are subject to change without notice.   41

Vehicle Mount Computer

Model	VMC 320-AC0	VMC 2020-PC1	VMC 3020
Display			
LCD Size	10.1" TFT LCD	8" TFT LCD	10.4" TFT LCD
Resolution	1280 x 800	1280 x 720	1024 x 768
Brightness (Typ.)	1000cd/m²	1000cd/m²	1200cd/m²
Contrast Ratio	800:1	1000:1	900:1
View Angle	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85
Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor
Touch Screen	Projected capacitive, anti-glare	Projected capacitive, anti-glare	5-wire resistive, anti-glare
System			
CPU	NXP i.MX 8M Plus, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3930, 2-core, 1.3GHz
Chipset	N/A	N/A	N/A
Memory	1 x LPDDR4 2133 SDRAM 3GB onboard	1 x DDR3L 1866 SO-DIMM, 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB
Storage	1 x 16GB eMMC 5.1 1 x Micro SDXC	1 x 64GB eMMC 5.1 1 x mSATA (occupied mini-PCIe socket)	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)
Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
Control Button	F1~ F5 function key (2 x brightness/ 2 x volume control, 1 x mute) 1 x Power button 1 x System reset button	F1~ F4 function key (2 x brightness/ 2 x volume control) 1 x Shift key 1 x Power button 1 x System reset button	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key
I/O Interface			
Video Out	1 x HDMI	N/A	N/A
Video Input	N/A	4 x CVBS (optional)	N/A
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000
PoE	N/A	N/A	N/A
USB	2 x USB 2.0 1 x USB 3.2 (Gen1)	1 x USB 3.2 (Gen1) 2 x USB 2.0	2 x USB 2.0 (5V/0.5A) 1 x Power USB (5V/1.5A, 12V/1.5A)
COM	2 x RS232 (full)/422/485	1 x RS232 (full), 1 x RS232, 1 x RS232/RS422/RS485	2 x Powered RS232 (full, 5V/1.5A, 12V/1.5A)
DIO	2 x DI, 2 x DO	1 x PWM, 1 x Direction, 2 x DI, 2 x DO	2 x DI, 2 x DO
CAN Bus	1 x CAN FD (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)	1 x CAN Bus 2.0B (w/ isolation)
SIM Socket	2	2	1
WWAN	1	1	1
mini-PCIe Socket	N/A	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0, PCIe 2.0/SATA 3.0)	- 1 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE
Expansion			
M.2 Socket	- 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0) - 1 x M.2 3042/3050/3052 Key B (USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 3042/3050/3052 Key B (USB2.0, USB 3.2 (Gen1)) for LTE/5G	- 1 x M.2 2230 Key E (USB 2.0, PCIe 2.0, SDIO 3.0, UART)
GNSS	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	Optional
Power			
Power Input	DC 9V to 60V	DC 9V to 60V	DC 9V to 60V
Back Up Battery	Optional	N/A	Optional
Environment			
Ingress Protection	Front panel IP65	IP65	Front panel IP65
Certification	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13, IK08	CE, FCC Class B, UKCA, E13
Operating Temperature	-30℃ to 70℃	-30℃ to 60℃	-30℃ to 60℃
Others			
TPM	TPM 2.0	TPM 2.0, optional	N/A
OS	Linux (Kernel 5.15.71)	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)
Mounting	VESA 75/100	VESA 75	VESA 75/100
Dimensions (mm)	294.0 x 227.5 x 37.2	250.0 x 179.0 x 68.0	290.0 x 230.0 x 68.0

Model	VMC 3021	VMC 3030-AC0	VMC 4020-4A0	VMC 4020-4A1
Display				
LCD Size	10.4" TFT LCD	10.1" TFT LCD	12.1" TFT LCD	12.1" TFT LCD
Resolution	1024 x 768	1280 x 800	1024 x 768	1024 x 768
Brightness (Typ.)	1200cd/m²	1000cd/m²	1200cd/m²	1200cd/m²
Contrast Ratio	900:1	800:1	750:1	750:1
View Angle	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85
Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor	Auto via light sensor
Touch Screen	5-wire resistive, anti-glare	Projected capacitive, anti-glare	5-wire resistive, anti-glare	5-wire resistive, anti-glare
System				
CPU	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7433RE, 4-core, 1.5GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz	Intel Atom® x7-E3950, 4-core, 1.6GHz
Chipset	N/A	N/A	N/A	N/A
Memory	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB	1 x DDR5 4800 SO-DIMM slot 8GB (default) up to 16GB	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB	1 x DDR3L 1866 SO-DIMM slot 4GB (default) up to 8GB
Storage	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)	1 x M.2 2280 Key M (SATA 3.0) 1 x Micro SDXC (BOM optional)	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)	1 x CFast 1 x 2.5" SATA 3.0 SSD bay (9.5mm)
Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
Control Button	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key	F1~ F5 function key (2 x brightness/ 2 x volume control, 1 x mute) 1 x Power button 1 x System reset button	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key	1 x Power button 2 x Brightness control 2 x Volume control 5 x Function key 1 x Shift key
I/O Interface				
Video Out	N/A	1 x HDMI	N/A	N/A
Video Input	3 x CVBS	N/A	3 x CVBS	3 x CVBS
Audio	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out	1 x Mic-in, 1 x Line-out
Ethernet	1 x Intel® 10/100/1000 (M12)	1 x Intel® 10/100/1000/2500 (M12)	2 x Intel® 10/100/1000	2 x Intel® 10/100/1000 (M12)
PoE	1 x (802.3af/at). Total 30W (optional)	N/A	1 x (802.3af/at). Total 30W (optional)	1 x (802.3af/at). Total 30W (optional)
USB	2 x USB 2.0	1 x USB 2.0 2 x USB 3.2 (Gen2)	2 x USB 2.0	3 x USB 2.0
COM	1 x RS232 (full)/422/485, 1 x RS232/422/485	2 x RS232 (full)/422/485	2 x RS232 (full)/422/485	1 x RS232 (full)/422/485, 1 x RS232 (Tx, Rx)/422/485
DIO	2 x DI, 2 x DO	2 x DI, 2 x DO	1 x DI, 2 x DO	2 x DI, 2 x DO
CAN Bus	2 x CAN Bus 2.0B (w/ isolation)	1 x CAN FD (w/ isolation)	2 x CAN Bus 2.0B (w/ isolation)	2 x CAN Bus 2.0B (w/ isolation)
SIM Socket	1	2	2	2
WWAN	1	1	1	1
mini-PCIe Socket	- 3 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 1 x (USB 2.0, PCIe 3.0/SATA 3.0)	- 3 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE	- 3 x (USB 2.0, PCIe 2.0) - 1 x (USB 2.0) for LTE
Expansion				
M.2 Socket	N/A	- 1 x M.2 3042/3050/3052 Key B (USB 2.0, USB 3.2 (Gen2)) for LTE/5G - 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0 x2). BOM option to 1 x M.2 2230 Key E (USB 2.0, PCIe 3.0, PCIe 3.0)	N/A	N/A
GNSS	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-06 module (u-blox NEO-M9N)	VIOB-GPS-02 module (u-blox NEO-M8N)	VIOB-GPS-02 module (u-blox NEO-M8N)
Power				
Power Input	DC 9V to 60V	DC 9V to 60V	DC 9V to 60V	DC 9V to 60V
Back Up Battery	Optional	Optional	Optional	Optional
Environment				
Ingress Protection	IP65	Front panel IP65	Front panel IP65	IP65
Certification	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13	CE, FCC Class B, UKCA, E13
Operating Temperature	-30℃ to 60℃	-30℃ to 60℃	-30℃ to 60℃	-30℃ to 60℃
Others				
TPM	N/A	TPM 2.0	N/A	N/A
OS	Win 10, Linux (Kernel 4.x)	Win 10/11, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)	Win 10, Linux (Kernel 4.x)
Mounting	VESA 75/100	VESA 75/100	VESA 75/100	VESA 75/100
Dimensions (mm)	290.0 x 230.0 x 68.0	294.0 x 227.5 x 54.0	340.0 x 262.0 x 75.0	340.0 x 262.0 x 75.0

42 Product appearance and specifications are subject to change without notice.

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Vehicle Mount Display

Model		VMD 1001	VMD 2000	VMD 2002
Display	LCD Size	7" TFT LCD	8" TFT LCD	8" TFT LCD
	Resolution	800 x 480	800 x 600	800 x 600
	Brightness (Typ.)	500cd/m²	500cd/m²	500cd/m²
	Contrast Ratio	600:1	500:1	500:1
	View Angle	V: 60/60 H: 70/70	V: 50/70 H: 70/70	V: 50/70 H: 70/70
	Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor
	Touch Screen	4-wire resistive, anti-glare	4-wire resistive, anti-glare	4-wire resistive, anti-glare
	Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
I/O interface	Camera	N/A	N/A	N/A
	Control Button	1 x Monitor power button 2 x Brightness control 2 x Volume control	1 x Monitor power button 2 x Brightness control 2 x Volume control	1 x Monitor power button 2 x Brightness control 2 x Volume control
	Video Input	VGA	Integrated LVDS CONN (LVDS, USB, 12V)	Integrated DVI CONN (VGA, USB, 12V)
	Audio	1 x Line-in (lateral side) 1 x Line-out (lateral side)	1 x Line-out (lateral side) 1 x Mic-in (lateral side) 1 x Line-in (bottom side) 1 x Mic-out (bottom side)	1 x Line-out (lateral side) 1 x Mic-in (lateral side) 1 x Line-in (bottom side) 1 x Mic-out (bottom side)
	USB	2 x USB 2.0	1 x USB 2.0	1 x USB 2.0
	Remote Power Button	N/A	Remotely power on/off VTC, MVS & ATC	N/A
Power/ Environment	Power Input	DC 9V to 36V	DC 12V (via LVDS)	DC 9V to 36V
	Ingress Protection	Front panel IP54	Front panel IP54	Front panel IP54
	Certification	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA
	Operating Temperature	-20℃ to 70℃	-20℃ to 60℃	-20℃ to 60℃
Others	Mounting	VESA 75	VESA 75	VESA 75
	Dimensions (mm)	182.0 x 138.0 x 36.3	207.0 x 173.0 x 36.7	207.0 x 173.0 x 36.7

Coming soon

Model		VMD 2003	VMD 3002-BS2	VMD 3110	VMD 3111
Display	LCD Size	8" TFT LCD	10.4" TFT LCD	10.4" TFT LCD	10.4" TFT LCD
	Resolution	800 x 600	1024 x 768	1024 x 768	1024 x 768
	Brightness (Typ.)	1000cd/m²	1200cd/m²	1200cd/m²	1200cd/m²
	Contrast Ratio	500:1	900:1	900:1	1000:1
	View Angle	V: 60/60 H: 70/70	V: 85/85 H: 85/85	V: 85/85 H: 85/85	V: 85/85 H: 85/85
	Brightness Adjustment	Auto via light sensor	Auto via light sensor	Auto via light sensor	Auto via light sensor
	Touch Screen	4-wire resistive, anti-glare	Projected capacitive	Projected capacitive	Projected capacitive
	Speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker	2 x Built-in speaker
I/O interface	Camera	N/A	N/A	N/A	N/A
	Control Button	1 x Monitor power button 2 x Brightness control 2 x Volume control	1 x Monitor power button 1 x OSD menu 2 x Brightness control 2 x Volume control 1 x Auto config	1 x Monitor power button 1 x OSD menu 2 x Brightness control 2 x Volume control 1 x Auto config	1 x Monitor power button 1 x OSD menu 2 x Brightness control 2 x Volume control 1 x Auto Config
	Video Input	ultraONE+, 4 x CVBS	VGA, 4 x CVBS	ultraONE+, 4 x CVBS	HDMI
	Audio	1 x Line-out (lateral side) 1 x Mic-in (lateral side)	1 x Line-in	1 x Line-in	via HDMI
	USB	1 x USB 2.0	1 x USB 2.0	1 x USB 2.0	1 x USB 2.0
	Remote Power Button	Remotely power on/off VTC, MVS & ATC	N/A	Remotely power off VTC, MVS & ATC	N/A
Power/ Environment	Power Input	DC 24V (via ultraONE+)	DC 9V to 36V	DC 24V (via ultraONE+)	DC 9V to 36V
	Ingress Protection	Front panel IP54	IP65	IP65	IP65
	Certification	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA	CE, FCC Class B, UKCA
	Operating Temperature	-20℃ to 60℃	-20℃ to 60℃	-20℃ to 60℃	-30℃ to 60℃
Others	Mounting	VESA 75	VESA 75/100	VESA 75/100	VESA 75/100
	Dimensions (mm)	207.0 x 173.0 x 36.7	256.5 x 202.1 x 31.5	256.5 x 202.1 x 31.5	256.5 x 202.1 x 31.5

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Product appearance and specifications are subject to change without notice.   45

Add-on Modules and Devices

Top table

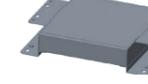|	VIOB-CAN-03	VIOB-CAN-04-RAG	VIOB-CAN-05	VIOB-CAN-06	VIOB-GPS-02	VIOB-GPS-06	VIOB-GPS-06U	VIOB-GPS-07	VIOB-GPS-DR04	VIOB-GPS-DR06	VIOB-GPS-DR07 (NEW)	VIOB-LTE-AD-03
Description	CAN Bus 2.0B or OBD SAE J1939 module	Dual CAN Bus 2.0B module	SAE J1708 module	OBD SAE J1939 module	u-blox M8N module	u-blox M9N module	u-blox M9N module	u-blox M9N module	u-blox M8L module	u-blox M9V module	u-blox M9V module	M.2 to mini-PCIe converter module
Input I/F	UART	USB 2.0	USB 2.0	USB 2.0	UART	UART	USB2.0	UART/USB2.0	UART	UART	UART/USB2.0	USB 2.0, USB 3.0
Input Connector	2 x 5-pin wafer	mini-PCIe Socket	mini-PCIe Socket or USB wafer	mini-PCIe Socket or USB wafer	6-pin wafer	6-pin wafer	6-pin wafer	8-pin wafer	6-pin wafer	6-pin wafer	8-pin wafer	M.2 Key B + M
Output I/F	CAN Bus 2.0B or OBD SAE J1939	2 x CAN Bus 2.0B	SAE J1708/J1587/J1922	OBD SAE J1939	UART	UART	UART	UART/USB2.0	UART	UART	UART/USB2.0	mini-PCIe
Output Connector	2 x 5-pin wafer	6-pin wafer to DB9	3-pin wafer to DB9	3-pin wafer to DB9	6-pin wafer	6-pin wafer	6-pin wafer	8-pin wafer	6-pin wafer	6-pin wafer	8-pin wafer	mini-PCIe (socket)
Operating Temperature	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C
Form Factor	Proprietary	Full-Size mini-PCIe	Full-Size mini-PCIe	Full-Size mini-PCIe	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	M.2 3042/3052 Key B + M
Dimensions (mm)	50.0 x 28.0	51.0 x 30.0	51.0 x 30.0	51.0 x 30.0	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	25.4 x 25.4	62.0 x 31.0
Remark	* CAN Bus 2.0B & SAE J1939 selection by switch	-	-	-	*Baud Rate: 38400. u-blox NEO-M8N GNSS supports with GPS + QZSS/SBAS, GLONASS, Galileo and BeiDou. 3 of concurrent GNSS	*Baud Rate: 38400. u-blox NEO-M9N GNSS supports with GPS + QZSS/SBAS, GLONASS, Galileo and BeiDou. 4 of concurrent GNSS	*Baud Rate: 38400. u-blox NEO-M9N GNSS supports with GPS + QZSS/SBAS, GLONASS, Galileo and BeiDou. 4 of concurrent GNSS	*Baud Rate: 38400. u-blox NEO-M9N GNSS supports with GPS + QZSS/SBAS, GLONASS, Galileo and BeiDou. 4 of concurrent GNSS	*Baud Rate: 9600. u-blox NEO-M8L-06B GNSS supports with GPS, GLONASS, Galileo, BeiDou and QZSS * Automotive Dead Reckoning (ADR) * With battery	*Baud Rate: 38400. u-blox NEO-M9V-20B GNSS supports with GPS, GLONASS, Galileo, BeiDou and QZSS * Support ADR and UDR * With battery	*Baud Rate: 38400. u-blox NEO-M9V-20B GNSS supports with GPS, GLONASS, Galileo, BeiDou and QZSS * Support ADR and UDR * With battery	Only for LTE module

Bottom table

	VIOB-LTE-AD-04	VIOB-EKEY-01	VIOB-PA22-01	VTK6222-APK / VTK6222-FPK (NEW)	VIOD-WWB4S-01	VIOD-L1M8P-01 (NEW)	VIOD-LTM2-W01 (NEW)	VTK PWA10-01 / VTK PWA20-01 (Coming soon)	VTK-RELAY-01	VTK-62B + VTK-62B1-BK / VTK-62B2-BK	VTK-SCAP (Coming soon)
Description	mini-PCIe to M.2 converter module	mini-PCIe to M.2 converter module	2 x Mic-in & 2 x Line-out module	External attachable power isolation kit	5G/Wi-Fi expansion board	PoE expansion board	10GbE expansion board	External attachable power isolation kit	Vehicle relay module	Smart backup battery kit	Smart UPS with SuperCap
Input I/F	USB 2.0, USB 3.2 (Gen1)	USB 2.0, PCIe 3.0	USB 2.0	VTK 6222-APK: DC 24V VTK 6222-FPK: DC 110V	1 x PCIe 3.0 x4, 2 x PCIe 3.0x2, 2 x USB 3.2 Gen 1, 2 x USB 2.0	1 x PCIe 3.0 x4, 2 x PCIe 3.0x2, 2 x USB 3.2 Gen 1, 2 x USB 2.0	1 x PCIe 3.0 x4, 2 x PCIe 3.0x2, 2 x USB 3.2 Gen 1, 2 x USB 2.0	DC 24V	USB 2.0 or RS-232 (Tx/Rx)	DC 9V to 36V	DC 9V to 60V
Input Connector	mini-PCIe	mini-PCIe	mini-PCIe or USB wafer	M12 (5-pin)	Board to board connector	Board to board connector	Board to board connector	VTK PWA20-01: K-coded; VTK PWA10-01: A-coded (M12, 5-pin)	USB type A or DB9	3-pin terminal block	5-pin terminal block
Output I/F	M.2 Key B	M.2 Key E	2x Line-out & 2x Mic-in	24VDC	N/A	N/A	N/A	24VDC	4 x Relay 4 x DI 4 x DO 1 x Analog input 1 x Frequency input	10~12VDC (from backup battery) 9~36VDC (from vehicle battery) Communication: RS232/SMBus	12/24VDC (from backup SuperCap) 9~60VDC (from vehicle battery) Communication: RS232
Output Connector	M.2 (socket)	M.2 (socket)	1 x 10-pin wafer to DB15	M12 (5-pin)	- 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0), BOM optional M.2 2230 Key E socket (USB 2.0, PCIe 3.0) - 2 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 1) for LTE/5G NR module with 1 x external dual nano-SIMs	8-port M12 X-coded, 10/100/1000 Mbps, PoE 802.3 af/at	- 2-port 10GbE M12 X-coded - 1 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 1) for LTE/5G NR module with 2 x external dual nano-SIMs - 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0), BOM optional 1 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 1) for LTE/5G NR module with 2 x external dual nano-SIMs	A-coded (M12, 5-pin)	Terminal block	Power: 3 Pin terminal block Communication: 2 x 5-pin	Power: 6 Pin terminal block Communication: DB9
Operating Temperature	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 85°C	Charging: 0°C to 45°C Discharging: 0°C to 55°C	Charging: -35°C to 80°C Discharging: -40°C to 80°C
Form Factor	Full-Size mini-PCIe	Full-Size mini-PCIe	Full-Size mini-PCIe	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary
Dimensions (mm)	65.0 x 30.0	51.0 x 30.0	51.0 x 30.0	120.0 x 198.0 x 50.0	234.0 x 72.0	234.0 x 72.0	234.0 x 72.0	VTK PWA20-01: 234.1 (W) x 172.8 (D) x 40.0 (H) VTKPWA10-01: 213 (W) x 167.0 (D) x 40.0 (H)	126.0 (W) x 124.0 (D) x 24.0 (H)	(1) 280.0 (W) x 150.0 (D) x 42.2 (H) (w/ VTK-62B1-BK) (2) 297.3 (W) x 175.0 (D) x 39.0 (H) (w/ VTK-62B2-BK)	235.0 (W) x 134.5 (D) x 50.0 (H)
Remark	USB 3.2 (Gen1) depended by mainbord	-	-	Only for nROK6222	Only for nROK7270/nROK7271	Only for nROK7270/nROK7271	Only for nROK7270/nROK7271	VTK PWA20-01 for ATC 3750-C6 VTK PWA10-01 for ATC 3530-IP7-C4	It is remotely controlled through USB or RS-232 communication.	Capacity: 9000 mAh (Li-Ion) 60W output	Nominal 24V@8A max (200W, 1 x master + 3 x slave) For in-vehicle, VTK-SCAP-M (master), VTK-SCAP-S (slave) For Railway, VTK-SCAP-AR-M (master), VTK-SCAP-S (slave)

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HDMI over IP Extender

VIP Series Brief Product Introduction

Product Description

VIP Series is a new E-Mark certified in-vehicle HDMI extender over IP solution designed with 9~36VDC wide voltage input range, specifically for railway and bus public transport Passenger infotainment System.

VIP Series works over standard networking devices with wide operating temperature support, and outputs to multiple Full HD HDMI displays up to 100m.

- Wide-range 9-36Vdc input voltage
- E-Mark for in-vehicle application
- Unicast and daisy chain support
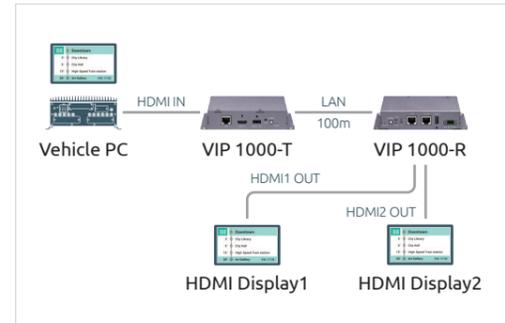- Dual Full HD HDMI output

Application

- Video on demand
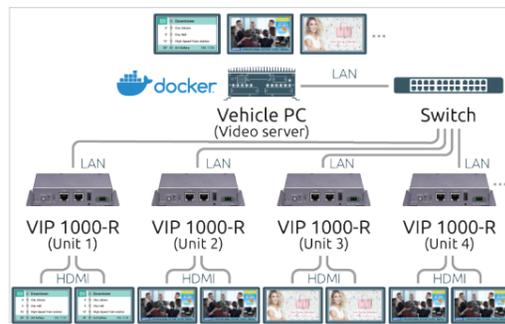- Passenger infotainment system

Product Hightlight

Dedicated for in-vehicle & railway PIS application

Support dual Full HD HDMI output + Up to 100 meter distance

RTSP video on demand with Docker platform

Easy to use. Plug and play!

	VIP 1000-T	VIP 1000-R
Model		
I/O Interface		
Function	Transmitter	Receiver
Video In	1 x HDMI	1 x 10/100/1000
Video Out	1 x 10/100/1000	2 x HDMI
Protocol	TCP/IP	TCP/IP
Model	Unicast, daisy chain and multicast mode	Unicast, daisy chain and multicast mode
USB	1 x USB 2.0 OTG	1 x USB 2.0
Ethernet	1 x 10/100/1000	2 x Intel® 10/100/1000
Power Supply		
Power Input	DC 9V to 36V	DC 9V to 36V
Ignition Control	Yes	Yes
Environment		
Certification	CE, FCC Class A, UKCA, E13	CE, FCC Class A, UKCA, E13
Operating Temperature	-20℃ to 70℃	-20℃ to 70℃
Other		
Dimensions (mm)	130.0 x 100.0 x 31.0	130.0 x 100.0 x 31.0

48   Product appearance and specifications are subject to change without notice.

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About NEXCOM

Reliable Partner for the AIoT Digital Transformation Solutions
—
Committed to Customer Success

Founded in 1992 and headquartered in Taipei, Taiwan, NEXCOM is committed to being a trustworthy partner in building the AIoT digital transformation solutions. To surpass customers' expectations, NEXCOM sets itself apart by leveraging its decades of experience in industrial computing, a highly talented R&D team, and exceptional customer service. With these core strengths, NEXCOM has enabled its customers to win key projects in a diverse range of industries.

With its focus on delivering these core values to better serve customers, NEXCOM integrates its capabilities and operates six global businesses: IoT Automation Solutions (IAS), Intelligent Video Surveillance (IDS), Intelligent Platform @ Smart City (IPS), Mobile Computing Solutions (MCS), Medical & Healthcare Informatics (MHI), Network and Communication Solutions (NCS). This strategic deployment enables NEXCOM to offer time-to-market, time-to-solution products and services without compromising on cost.

In addition, the service-to-market business model gives NEXCOM core competence in building a strong world-class service network by providing customized service, global logistics, local access, and real-time support. Operating six subsidiaries in China, Japan, Taiwan, and the United States, NEXCOM is able to better accommodate customers' requirements as well as closely work with global partners in different regions.

Partners can also be assured that NEXCOM's Taiwan-based Headquarters and subsidiary offices in China and the USA have obtained ISO 9001:2015 Certification.

IAS	**IoT Automation Solutions**: Industrial Automation & I4.0 Execution, Intelligent Edge, Gateway & EWR, Industrial Robot Control, EtherCAT Motion Solutions, Wireless & Embedded Solutions for Industrial IoT
IDS	**Intelligent Video Surveillance**: IP Video Surveillance Cameras, Mobile Cameras, ANPR/LPR Network Cameras, Panoramic Cameras, NVR Server Platform
IPS	**Intelligent Platform @ Smart City**: Smart City, Smart Retail, Digital Signage, Interactive Kiosks, Hospitality, Gateway, Edge AI, and ODM Customization Services
MCS	**Mobile Computing Solutions**: Edge AI Telematics Computer, Vehicle Telematics Computer, Railway Computer, Vehicle Mount Computer, Vehicle Mount Display, In-Vehicle Networking, In-Vehicle HDMI Extender over IP, Fitness Console
MHI	**Medical and Healthcare Informatics**: Total Solutions with a Variety of Medical IT Systems
NCS	**Network and Communication Solutions**: Cyber Security, HPC, Telecommunications, Storage, SDN/NFV, 5G, uCPE, ICS Security

Corporate Vision

To become the industrial leader in providing AIoT digital transformation solutions, NEXCOM utilizes its industry leading technology, localized customer support and worldwide logistics services. This will be achieved by:

- Great team work
- Cooperation with trusted partners
- Growth through innovation

Corporate Mission

- An AIoT digital transformation supplier in vertical application markets
- A quality partner in engineering, manufacturing and services

Business Strategy

Aiming to better support the activities of all its partners, NEXCOM divides its sales force into six dedicated business units to target rapidly expanding vertical markets. This enables each business unit to focus on strategic channel accounts and repeat order business. Moreover, NEXCOM will provide customers with co-marketing strategies, technical support, ODM services, and project support, which are frequently required everywhere.

NEXCOM has already become a business group focused on innovating comprehensive solutions for Industry 4.0. We help our customers deliver vertical solutions optimized for 5G, AI, AIoT, and Industry 4.0 solutions.

Global Fulfillment Service

Product delivery and customer support are always more effective when delivered locally. NEXCOM localizes support and provides a global customer service network to handle all aspects of global business, from presales, order taking, and system assembly to logistics. For expeditious product delivery, NEXCOM has established four regional service centers: Taiwan (for Asia), USA (for North America and South America), and China. Therefore, NEXCOM customers benefit from quality assured product assembly and four service centers.

NEXCOM has invested heavily to establish operational infrastructures, including advanced equipment and facilities, not only at its global headquarters but also at subsidiary offices. Today, each of our service centers, with ISO 9001:2008 certification, has a purpose built assembly line, RMA/ DOA center and warehouse storage capability.
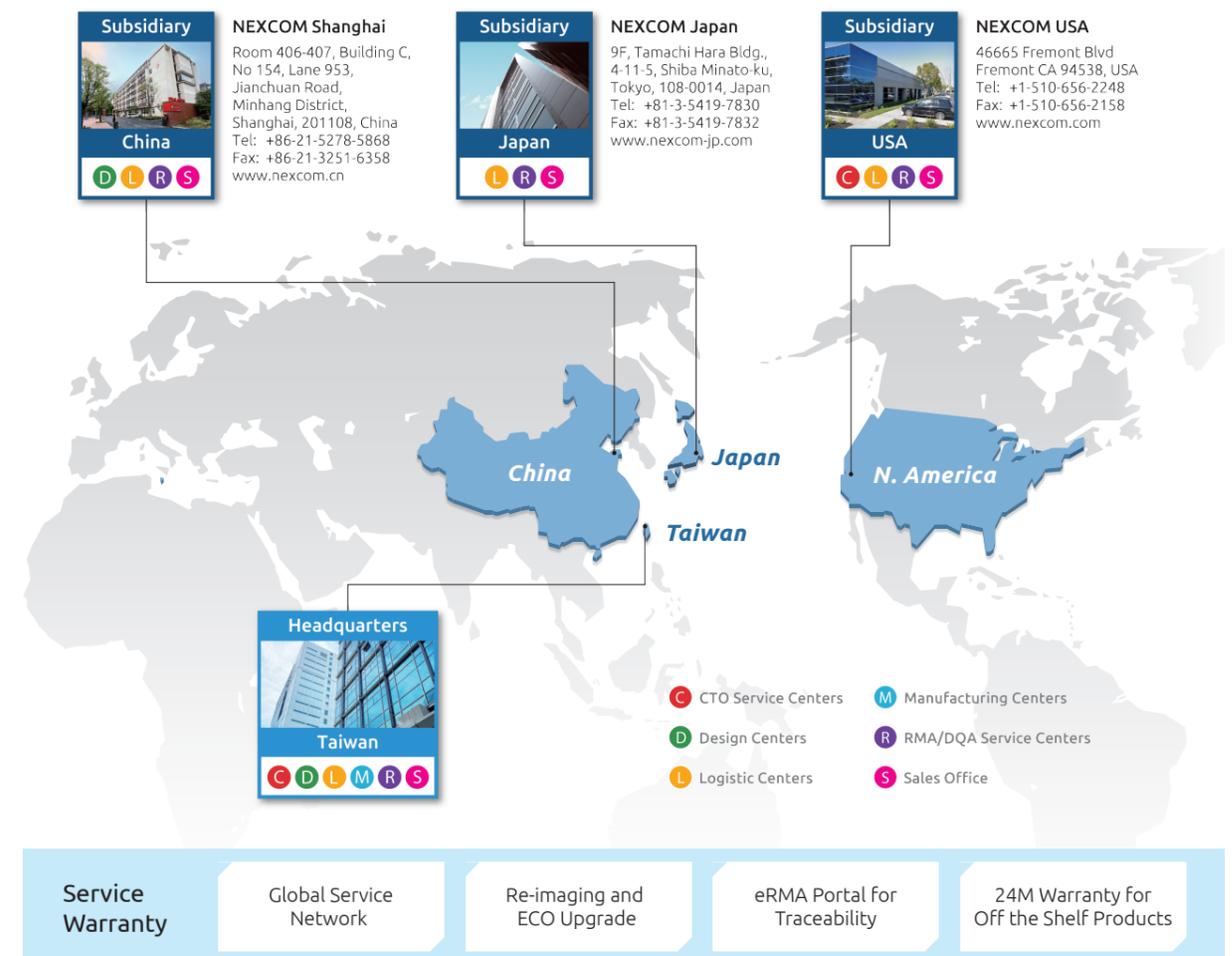
Quality Assurance

Under a strict Quality Assurance System, product design and reliability are controlled to support all critical solutions, and ensure Total Quality Assurance (TQA) implementation for all NEXCOM products and services. Additionally, NEXCOM's technical support team is aligned with ISO 27001 requirements, as they aim to provide timely feedback within 24 hours to resolve technical issues efficiently. This ensures that any potential information security incidents are addressed promptly, minimizing the impact and downtime for customers.

Green Policy

As a global citizen, NEXCOM places great importance on environmental issues. We are committed to ensuring that our products and services comply with environmental standards and regulations. NEXCOM actively responds to energy-saving and carbon reduction initiatives, prioritizes environmental protection in our operational activities, and holds certificate such as ISO 14064-1 greenhouse gas inventory and ISO 14001 environmental management system. We implement voluntary greenhouse gas inventory, reduce resource and energy consumption, and mitigate environmental risks. We also measure NEXCOM's sustainability and corporate responsibility as an Earth-friendly enterprise through ESG evaluation. NEXCOM will continue to collaborate with peers and suppliers to strive for purification standards, compatibility of technologies, and operational processes to help reduce the potential hazardous substances in our products and manufacturing processes.

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Headquarters — Taiwan

- C CTO Service Centers
- D Design Centers
- L Logistic Centers
- M Manufacturing Centers
- R RMA/DQA Service Centers
- S Sales Office

Service Warranty	Global Service Network	Re-imaging and ECO Upgrade	eRMA Portal for Traceability	24M Warranty for Off the Shelf Products

Service details may vary by country. Please contact us for more details.

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Committed to Customer Success