nROK 7251 Series

Fanless Rolling Stock Computer
with Intel® Core™ 9th Gen. CPU

nROK 7251-WI-7C4IP | nROK 7251-7C4 | nROK 7251-7A

Main Features

- Intel® Core™ 9th Gen. desktop, i7-9700TE, up to 4.3 GHz, 8 Core
- 4 x Independent 10/100/1000 Mbps PoE 802.3af/at, total 60W (nROK 7251-WI-7C4IP, nROK 7251-7C4)
- 2 x External SSD/HDD and 2 x mSATA for RAID 0, 1
- IP65 rating for waterproof (nROK 7251-WI-7C4IP)
- 3 x WWAN module slot, each for 2 x external SIM socket
- 3 x mini-PCIe slot and 2 x M.2 Key B slot
- CE/FCC/EN50155 class OT4 conformity
- Wide voltage input 24~110 VDC with isolation (nROK 7251-WI-7C4IP)

Product Overview

NEXCOM mobile system nROK 7251 accomplishes operational efficiency of public transportation and service. Based on the 9th generation Intel® Core™ processors i7-9700TE and waterproof IP65 rating (nROK 7251-WI-7C4IP), it provides an integral solution incorporating high computing power, 4 port of independent PoE (nROK 7251-WI-7C4IP, nROK 7251-7C4), wireless communication (3 x WWAN + 6 x SIM) and GNSS tracking support to record in-train activities, locations, high quality videos, driving patterns, and diagnostics for trains achieving better measures for safety and management.

Specifications

CPU

- Support 9th/8th generation Intel® Core™ i7/i5/i3 LGA1151 socket
  - Intel® Core™ i7-9700TE, TDP 35W

Chipset

- Intel® Q370 platform controller hub

Memory

- 2-Channel 260-pin DDR4 SO-DMIM sockets up to 32GB/channel (64GB for two channels, non-ECC up to 2666 MHz), default 4GB + 4GB industrial grade memory

Video Output

- Chipset Intel® UHD graphics 630
- 1 x Waterproof VGA up to 1920 x 1200 @ 60Hz
- 1 x HDMI 1.4b up to 4096 x 2160 @ 30Hz (nROK 7251-7C4, nROK 7251-7A)

Storage

- 2 x 2.5" SATA 3.0 external SSD/HDD (compatible with 15mm height), RAID 0/1 supported
- 2 x mSATA 3.0 (BIOS selection, occupied mPCIe slot)

Expansion

- 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0/SATA 3.0 (BIOS selection))
- 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0/SATA 3.0 (BIOS selection)), BOM optional full size mini-PCIe socket (USB 2.0) for LTE module with 2 x external SIM
- 1 x Full size mini-PCIe socket (USB 2.0) for LTE module, BOM optional M.2 3042 Key B socket (USB 2.0, USB 3.1 Gen2) for LTE/5G NR module with 2 x external SIM
- 1 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.1 Gen2) for LTE/5G NR module with 2 x external SIM
- 1 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.1 Gen2, PCIe 3.0 (BOM optional)) for LTE/5G NR modem with 2 x external SIM

GNSS and Onboard Sensor

- 1 x Default U-blox NEO-M8N GNSS module for GPS/Gloness/QZSS/Galileo/Beidou
- G Sensor (3-axis, 10-bit resolution)

LAN and Power over Ethernet

- nROK 7251-WI-7C4IP, nROK 7251-7C4
  - 4 x Independent LAN, 10/100/1000 Mbps I210-IT GbE, PoE 802.3af/at, max. 60W
  - 1 x LAN, 10/100/1000 Mbps I219 support iAMT and WOL
- nROK 7251-7A
  - 2 x LAN, 10/100/1000 Mbps I210/I219 (support iAMT and WOL)

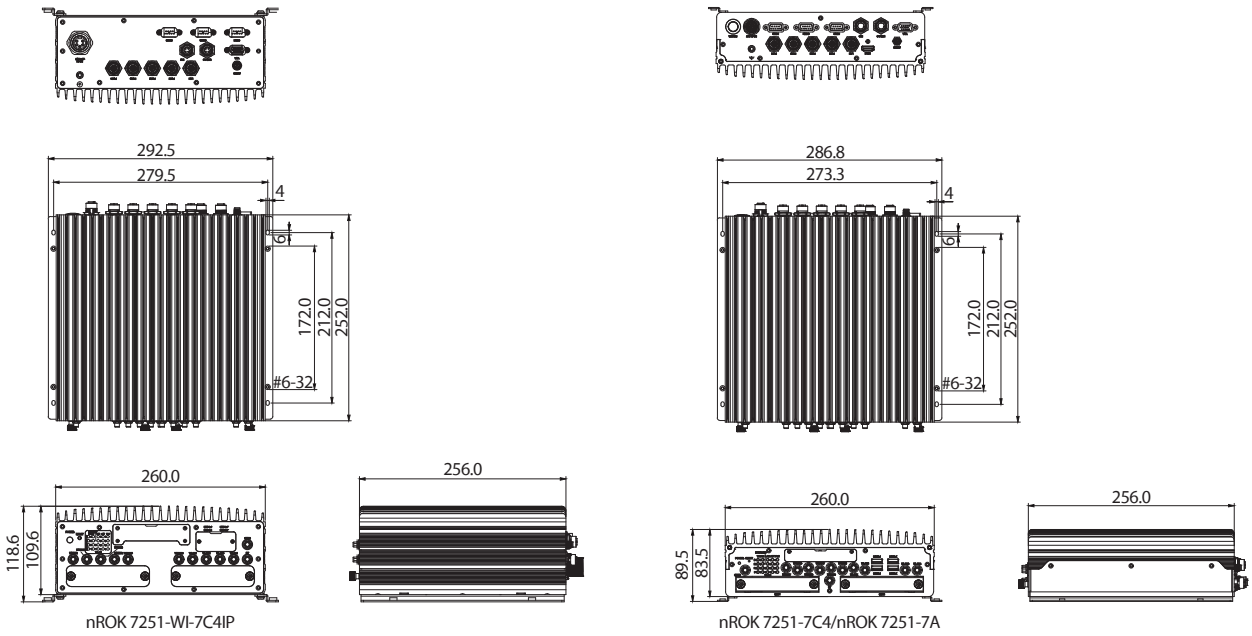
Security

- TPM 2.0: Infineon SLB9665TT2.0FW5.62

I/O Interface-Front

- nROK 7251-WI-7C4IP, nROK 7251-7C4
  - 21 x LED indicators (including 4 x programmable LED)
- nROK 7251-7A
  - 14 x LED indicators (including 4 x programmable LED)
- 6 x Externally accessible SIM card sockets (4 x WWAN + 8 x SIM, BOM optional) w/ cover
- 1 x Reset button
- 2 x 2.5" external SSD/HDD
- 12 x SMA antenna hole
- nROK 7251-WI-7C4IP
  - 3 x USB 3.1 Gen1 type A (5V/1A) w/ cover
  - 1 x USB 3.1 Gen2 type A (5V/1A) w/ cover
- nROK 7251-7C4, nROK 7251-7A
  - 3 x USB 3.1 Gen1 type A (5V/1A)

Dimension Drawing



- 1 x USB 3.1 Gen2 type A (5V/1A)

I/O Interface-Rear

- nROK 7251-WI-7C4IP, nROK 7251-7C4
  - 4 x M12 X-coded PoE 802.3af/at, max. 60W
  - 1 x M12 X-coded LAN port, 10/100/1000 Mbps
- nROK 7251-7A
  - 2 x M12 X-coded LAN port, 10/100/1000 Mbps
- 1 x Waterproof DC input connector with ignition, male type
- 1 x M8 for 1 x Mic-in, 1 x Line-out
- 2 x Waterproof DB9 (COM1/COM2) for full RS232 (isolation)
- 1 x Waterproof DB9 (COM3) for full RS232/422/485 (isolation)
- 1 x M12 A-coded 10-pin (DIO)
  - 4 x DI and 4 x DO (isolation)
  - Power in for DIO isolation, 9~36VDC
- 1 x M12 A-coded for 2 x USB 2.0
- 1 x VGA
- 1 x HDMI (nROK 7251-7C4, nROK 7251-7A)

Power Management & Software Support

- nROK 7251-WI-7C4IP: power input 24~110 VDC w/ isolation
- nROK 7251-7C4, nROK 7251-7A: power input 24 VDC w/o isolation
- Reverse protection, OCP & UVP
- Selectable boot-up & shut-down voltage for low power protection by software
- Setting 8-level power on/off delay time by software
- 10~255 seconds WDT support, setup by software
- SDK (Windows/Linux) including utility and sample code

Operating System

- Windows 10
- Linux

Dimensions

- nROK 7251-WI-7C4IP: 260 x 256 x 110 (W x D x H) (mm)
- nROK 7251-7C4, nROK 7251-7A: 260 x 256 x 84 (W x D x H) (mm)

Weight

- nROK 7251-WI-7C4IP: 6.5kg
- nROK 7251-7C4: 4.6kg
- nROK 7251-7A: 4.3kg

Environment

- Operating temperatures
  - EN 50155, class OT4 (-40~70°C), 85°C for 10 minutes (w/ 35W TDP CPU, industrial SSD) with air flow
- Storage temperatures: -40°C~80°C
- Relative humidity: 90% (non-condensing)
- Vibration (random)
  - 2g@5~500 Hz (in operation, SSD)
- Vibration (SSD)
  - Operating: MIL-STD-810G, Method 514.6, Category 4, common carrier US highway truck vibration exposure
  - Storage: MIL-STD-810G, Method 514.6, Category 24, minimum integrity test
- Shock (SSD)
  - Operating: MIL-STD-810G, Method 516.6, Procedure I, functional shock=40g
  - Non-operating: MIL-STD-810G, Method 516.6, Procedure V, crash hazard shock test=75g

Certifications

- CE
- FCC Class A
- EN 50155: 2017
  - Ambient temperature EN 50155, Class OT4 (-40~70°C), 85°C for 10 minutes
  - Interruptions of voltage supply class S1, S2 (S2 for nROK 7251-WI-7C4IP: 36~110VDC@70% load)
  - Supply change over class C1, C2
  - EMC EN 50121-1: 2017, EN 50121-3-2: 2016+A1: 2019
  - Environment EN 60068-2-1, EN 60068-2-2, EN 60068-2-30
  - Shock and vibration IEC 61373 Class B
  - Protective coating class PC1 (PC2, by request)
- EN 45545-2: 2013+A1:2015

Ordering Information

- **nROK 7251-WI-7C4IP (P/N: 10A00725100X0)**
  Intel® Core™ 9th Gen. i7-9700TE, 2 x 4 GB industrial grade memory, DC input 24V~110V w/ isolation, 1 x VGA, 1 x LAN, 4 x PoE 802.3af/at (total 60W), IP65
- **nROK 7251-7C4 (P/N: 10A00725101X0)**
  Intel® Core™ 9th Gen. i7-9700TE, 2 x 4 GB industrial grade memory, DC input 24V w/o isolation, 1 x VGA, 1 x HDMI, 1 x LAN, 4 x PoE 802.3af/at (total 60W)
- **nROK 7251-7A (P/N: 10A00725103X0)**
  Intel® Core™ 9th Gen. i7-9700TE, 2 x 4 GB industrial grade memory, DC input 24V w/o isolation, 1 x VGA, 1 x HDMI, 2 x LAN

We reserve the right to change specifications and product descriptions at any time without prior notice.