



nROK 7271-WI



nROK 7271-WIC4



## Main Features

- Powered by 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 10/100/1000/2500 Mbps PoE 802.3af/at, total 60W (nROK 7271-WIC4 w/o PoE expansion board) / 30W (nROK 7271-WIC4 w/ PoE expansion board)
- EN 50155, class OT3 conformity
- Wide voltage input 24~110VDC (w/ isolation)
- Optional up to 3-sec protection against temporary voltage dips

## Specifications

### CPU

- Intel® 12/13th Gen Core™ CPU (65W/35W), Chipset: Intel R680E, Graphics: Intel® UHDGraphics770, 1.55GHz

### Memory

- 2 x 262-pin SO-DIMM, DDR5 4800MHz
- 64GB in max., ECC & dual-channel support

### Video Output

- 1 x HDMI 2.0a/b, up to 3840 x 2160@60Hz
- 1 x VGA, up to 1920 x 1200@60Hz

### Storage

- 2 x 2.5" SATA 3.0 external SSD (15mm height, removable)
- 1 x mSATA (occupied mini-PCIe slot)
- 2 x M.2 Key B (occupied M.2 socket)
- 1 x microSD card slot, SDXC v3.01

### Expansion

- 1 x Full size mini-PCIe socket (USB 2.0, PCIe 3.0/SATA 3.0)
- 2 x M.2 3042/3050/3052 Key B socket (USB 2.0, USB 3.2 Gen 2, SATA 3.0) for LTE/5G NR module with 1 x external dual nano-SIMs
- 1 x M.2 2230 Key E socket (USB 2.0, PCIe 3.0 x2), BOM optional
- M.2 2230 Key E socket (USB 2.0, PCIe 3.0, PCIe 3.0)

### GNSS and Onboard Sensor

- 1 x Default U-blox NEO-M9N GNSS module for GPS+QZSS / Glonass/Galileo/Beidou
- 1 x 3D accelerometer and 3D gyroscope

### LAN and Power over Ethernet

- nROK 7271-WIC4:
  - 1-port LAN M12 X-coded, 10/100/1000/2500 Mbps Intel® I226 GbE (support WOL)
  - 4-port Independent LAN M12 X-coded, 10/100/1000/2500 Mbps Intel® I226-IT GbE, PoE 802.3af/at, max. 60W, non-isolation (w/o PoE expansion board) / 30W (w/ PoE expansion board)
- nROK 7271-WI:
  - 2-port LAN M12 X-coded, 10/100/1000/2500 Mbps Intel® I226 GbE (support WOL)

### Security

- TPM 2.0: InfineonSLB9665TT2.0FW5.62

### I/O Interface-Front

- 4 x LED indicators (storage/WWAN/WLAN/programmable)
- 1 x HDMI 2.0a/b
- 2 x USB 3.2 Gen 2 type A (5V/0.9A)
- 2 x Externally accessible dual nano-SIM card sockets with cover

- 1 x microSD card slot with cover
- 2 x 2.5" removable SSD tray
- 1 x Reset button
- 1 x Power button
- nROK 7271-WIC4 :
  - 1 x M12 X-coded LAN port
  - 4 x M12 X-coded PoE 802.3af/at
- nROK 7271-WI:
  - 2 x M12 X-coded LAN port
- 1 x Fan power connector
- 1 x SMA connector for GNSS
- 4 x SMA connector holes for WWAN
- 2 x Externally accessible dual nano-SIM card socket holes with cover, 8 x SMA connector holes for WWAN, and 2 x RP-SMA connector holes for WLAN (reserved for 5G/Wi-Fi expansion board)

### I/O Interface-Rear

- 1 x VGA
- 1 x M12 A-coded 8-pin for 2 x USB 2.0
- 1 x M8 (AUDIO) for 1 x Mic-in, 1 x Line-out
- 2 x DB9 (COM1/2) for full RS232/422/485 (isolation)
- 1 x DB15 (CAN/DIO)
  - 2 x Isolated CAN FD, compatible with CAN2.0A/2.0B
  - 4 x DI and 4 x DO (isolation), power in source for DIO isolation, 14~48VDC
- 1 x M12 K-coded 5-pin for power input
- 1 x Connector 2-pin for ignition input
- 4 x SMA connector holes for WWAN
- 4 x RP-SMA connector holes for WLAN

### Power Management & Software Support

- Power input 24~110VDC w/ isolation (occupied rear side expansion)
- Optional 2.2~3 sec (170W~120W) protection against temporary voltage dips (w/ supercap board, occupied rear side expansion)
- Selectable boot-up & shut-down voltage for low power protection by software
- Setting 8-level power on/off delay time by software
- Support S3/S4 suspend mode
- 10~255 seconds WDT support, setup by software
- SDK (Windows/Linux) including utility and sample code

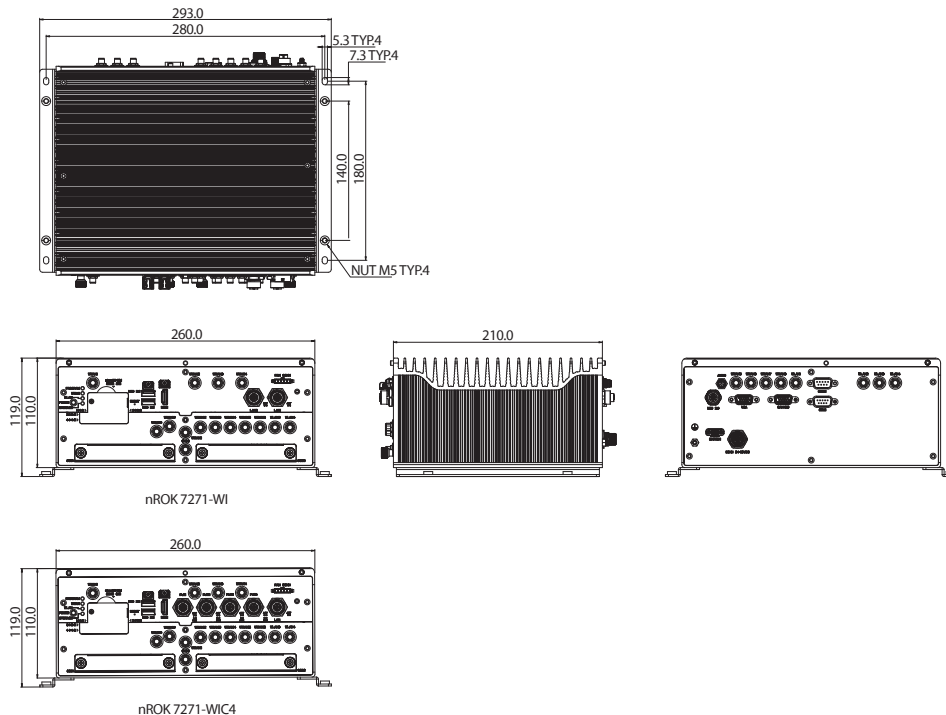
### Operating System

- Windows 11/Windows 10/Linux

### Dimensions

- 260 x 210 x 110 (W x D x H) (mm)

## Dimension Drawing



### Weight

- nROK 7271-WIC4: 6.98kg
- nROK 7271-WI: 6.93kg

### Environment

- Operating temperatures
  - EN 50155, class OT3 (-35°C ~70°C), 85°C for 10 minutes (w/ 35W TDP CPU, 60W PoE, 8GB memory, industrial SSD) with air flow
- Storage temperatures: -40°C to 80°C
- Relative humidity: 90% (non-condensing)
- Vibration (random)
  - 2g@5~500 Hz (in operation, SSD)
- Vibration (SSD)
  - Operating: MIL-STD-810H, Method 514.8C, Procedure 1, Category 4, common carrier US highway truck vibration exposure
  - Storage: MIL-STD-810H, Method 514.8E, Procedure 1, Category 24, minimum integrity test
- Shock (SSD)
  - Operating: MIL-STD-810H, Method 516.8, Procedure I, functional shock=40g
  - Non-operating: MIL-STD-810H, Method 516.8, Procedure V, crash hazard shock test=75g

### Certifications

- CE/UKCA/FCC Class A
- EN 50155: 2021
- Ambient temperature EN 50155, Class OT3 (-35°C ~70°C), 85°C for 10 minutes
  - Interruptions of voltage supply class S1, S2 (w/ supercap board), S3 (w/ supercap board)
  - Supply change over class C1, C2 (w/ supercap board)
  - 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: 2020+A1: 2023

### Options

- Intel® Core™ CPU:
  - i9-12900E/12900TE, Core: 16c, Max Freq.: 5.0/4.8GHz, TDP: 65W/35W
  - i7-12700E/12700TE, Core: 12c, Max Freq.: 4.8/4.6GHz, TDP: 65W/35W
  - i5-12500E/12500TE, Core: 6c, Max Freq.: 4.5/4.3GHz, TDP: 65W/35W
  - i3-12100E/12100TE, Core: 4c, Max Freq.: 4.2/4.0GHz, TDP: 60W/35W

- SO-DIMM DDR5-4800MHz:
  - 64GB (in the future), 32GB, 16GB, 8GB
- FAN Kit
  - Model No.: VTK FAN120-02, Description: 120mmx120mm, P/N: 10VK00FAN02X0
  - \* Note: 65W CPU should be bundled with fan kit

## Ordering Information

- **nROK 7271-WIC4 (P/N: 10A00727100X0)**  
System bare-bone. Intel® 12/13th Gen CPU with DDR5, DC input 24~110VDC (w/ isolation), 1 x LAN M12 X-coded, 4 x PoE M12 X-coded, 2 x CAN FD
- **nROK 7271-WI (P/N: 10A00727101X0)**  
System bare-bone. Intel® 12/13th Gen CPU with DDR5, DC input 24~110VDC (w/ isolation), 2 x LAN M12 X-coded, 2 x CAN FD
- **(Optional) VIOB-CAP-01 Supercap board kit for nROK 7271 (P/N: 88A00727103X0)**  
Supercap board for protection against temporary voltage dips
- **(Optional) VIOD-WWB4S-01 5G/Wi-Fi expansion board kit for nROK 7271 (P/N: 88A00727100X0)**  
Additional expansion:
  - 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
- **(Optional) VIOD-L1M8P-01 PoE expansion board kit for nROK 7271 (P/N: 88A00727101X0)**  
Additional PoE port:
  - 8-port LAN M12 X-coded, 10/100/1000 Mbps Ethernet Switch GbE, PoE 802.3 af/at, max. 30W (w/ nROK 7271-WIC4)/60W (w/ nROK 7271-WI) (isolation)
- **(Optional) VIOD-LTM2-W01 10GbE expansion board kit for nROK 7271 (P/N: 88A00727102X0)**  
Additional 10GbE port and expansion:
  - 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