

# RC300-CS

Q370



8th/9th Gen Intel® Core™  
AI-Enabled Railway Embedded System

## KEY FEATURES



### High Performance CPU

Intel® Coffee Lake Core i7 processor



### M12 Type PoE

4 x M12 type PoE ports at 15.4W



### AI Accelerated

Support up to 115W GPU MXM module without active fan



### Scalability

Multiple expansion slots for 4G/LTE/5G cellular and function modules



### Support 5G Communication

Support M.2 B key 3042/3052 5G-NR module

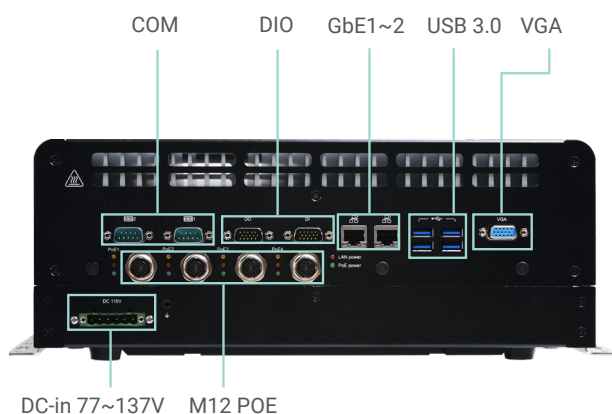


### Wide-Temperature

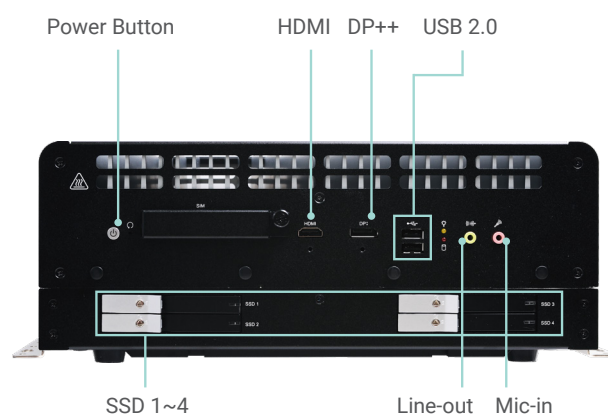
Up to -25°C~70°C operation without active fan



## PANEL

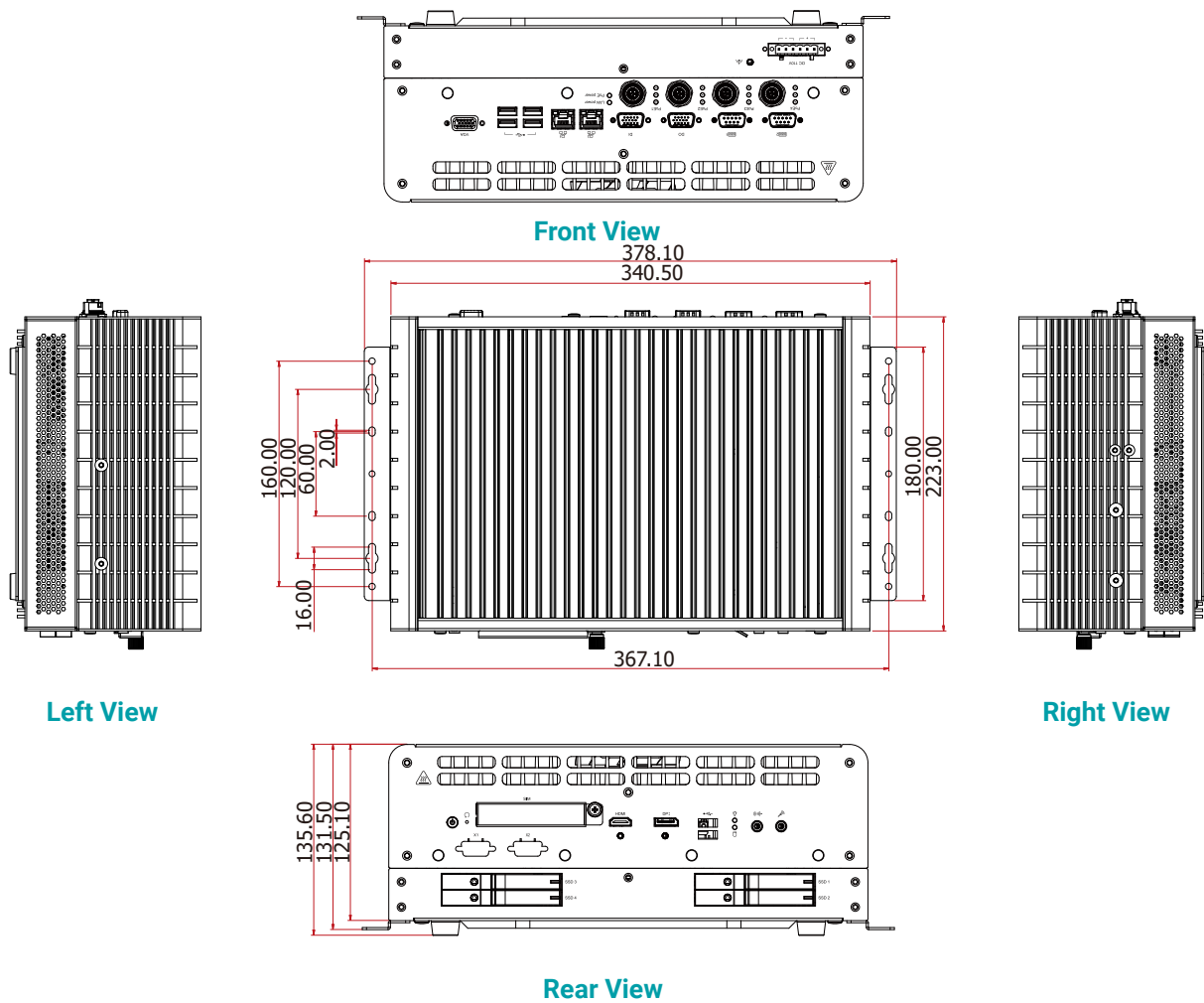


Front View

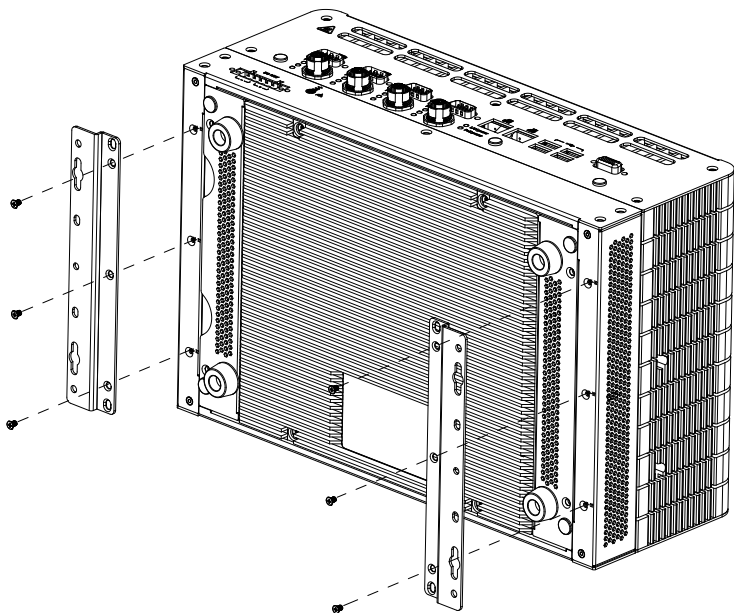


Rear View

DIMENSIONS



WALL MOUNTING



## SPECIFICATION

|                |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM         | Processor              | 8th/9th Generation Intel® Core™ Processors, LGA 1151<br>Intel® Core™ i7-9700TE Processor, 8C/8T, 12MB Cache, 1.8GHz, TDP 35W<br>Intel® Core™ i7-8700T Processor, 6C/12T, 12MB Cache, 2.4GHz, TDP 35W<br>Intel® Core™ i5-9500TE Processor, 6C/6T, 9MB Cache, 2.2GHz, TDP 35W<br>(Other CPU support upon request)                                                                                                                               |
|                | Chipset                | Intel® Q370 Chipset                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                | Memory                 | Dual Channel DDR4 2666/2400 MHz by SODIMMs up to 64GB                                                                                                                                                                                                                                                                                                                                                                                         |
|                | BIOS                   | AMI SPI 128Mbit                                                                                                                                                                                                                                                                                                                                                                                                                               |
| GRAPHICS       | Controller             | Intel® HD Graphics                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                | Display                | 1 x VGA (display out by DB15 connector) VGA: resolution up to 1920x1200@60Hz<br>1 x HDMI (with screw lock) HDMI: resolution up to 4096x2160@24Hz<br>1 x DP++ (standard display port connector DIP DP++: resolution up to 4096x2304@60Hz<br>type with screw lock)<br>Support NVIDIA Optimus technology                                                                                                                                         |
| AI ACCELERATOR | Interface              | MXM Type A, B, C on x16 PCIe 3.0                                                                                                                                                                                                                                                                                                                                                                                                              |
|                | Controller             | Nvidia Quadro embedded/ Geforce series                                                                                                                                                                                                                                                                                                                                                                                                        |
| STORAGE        | External               | 4 x Swappable 2.5" 7mm SSD storage bays with lock                                                                                                                                                                                                                                                                                                                                                                                             |
|                | Internal               | 1 x M.2 2280 M key supports SATA SSD                                                                                                                                                                                                                                                                                                                                                                                                          |
| EXPANSION      | Interface              | 1 x Half-size Mini PCIe for WiFi/BT modules, with PCIe x1 & USB signal<br>2 x Full-size Mini PCIe support PCIe x1, USB 2.0 signal with SIM card socket of each<br>1 x M.2 B key supports 3042, 3052 devices or 5G module on PCIe x1, USB2.0, USB3.0 signal with SIM card slot bracket<br>- SIM card can all be external accessible<br>1 x M.2 2280 M key supports 2242, 2260 & 2280 devices (PCIe x4 & SATA signal, support boot up function) |
| AUDIO          | Audio Codec            | Realtek ALC888                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                | Interface              | 1 x Mic-in<br>1 x Line-out                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ETHERNET       | Controller             | 5 x Intel® I210IT NIC (10/100/1000Mbps)<br>1 x Intel® I219LM PHY (10/100/1000Mbps)                                                                                                                                                                                                                                                                                                                                                            |
|                | Interface              | 2 x RJ45 GbE ports<br>4 x M12 X-coded 802.3af 15.4W PoE ports                                                                                                                                                                                                                                                                                                                                                                                 |
| LED            | Indicators             | 1 x Power LED (green)<br>5 x Storage LED (red)<br>4 x PoE LED                                                                                                                                                                                                                                                                                                                                                                                 |
| FRONT I/O      | Ethernet               | 2 x GbE (RJ-45) support wake on Lan                                                                                                                                                                                                                                                                                                                                                                                                           |
|                | Serial                 | 2 x BIOS selection RS-232/422/485 by 2x DB-9                                                                                                                                                                                                                                                                                                                                                                                                  |
|                | DIO                    | 1 x 8-bit isolated DI port by DB-9 connector<br>1 x 8-bit isolated DO port by DB-9 connector<br>2KV isolation                                                                                                                                                                                                                                                                                                                                 |
|                | Display                | 1 x VGA display out by DB15 connector                                                                                                                                                                                                                                                                                                                                                                                                         |
|                | USB                    | 4 x USB 3.0 (type A)                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                | Power-in               | RC300H-CS : 1 x 6pin 5.0mm terminal block<br>RC300L-CS : 1 x 9pin 5.0mm terminal block                                                                                                                                                                                                                                                                                                                                                        |
|                | PoE                    | 4 x M12 X-coded 802.3af PoE<br>Support 802.11af, max 15.4W (PSE side)<br>NOT support wake on Lan                                                                                                                                                                                                                                                                                                                                              |
|                |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| REAR I/O       | USB                    | 2 x USB 2.0 (type A)                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                | Display                | 1 x HDMI<br>1 x DP++                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                | Audio                  | 1 x Mic-in<br>1 x Line-out<br>by 3.5mm 3P Phone Jack                                                                                                                                                                                                                                                                                                                                                                                          |
|                | Buttons                | 1 x Power button<br>1 x Reset button                                                                                                                                                                                                                                                                                                                                                                                                          |
|                | SIM                    | 3 x SIM sockets (external accessible with cover)                                                                                                                                                                                                                                                                                                                                                                                              |
| WATCHDOG TIMER | Output & Interval      | System reset, programmable via software from 1 to 255 seconds                                                                                                                                                                                                                                                                                                                                                                                 |
| SECURITY       | TPM                    | TPM 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| POWER          | Type                   | RC300H-CS: 110VDC nominal power input, 77VDC~137.5VDC power range<br>RC300L-CS: 12/24VDC nominal power input, 9VDC~36VDC power range                                                                                                                                                                                                                                                                                                          |
|                | Connector              | RC300H-CS : 1 x 6pin 5.0mm terminal block<br>RC300L-CS : 1 x 9pin 5.0mm terminal block                                                                                                                                                                                                                                                                                                                                                        |
| OS SUPPORT     | Microsoft              | Windows 10 IoT Enterprise 64 Bit                                                                                                                                                                                                                                                                                                                                                                                                              |
|                | Linux                  | Ubuntu 18.04                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MECHANISM      | Construction           | Metal + Aluminum                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                | Mounting               | Wall mount                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                | Dimensions (W x H x D) | 340.5 x 132 x 223mm(3U height, excluding rubber foot)                                                                                                                                                                                                                                                                                                                                                                                         |
|                | Weight                 | 9.85 kg                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## SPECIFICATION

|                              |                       |                                                                                                                                                                                |
|------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ENVIRONMENT                  | Operating Temperature | -25°C to 70°C with when CPU+GPU<100W, up to +85°C for 10min<br>-25°C to 55°C with when CPU+GPU<160W, up to +70°C for 10min<br>CPU & GPU will be throttling at high temperature |
|                              | Storage Temperature   | -40 to 85°C                                                                                                                                                                    |
|                              | Relative Humidity     | 10% to 90% (non-condensing)                                                                                                                                                    |
| STANDARDS AND CERTIFICATIONS | Shock (SSD/HDD)       | EN61373: 2010, Category 1 Class A & Class B                                                                                                                                    |
|                              | Vibration             | EN61373: 2010, Category 1 Class B                                                                                                                                              |
|                              | IP rating             | IP40                                                                                                                                                                           |
|                              | Certification         | CE, FCC Class B (Tested with Adapter)<br>EMC: EN50121-3-2<br>Safety: EN50153, EN50124-1<br>Fire Proof: EN45545<br>Railway Regulation: EN50155                                  |

## Compatible MXM modules

| Type    | Model   | CUDA cores | Power | Support operating temperature             |
|---------|---------|------------|-------|-------------------------------------------|
| Quadro  | P1000   | 512        | 47W   | -20°C to +70°C                            |
|         | P2000   | 768        | 58W   | -20°C to +70°C                            |
|         | T1000   | 896        | 50W   | -20°C to +70°C                            |
|         | RTX3000 | 1920       | 80W   | -20°C to +55°C                            |
|         | RTX5000 | 3072       | 150W  | -20°C to +55°C (external air flow needed) |
| Geforce | GTX1060 | 1280       | 78W   | -20°C to +55°C                            |
|         | GTX1070 | 2048       | 115W  | -20°C to +55°C                            |
|         | RTX2060 | 1920       | 80W   | -20°C to +55°C                            |
|         | RTX2070 | 2304       | 115W  | -20°C to +55°C                            |
|         | RTX2080 | 2944       | 150W  | -20°C to +55°C (external air flow needed) |

## ORDERING INFORMATION

| Model Name   | Part Number     | Description                                                                                                                             |
|--------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| RC300H-CS111 | 750-RC3000-000G | Fanless railway system with 4 M12 PoE, 2 COM, 6 USB, 2 LAN, 16 DIO, DC110V, 4x SSD bays, i7-9700TE, 2*8GB RAM, MXM RTX2060, , F/G, RoHS |
| RC300H-CS122 | 750-RC3000-100G | Fanless railway system with 4 M12 PoE, 2 COM, 6 USB, 2 LAN, 16 DIO, DC110V, 4x SSD bays, i7-9700TE, 2*16GB RAM, MXM RTX2070, F/G, RoHS  |
| RC300L-CS111 | TBD             | Fanless railway system with 4 M12 PoE, 2 COM, 6 USB, 2 LAN, 16 DIO, DC9~36V, 2x SSD bays, i7-9700TE, 2*8GB RAM, MXM RTX2060, F/G, RoHS  |

## OPTIONAL ITEMS

| Optional Items     | Part Number     | Description                                                                              |
|--------------------|-----------------|------------------------------------------------------------------------------------------|
| 2.5" SSD           | 785-S251TBG     | 2.5" SATA SSD, 1TB MLC, -40 to 85°C, RoHS                                                |
|                    | 785-S25512G     | 2.5" SATA SSD, 512GB MLC, -40 to 85°C, RoHS                                              |
|                    | 785-S25256G     | 2.5" SATA SSD, 256GB MLC, -40 to 85°C, RoHS                                              |
|                    | 785-S25128G     | 2.5" SATA SSD, 128GB MLC, -40 to 85°C, RoH                                               |
| M.2 SATA SSD       | 785-M2SATA64G   | 64GB, M.2 2280 SSD, SATA3 B+M Key, MLC, Wide Temp.                                       |
|                    | 785-M2SATA128G  | 128GB, M.2 2280 SSD, SATA3 B+M Key, MLC, Wide Temp.                                      |
|                    | 785-M2SATA256G  | 256GB, M.2 2280 SSD, SATA3 B+M Key, MLC, Wide Temp.                                      |
|                    | 785-M2SATA512G  | 512GB, M.2 2280 SSD, SATA3 B+M Key, 3D TLC, PE: 3K, 30u" -20~75°C                        |
| Memory             | 138-580004-104G | 8GB DDR4 2666Mhz SO-DIMM 1Rx8 IND 1Gx8 CL19 1.2V                                         |
|                    | 138-540002-121G | 4GB DDR4 2666Mhz SO-DIMM, '-40 to 85C                                                    |
| WiFi/BT module kit | 761-AP1235-000G | WiFi/Bluetooth Module AP12356, antenna *2, 200mm SMA cables*2, Mini PCIe Bracket, screws |
| LTE module kit     | 761-RC3000-001G | EG25GGB CAT4 miniPCIe module, antenna*2, 300mm SMA cables*2                              |
| 5G module kit      | 761-RC3000-100G | SIM8202G-M2 M.2 module, antenna*4, 184mm SMA cables *4                                   |
| M12 Cable          | A81-005038-054G | 8-pin M12 X-coded to RJ45 PoE cable                                                      |
| CAN bus module     | 770-MPE21-100G  | MPE-CAN2 MiniPCIe Full CAN Module Card Asssembly                                         |

## PACKING LIST

|                        |
|------------------------|
| 1 RC300-CS system unit |
| 1 Power connector      |
| 1 Mounting bracket     |