

V2406C Series

Intel® 7th Gen Core™ CPU railway computer with power isolation, 2 mini PCIe expansion slots for wireless, and 2 hot-swappable HDD/SSD slots



Features and Benefits

- Intel® Celeron®/Intel® Core™ i3/i5/i7 high performance network video recorder for rolling stock applications
- Two hot-swappable 2.5-inch HDD or SSD storage expansion trays
- Supports dual independent displays (VGA and HDMI with 4K resolution)
- 2 Gigabit Ethernet ports with M12 X-coded connectors
- M12 A-coded power connector
- Complies with all EN 50155 mandatory test items¹
- Compliant with EN 50121-4
- IEC 61373 certified for shock and vibration resistance
- -40 to 70°C wide-temperature models available

Certifications



Introduction

The V2406C Series embedded computers are built around an Intel® Core™ i7/i5/i3 or Intel® Celeron® high-performance processor and come with up to 32 GB RAM, one mSATA slot, and two hot-swappable HDD/SSD for storage expansion. The computers are compliant with EN 50155:2017 and EN 50121-4 standards covering operating temperature, power input voltage, surge, ESD, and vibration, making them suitable for railway onboard and wayside applications.

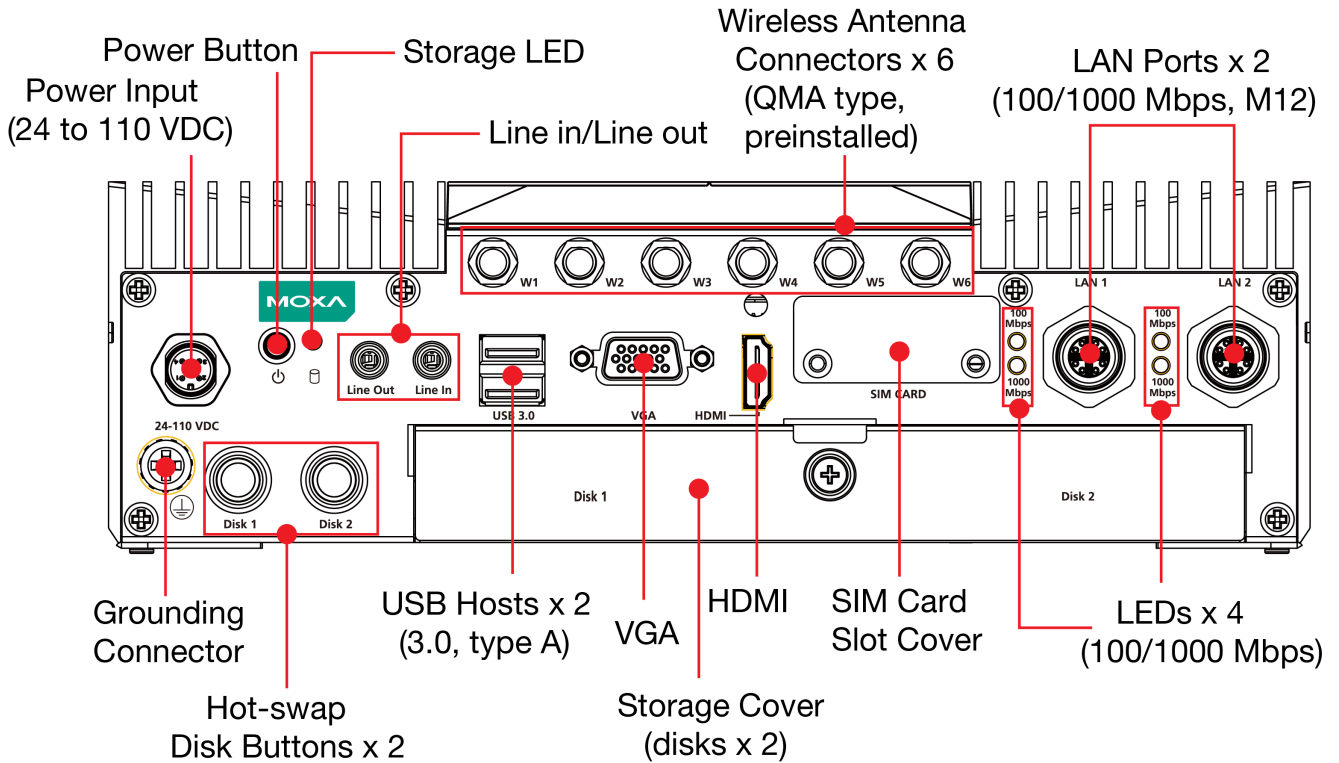
For connecting with onboard and wayside systems and devices, V2406C computers are equipped with a rich set of interfaces including 2 Gigabit Ethernet ports, 4 RS-232/422/485 serial ports, 6 DIs, 2 DOs, and 4 USB 3.0 ports. In addition, the V2406C computers provide 1 VGA video output and 1 HDMI output with 4K resolution support.

For reliable connectivity in train-to-ground (T2G) applications, the computers are provided with 2 mPCIe wireless expansion slots and 4 SIM-card slots. These help establish redundant LTE/Wi-Fi connectivity, ensuring solid bidirectional communications between a fast-moving train and the wayside applications. In addition, the preinstalled QMA cable for wireless modules can help reduce assembly efforts and ensure low RF leakage.

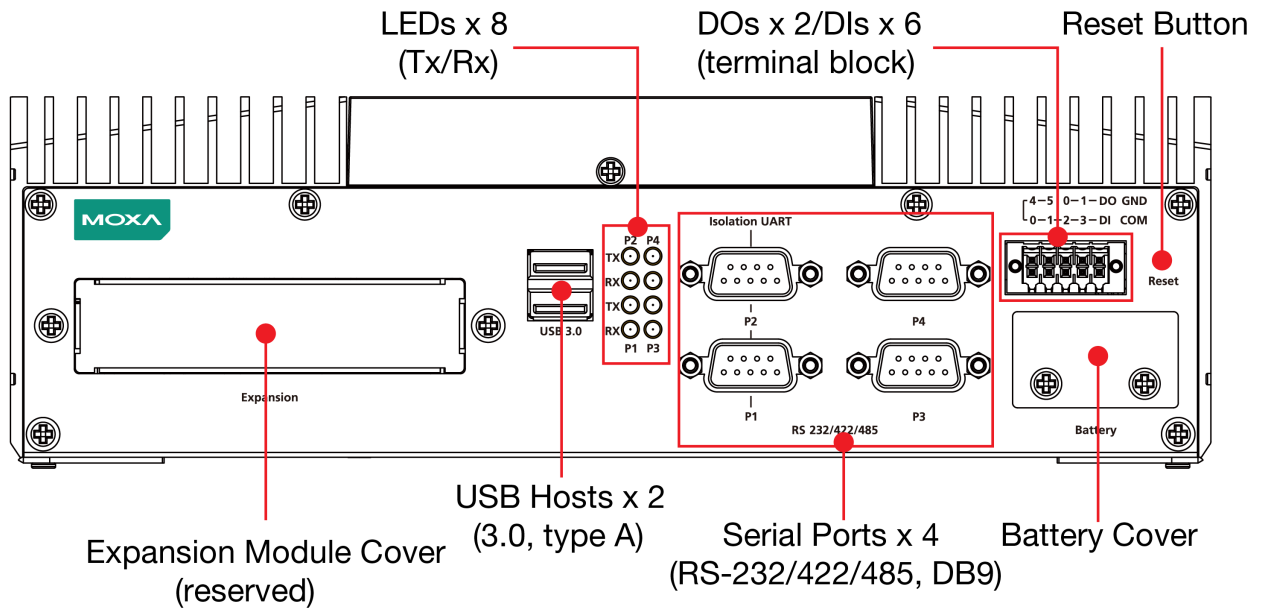
1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, click here: www.moxa.com/doc/specs/EN_50155_Combpliance.pdf

Appearance

Front View



Rear View



Specifications

Computer

| | |
|--------------|--|
| CPU | V2406C-KL1-T: Intel® Celeron® 3965U processor (2M Cache, 2.2 GHz) V2406C-KL3-T: Intel® Core™ i3-7100U processor (3M Cache, 2.4 GHz) V2406C-KL5-T: Intel® Core™ i5-7300U processor (3M Cache, 2.6 GHz) V2406C-KL7-T: Intel® Core™ i7-7600U processor (4M Cache, 2.8 GHz) |
| Storage Slot | 2.5-inch HDD/SSD slots x 2 mSATA slots x 1, internal mini-PCIe socket |

| | |
|---------------------|--|
| Supported OS | Linux Debian 9 Windows 10 Embedded IoT Ent 2019 LTSC 64-bit |
| System Memory Slot | SODIMM DDR4 slot x 2 |
| DRAM | 32 GB max |
| Graphics Controller | Intel® HD Graphics 620 |

Computer Interface

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|--------------------|---|
| Ethernet Ports | Auto-sensing 10/100/1000 Mbps ports (M12 X-coded) x 2 |
| Digital Output | DOs x 2 |
| Serial Ports | RS-232/422/485 ports x 4, software selectable (DB9 male) |
| Digital Input | DIs x 6 |
| USB 3.0 | USB 3.0 hosts x 4, type-A connectors |
| Audio Input/Output | Line in x 1, Line out x 1, 3.5 mm phone jack |
| Video Output | VGA x 1, 15-pin D-sub connector (female) HDMI x 1, HDMI connector (type A) |

Digital Inputs

| | |
|-------------------------|--|
| Connector | Screw-fastened Euroblock terminal |
| I/O Mode | DI |
| Isolation | 3k VDC |
| Sensor Type | Wet contact (NPN or PNP) Dry contact |
| Dry Contact | Logic 0: Short to GND Logic "1": Open |
| Wet Contact (DI to COM) | Logic "1": 10 to 30 VDC Logic "0": 0 0 to 3 VDC |

Digital Outputs

| | |
|----------------|--|
| Connector | Screw-fastened Euroblock terminal 10-pin terminal block |
| Current Rating | 200 mA per channel |
| I/O Type | Sink |
| Voltage | 24 to 30 VDC |
| Isolation | 3k VDC |

LED Indicators

| | |
|--------|-------------------------------|
| System | Power x 1 Storage x 1 |
| LAN | 2 per port (10/100/1000 Mbps) |
| Serial | 2 per port (Tx, Rx) |

Serial Interface

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|--------------|--|
| Baudrate | 50 bps to 921.6 kbps |
| Data Bits | 5, 6, 7, 8 |
| Flow Control | RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485, RTS Toggle (RS-232 only) |
| Parity | None, Even, Odd, Space, Mark |
| Stop Bits | 1, 1.5, 2 |

Serial Signals

| | |
|-----------|--|
| RS-232 | TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND |
| RS-422 | Tx+, Tx-, Rx+, Rx-, GND |
| RS-485-2w | Data+, Data-, GND |
| RS-485-4w | Tx+, Tx-, Rx+, Rx-, GND |

Power Parameters

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|--------------------------|----------------------------|
| Input Voltage | 24 to 110 VDC |
| Power Connector | M12 A-coded male connector |
| Power Consumption (Max.) | 70 W (max.) |

Physical Characteristics

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|---------------------------|---|
| Housing | Aluminum |
| IP Rating | IP20 |
| Dimensions (without ears) | 250 x 75 x 150 mm (9.84 x 2.95 x 5.91 in) |
| Weight | 2,700 g (5.95 lb) |
| Installation | Wall mounting (standard) |
| Protection | PCB conformal coating V2406C PCB conformal coating: Available on request |

Environmental Limits

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|--|----------------------------|
| Operating Temperature | -40 to 70°C (-40 to 158°F) |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |

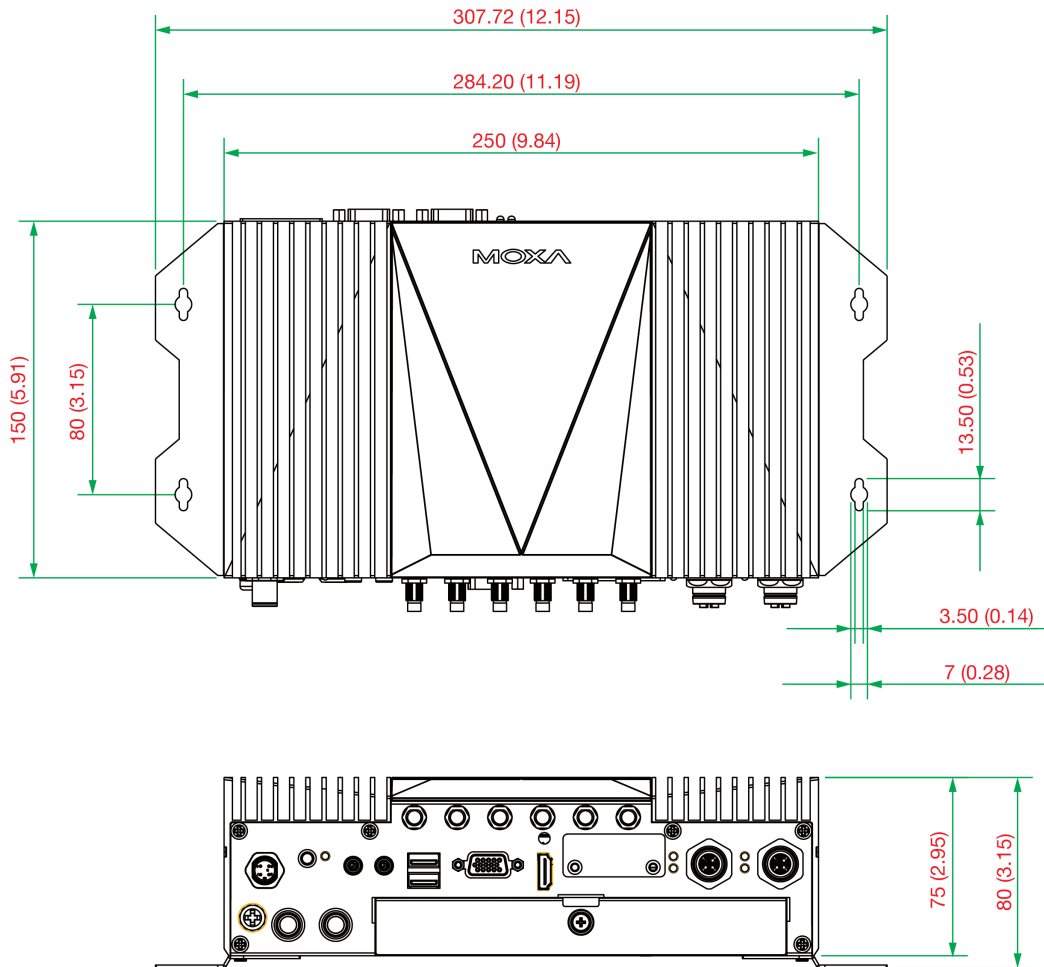
Standards and Certifications

| | |
|-------------------------|--|
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF |
| Railway Fire Protection | EN 45545-2 |
| EMC | EN 55032/35 |
| Safety | EN 62368-1, IEC 62368-1, UL 62368-1 |

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|-------------------------|--|
| Railway | EN 50121-4, EN 50121-3-2, EN 50155:2017 |
| Shock | IEC 60068-2-27, IEC 61373 |
| Vibration | IEC 60068-2-64, IEC 61373 |
| Declaration | |
| Green Product | RoHS, CRoHS, WEEE |
| MTBF | |
| Time | 394,260 hrs |
| Standards | Telcordia (Bellcore), GB |
| Warranty | |
| Warranty Period | 3 years |
| Details | See www.moxa.com/warranty |
| Package Contents | |
| Device | 1 x V2406C Series computer |
| Installation Kit | 2 x SSD/HDD trays 1 x clamp for HDMI cable 1 x wall-mounting kit |
| Documentation | 1 x quick installation guide 1 x warranty card |

Dimensions

Unit: mm (inch)



Ordering Information

| Model Name | CPU | Memory (built-in) | Optional OS Storage (mSATA) | Optional SSD/ HDD (Hot Swap) | USB Ports | Power Input | Operating Temp. | Conformal Coating |
|-----------------|-----------------------|-------------------|-----------------------------|------------------------------|-----------------------|-----------------------------|-----------------|-------------------|
| V2406C-KL1-T | Intel® Celeron® 3965U | 8 GB | 1 | 2 | 4 x USB 3.0 (-type A) | 24 to 110 VDC (M12 A-coded) | -40 to 70°C | - |
| V2406C-KL3-T | Intel® Core™ i3-7100U | 8 GB | 1 | 2 | 4 x USB 3.0 (-type A) | 24 to 110 VDC (M12 A-coded) | -40 to 70°C | - |
| V2406C-KL5-T | Intel® Core™ i5-7300U | 8 GB | 1 | 2 | 4 x USB 3.0 (-type A) | 24 to 110 VDC (M12 A-coded) | -40 to 70°C | - |
| V2406C-KL7-T | Intel® Core™ i7-7600U | 8 GB | 1 | 2 | 4 x USB 3.0 (-type A) | 24 to 110 VDC (M12 A-coded) | -40 to 70°C | - |
| V2406C-KL1-CT-T | Intel® Celeron® 3965U | 8 GB | 1 | 2 | 4 x USB 3.0 (-type A) | 24 to 110 VDC (M12 A-coded) | -40 to 70°C | ✓ |
| V2406C-KL7-CT-T | Intel® Core™ i7-7600U | 8 GB | 1 | 2 | 4 x USB 3.0 (-type A) | 24 to 110 VDC (M12 A-coded) | -40 to 70°C | ✓ |

Accessories (sold separately)

Power Cords

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|-----------------|---|
| PWC-C7US-2B-183 | Power cord with United States (US) plug, 10A/125V, 1.83 m |
| PWC-C7EU-2B-183 | Power cord with Continental Europe (EU) plug, 2.5A/250V, 1.83 m |
| PWC-C7CN-2B-183 | Power cord with two-prong China (CN) plug, 1.83 m |
| PWC-C7UK-2B-183 | Power cord with United Kingdom (UK) plug, 2.5A/250V, 1.83 m |
| PWC-C7AU-2B-183 | Power cord with Australian (AU) plug, 2.5A/250V, 1.83 m |

Battery Kits

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|-----------------|---|
| RTC Battery Kit | Lithium battery with built-in connector |
|-----------------|---|

Cables

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|------------------------------|--|
| CBL-M12(FF5P)/Open-100 IP67 | A-coded M12-to-5-pin power cable, IP67-rated 5-pin female M12 connector, 1 m |
| CBL-M12XMM8PRJ45-BK-100-IP67 | M12-to-RJ45 Cat-5E UTP gigabit Ethernet cable, 8-pin X-coded male connector, IP67, 1 m |

Power Adapters

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| PWR-24270-DT-S1 | Power adapter, input voltage 90 to 264 VAC, output voltage 24 V with 2.5 A DC load |
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Connectors

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|----------------|---|
| M12X-8PMM-IP67 | 8-pin male X-coded circular threaded gigabit Ethernet connector, IP67 |
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Wi-Fi Wireless Modules

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|----------------------|--|
| V2400-WLAN22-AC | jjPlus JWX6058 Wi-Fi mini card with 4 black screws |
| V2400-LTECat4-NA | Sierra WP7610 LTE Cat. 4 mini card with 2 black screws for North America |
| V2400-LTECat4-EMEA | Sierra WP7607 LTE Cat. 4 mini card with 2 black screws for the EMEA region |
| V2406C TPM2.0 Module | SLB9665XT2.0 TPM 2.0 module |

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