

# V2406C Series

*Intel® 7th/8th Gen Core™/Celeron® railway computers with 2 hot-swappable HDD/SSD slots, 2 Mini PCIe expansion slots for wireless, 24 to 110 VDC power input with isolation, -40 to 70°C operating temperature*



## Features and Benefits

- Intel® Celeron®/Intel® Core™ i3/i5/i7 high performance network video recorder for rolling stock applications
- DDR4 memory slot; up to 32 GB capacity
- 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 items<sup>1</sup>
- 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.

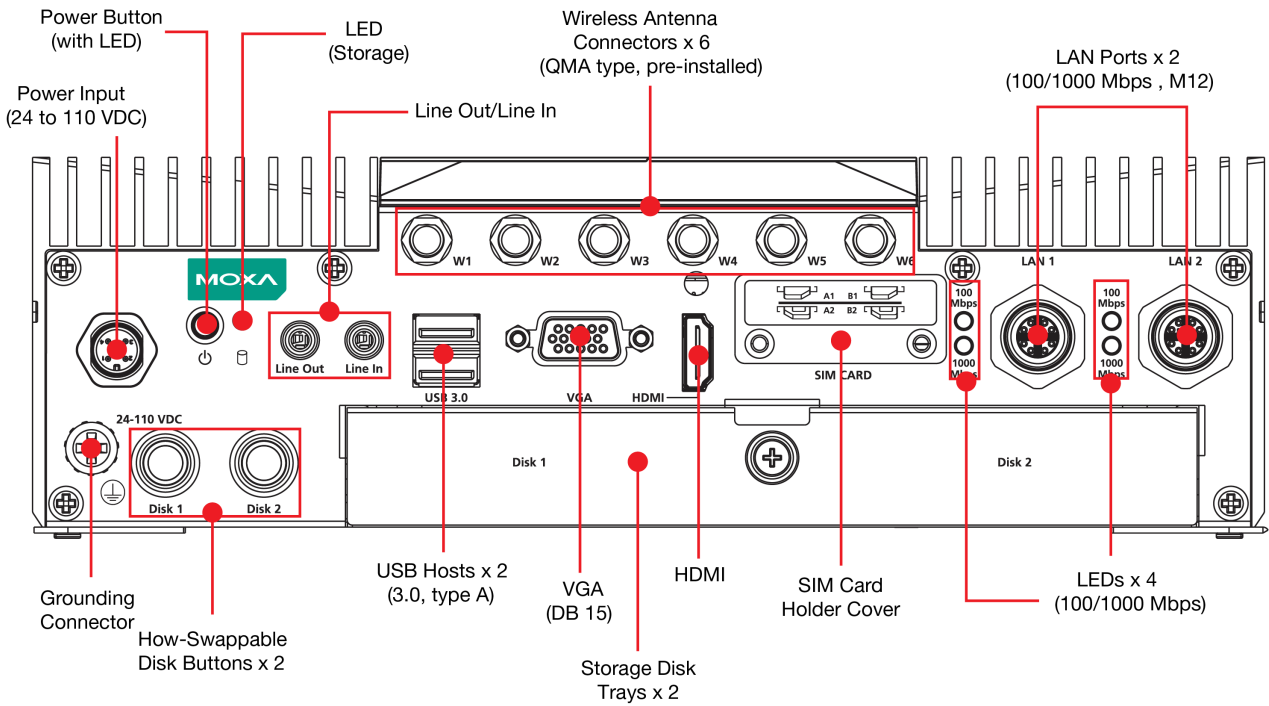
For connecting with onboard and wayside systems and devices, V2406C computers are equipped with a rich set of interfaces including 2 Gigabit Ethernet ports, 4 RS-232/422/485 serial ports, 6 DIs, 2 DOs, and 4 USB 3.0 ports. In addition, the V2406C computers provide 1 VGA video output and 1 HDMI output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

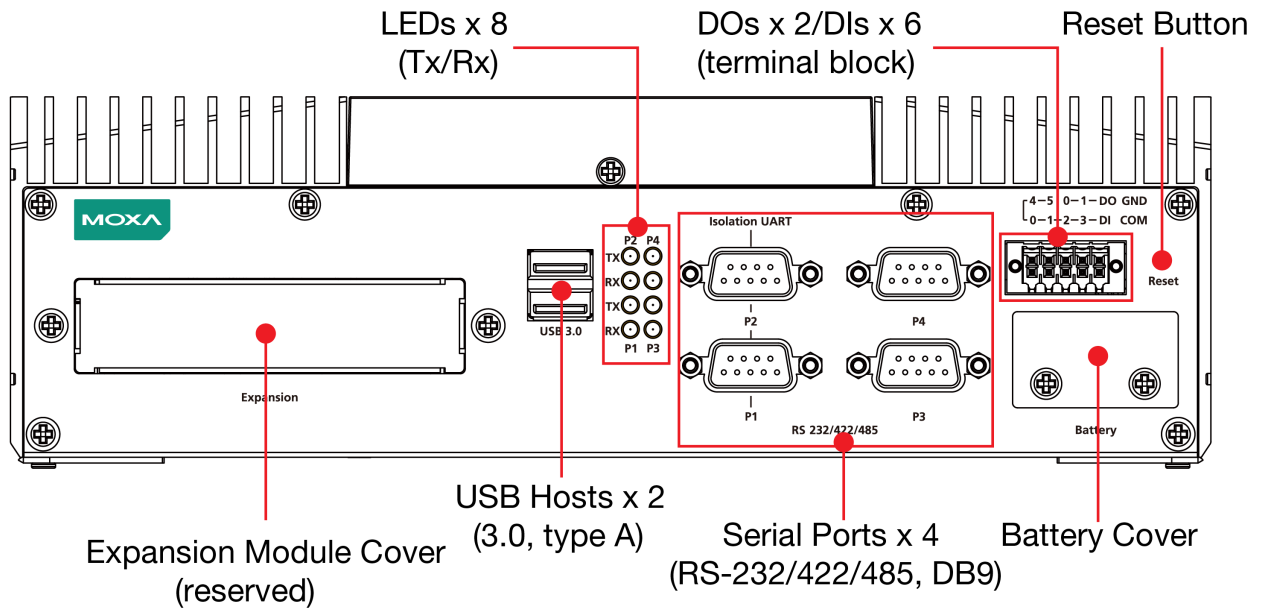
1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed statement, click here: [www.moxa.com/doc/specs/EN\\_50155\\_Compliance.pdf](http://www.moxa.com/doc/specs/EN_50155_Compliance.pdf)

# Appearance

## Front View



## Rear View



## Specifications

### Computer

CPU	V2406C-KL1-T/KL1-CT-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/ KL7-CT-T: Intel® Core™ i7-7600U processor (4M cache, 2.8 GHz) V2406C-WL1-T/ WL1-CT-T: Intel® Celeron® 4305UE processor (2M cache, 2 GHz) V2406C-WL3-T: Intel® Core™ i3-8145UE processor (4M cache, 2.2 GHz) V2406C-WL5-T: Intel® Core™ i5-8365UE processor (6M cache, 1.6 GHz) V2406C-WL7-T/ WL7-CT-T: Intel® Core™ i7-8665UE processor (8M cache, 1.7 GHz)
Storage Slot	2.5-inch HDD/SSD slots x 2 mSATA slots x 1
Supported OS	KL Models: Windows 10 Embedded IoT Ent 2019 LTSC 64-bit Linux Debian 9 system image WL Models: Windows 10 Embedded IoT Ent 2019 LTSC 64-bit Linux Debian 10 driver
System Memory Slot	SODIMM DDR4 slot x 2
DRAM	32 GB max
Graphics Controller	Intel® Celeron® Models: Intel® HD Graphics 610 Intel® Core™ i3/i5/i7 Models: Intel® HD Graphics 620

### Computer Interface

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)
Expansion Slots	mPCIe slots x 2 <sup>2</sup>

### 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 0: 0 to 3 VDC Logic 1: 10 to 30 VDC

2. These slots can be used for installing Wi-Fi modules. Refer to the Accessories section for a complete list of Wi-Fi modules supported. The V2400-LTE modules have only been tested with the V2406C-KL (7th Gen) models and the V2406C-LTE modules have only been tested with the V2406C-WL models (8th Gen)

## Digital Outputs

Connector	Screw-fastened Euroblock terminal 10-pin terminal block
Current Rating	200 mA per channel
I/O Type	Sink
Voltage	0 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

Baudrate	50 bps to 115.2 kbps
Connector	DB9 male
ESD	Contact: 6 kV; Air: 8 kV (level 3)
Isolation	2 kV
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

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

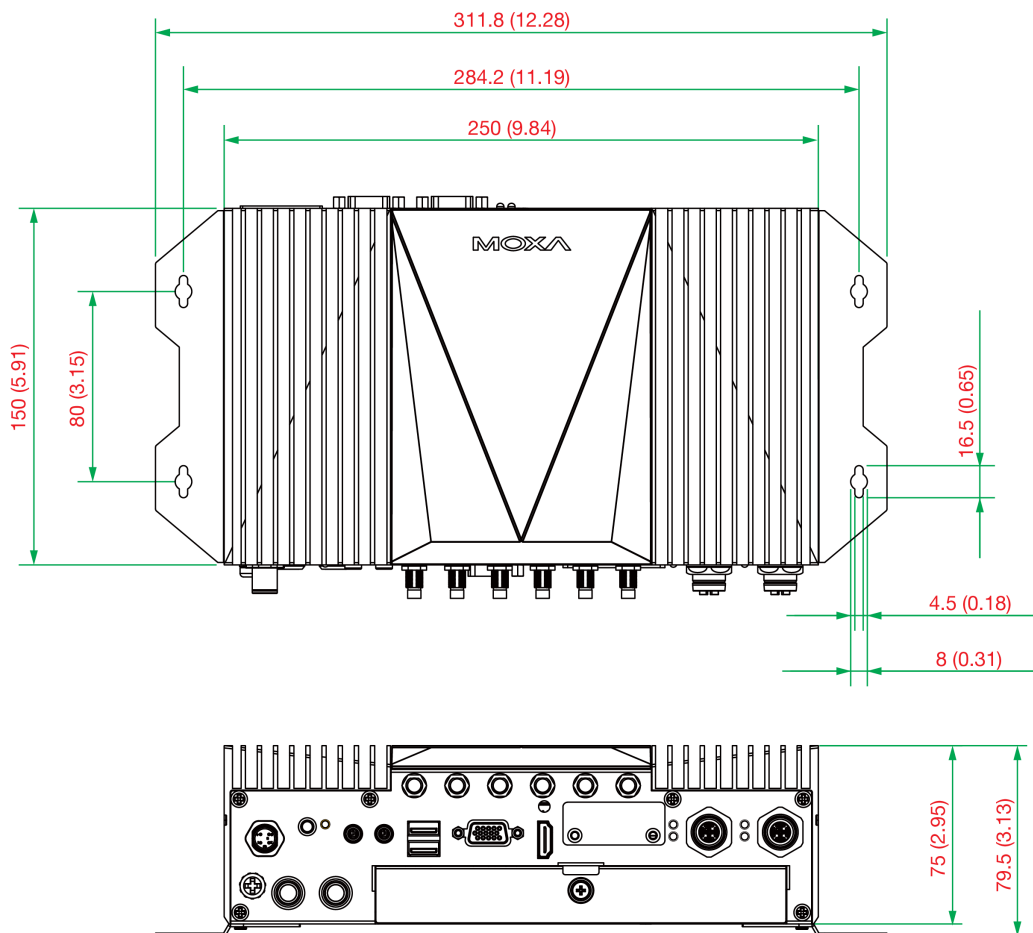
## Physical Characteristics

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 Available on request
<b>Environmental Limits</b>	
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)
<b>Standards and Certifications</b>	
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
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
<b>Declaration</b>	
Green Product	RoHS, CRoHS, WEEE
<b>MTBF</b>	
Time	KL Models: 382,506 hrs WL Models: 369,408 hrs
Standards	Telcordia (Bellcore), GB
<b>Warranty</b>	
Warranty Period	3 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>
<b>Package Contents</b>	
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	OS Storage (mSATA)	SSD/HDD (Hot Swap)	USB	Power Input	Operating Temp.	Conformal Coating
V2406C-KL1-T	Celeron 3965U	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-KL3-T	i3-7100U	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-KL5-T	i5-7300U	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-KL7-T	i7-7600U	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-KL1-CT-T	Celeron 3965U	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	✓
V2406C-KL7-CT-T	i7-7600U	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	✓

Model Name	CPU	Memory	OS Storage (mSATA)	SSD/HDD (Hot Swap)	USB	Power Input	Operating Temp.	Conformal Coating
V2406C-WL1-T	Celeron 4305UE	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-WL3-T	i3-8145UE	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-WL5-T	i5-8365UE	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-WL7-T	i7-8665UE	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	-
V2406C-WL1-CT-T	Celeron 4305UE	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	✓
V2406C-WL7-CT-T	i7-8665UE	2, DDR4, 2133 MHz (optional); 32 GB max.	1 (optional); 512 GB max.	2 (optional); 1 TB max.	4 x USB 3.0 (-type A)	24 to 110 VDC (M12 A-coded)	-40 to 70°C	✓

## Accessories (sold separately)

### Cables

CBL-M12(FF5P)/OPEN-100 IP67	A-coded M12-to-5-pin power cable, IP67-rated 5-pin female M12 connector, 1 m
-----------------------------	--

### Mounting Kits

V2406C Wall mount kit	Single-bracket wall-mounting kit for the V2406C Series with 8 M3 x 6 mm screws
-----------------------	--

### Wi-Fi Wireless Modules

V2400-LTECat4-NA	Sierra WP7610 LTE Cat. 4 mini card with 2 black screws for North America for the V2406C Series KL models
V2400-LTECat4-EMEA	Sierra WP7607 LTE Cat. 4 mini card with 2 black screws for the EMEA region for the V2406C Series KL models
V2400 Cover-DB9	Dual DB9 expansion cover, 4 male hex standoff spacer pillars
V2400-WLAN22-AC	SparkLAN WPEQ-261ACNI (BT) Wi-Fi mini card, 4 black screws
V2406C TPM2.0 CT Module	SLB9665XT2.0 TPM 2.0 module with conformal coating
V2406C TPM2.0 Module	SLB9665XT2.0 TPM 2.0 module without conformal coating

### Cellular Wireless Modules

V2406C-LTECat4-AP	Telit LE910C4 LTE Cat. 4 mini card for the Asia-Pacific region for the V2406C Series WL models
V2406C-LTECat4-EU	Telit LE910C4 LTE Cat. 4 mini card for Europe for the V2406C Series WL models
V2406C-LTECat4-NF	Telit LE910C4 LTE Cat. 4 mini card for North America for the V2406C Series WL models

© Moxa Inc. All rights reserved. Updated Apr 13, 2022.

This document and any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of Moxa Inc. Product specifications subject to change without notice. Visit our website for the most up-to-date product information.