

# V2403C Series

Fanless rugged ready-to-go x86 Industrial IoT embedded computers



## Features and Benefits

- Intel® Celeron®/Intel® Core™ i3/i5/i7 high performance network video recorder for rolling stock applications
- Multiple interfaces: Dual display (HDMI, DP), 4 serial ports, 4 GbE ports, 4 DIs, 4 DOs, 4 USB, and 2 Mini PCIe slots for wireless
- Power management with Ignition on/off delay (external rotate switch)
- E1 Mark, ISO 7637-2, and MIL-STD-810G compliant
- Compliant with EN 50121-4

## Certifications



## Introduction

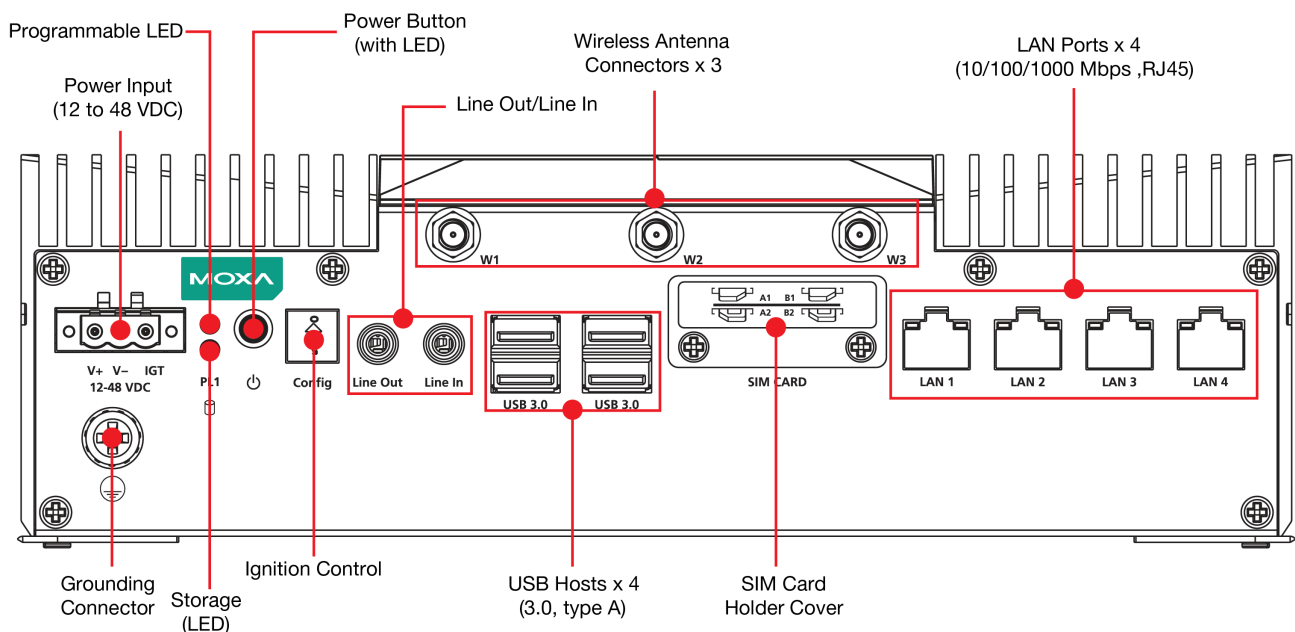
The V2403C Series embedded computers are built around an Intel® Core™ i7/i5/i3 or Intel® Celeron® high-performance processor and come with up to 32 GB RAM, one mSATA slot, and two HDD/SSD for storage expansion. The computers are compliant with EN 50121-4, E1 mark, and ISO-7637-2 standards making them ideal for rail-wayside and in-vehicle applications.

V2403C computers are equipped with a rich set of interfaces including 4 gigabit Ethernet ports, 4 RS-232/422/485 serial ports, 4 DIs, 4 DOs, and 4 USB 3.0 ports. In addition, they are also provided with 1 DisplayPort output and 1 HDMI output with 4K resolution.

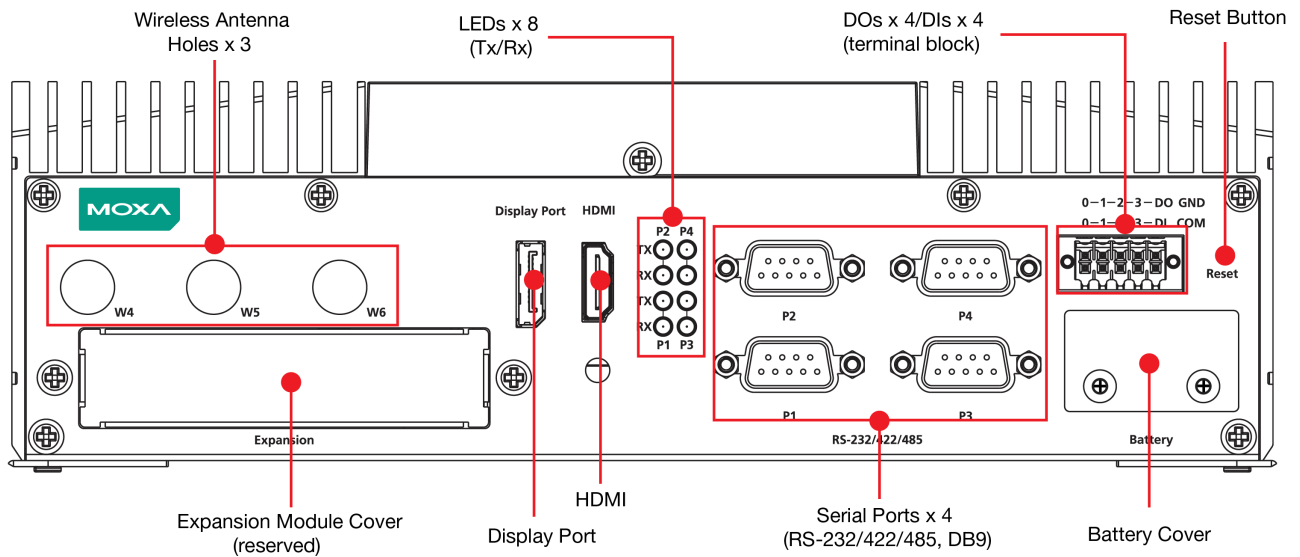
Reliable connections and good power management are key to in-vehicle applications. The computers are provided with 2 mPCIe wireless expansion slots and 4 SIM-card slots to establish redundant LTE/Wi-Fi connectivity. In terms of power management, startup and shutdown delay mechanisms help in avoiding system malfunction and damage.

## Appearance

### Front View



## Rear View



## Specifications

### Computer

CPU	V2403C-KL1-T: Intel® Celeron® 3965U processor (2M Cache, 2.2 GHz) V2403C-KL3-T: Intel® Core™ i3-7100U processor (3M Cache, 2.4 GHz) V2403C-KL5-T: Intel® Core™ i5-7300U processor (3M Cache, 2.6 GHz) V2403C-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
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	Celeron Model: Intel HD Graphics 610 i3/i5/i7 Models: Intel HD Graphics 620

### Computer Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 4
Serial Ports	RS-232/422/485 ports x 4, software selectable (DB9 male)
Digital Output	DOs x 4
Digital Input	DIs x 4
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	HDMI x 1, HDMI connector (standard) DP x 1, DisplayPort connector (standard)
Wi-Fi Antenna Connector	RP-SMA x 3
Cellular Antenna Connector	SMA x 2 (optional)

GPS Antenna Connector	SMA x 1, (optional)
Expansion Slots	mPCIe slot x 2
SIM Format	Micro
Number of SIMs	4

#### 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

#### Digital Outputs

Connector	Screw-fastened Euroblock terminal
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	12 to 48 VDC
Power Connector	Terminal block
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	2,500 g (5.51 lb)
Installation	Wall mounting (standard)

## Environmental Limits

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
EMC	EN 55032/35
Safety	EN 62368-1, IEC 62368-1, UL 62368-1
Railway	EN 50121-4
Shock	IEC 60068-2-27, IEC 61373, MIL-STD-810G
Vibration	IEC 60068-2-64, IEC 61373, MIL-STD-810G

## Declaration

Green Product	RoHS, CRoHS, WEEE
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## MTBF

Time	464,506 hrs
Standards	Telcordia (Bellcore), GB

## Warranty

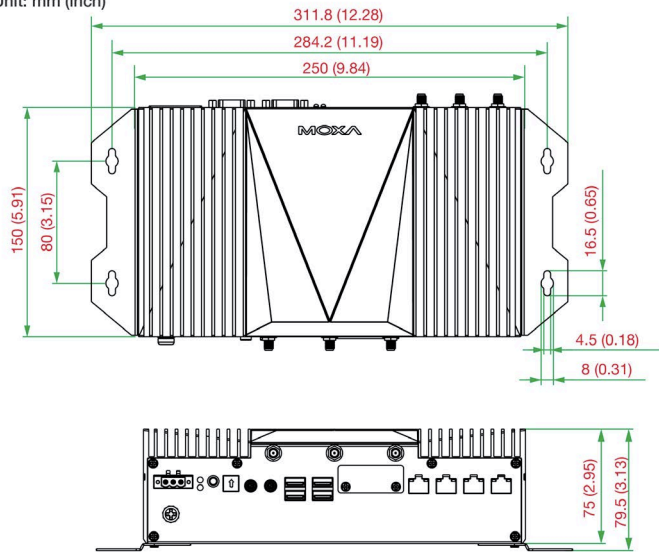
Warranty Period	3 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

## Package Contents

Device	1 x V2403C 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	USB Ports	Power Input	Operating Temp.	Conformal Coating
V2403C-KL1-T	Intel® Celeron® 3965U	-	1	2	4 x USB 3.0 (type A)	12 to 48 VDC (Terminal Block)	-40 to 70°C	-
V2403C-KL3-T	Intel® Core™ i3-7100U	-	1	2	4 x USB 3.0 (type A)	12 to 48 VDC (Terminal Block)	-40 to 70°C	-
V2403C-KL5-T	Intel® Core™ i5-7300U	-	1	2	4 x USB 3.0 (type A)	12 to 48 VDC (Terminal Block)	-40 to 70°C	-
V2403C-KL7-T	Intel® Core™ i7-7600U	-	1	2	4 x USB 3.0 (type A)	12 to 48 VDC (Terminal Block)	-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
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### Wi-Fi Wireless Modules

V2400-WLAN22-AC	SparkLAN WPEQ-261ACNI (BT) Wi-Fi mini card, 4 black screws
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V2406C TPM2.0 Module	SLB9665XT2.0 TPM 2.0 module
V2400 Cover-DB9	Dual DB9 expansion cover, 4 male hex standoff spacer pillars

#### Cellular Wireless Modules

V2403C-LTECat4-AP	Telit LE910C4 LTE Cat. 4 mini card for the Asia-Pacific region, 3 SMA antenna cables
V2403C-LTECat4-EU	Telit LE910C4 LTE Cat. 4 mini card for Europe, 3 SMA antenna cables
V2403C-LTECat4-NF	Telit LE910C4 LTE Cat. 4 mini card for North America, 3 SMA antenna cables

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