

# V2403C Series

*Intel® 7th Gen Core™/Celeron® Industrial IoT embedded computers with power ignition control, 2 Mini PCIe expansion slots for wireless, SMA connectors*



## Features and Benefits

- Intel® Celeron®/Intel® Core™ i3/i5/i7 high performance network video recorder for rail-wayside and in-vehicle 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 (externally accessible rotary 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 (except trains) 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.

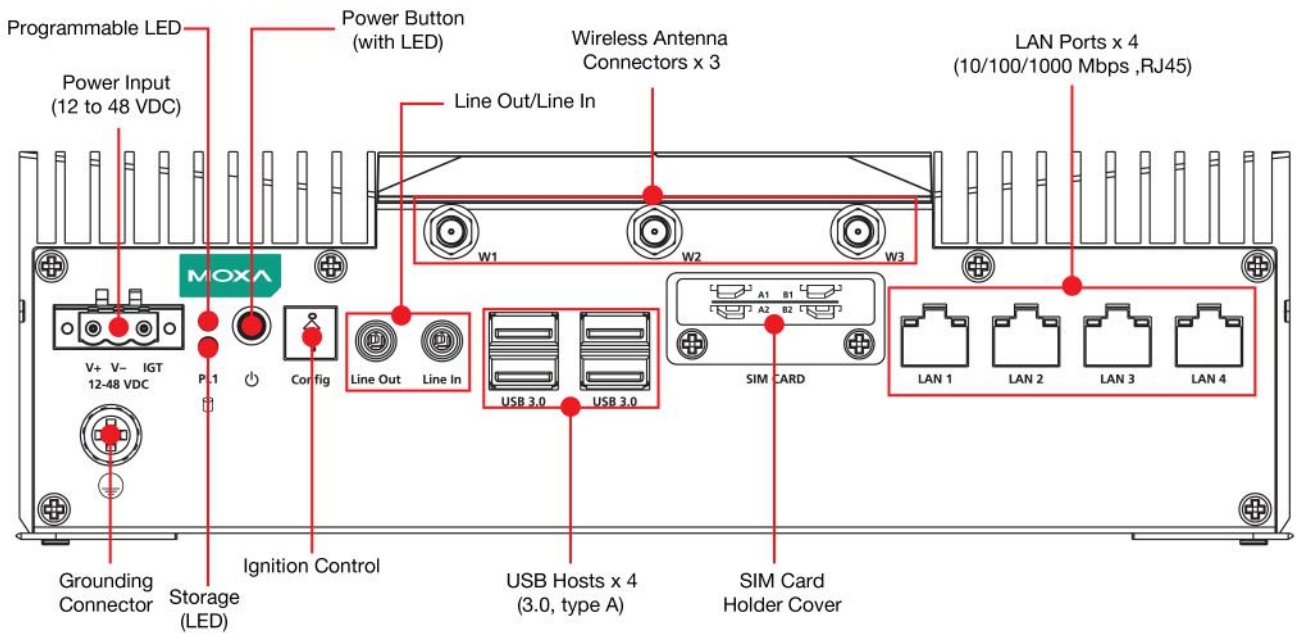
Reliable connections and good power management are key to in-vehicle applications. The computers are provided with 2 mPCIe wireless expansion slots and 4 SIM-card slots to establish redundant LTE/Wi-Fi connectivity. In terms of power management, startup and shutdown delay mechanisms help in avoiding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

## Power Management With Ignition Control Switch

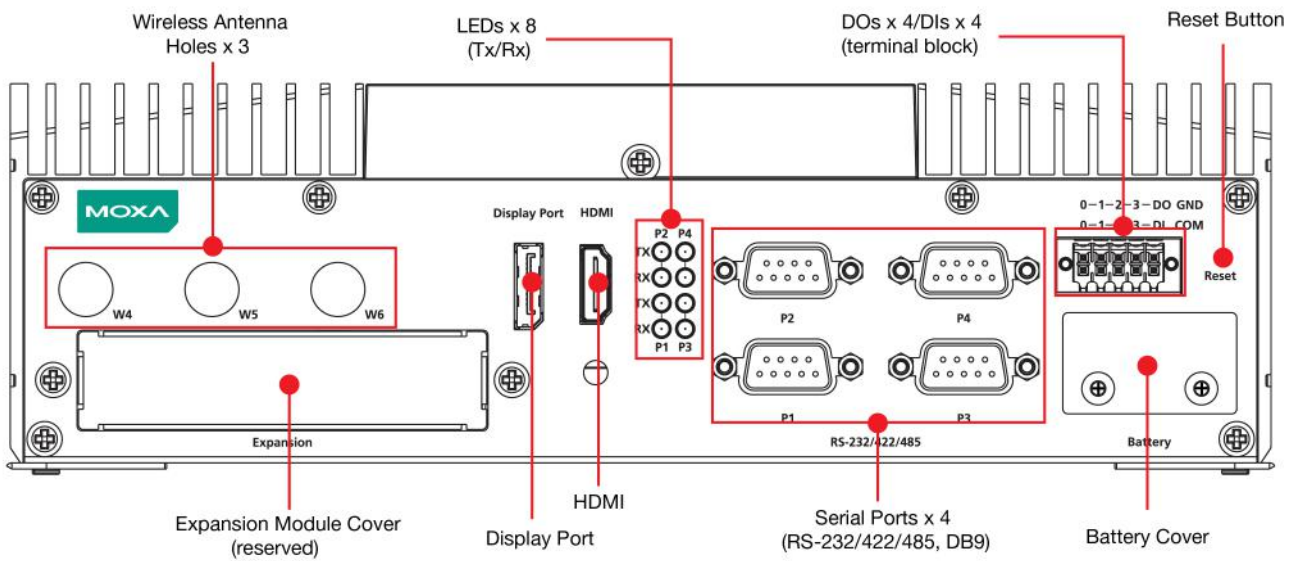
The V2403C computers come with power management capability that uses an externally accessible rotary switch on the front panel. You can use the switch to configure power ignition on/off delays in the computer for in-vehicle applications. This feature is vital to protect the computer against high/low pulses and waveforms, ensure longevity of batteries, and complete data preservation prior to an unplanned shutdown.

# 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	Windows 10 Embedded IoT Ent 2019 LTSC 64-bit Windows 10 Embedded IoT Ent 2021 LTSC 64-bit

	Linux Debian 9 image Linux Debian 11/Ubuntu 20.04/CentOS 7.9 drivers
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	DI s 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 slots 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.)

## Power Ignition Control

Switch Type	Rotary (front panel)
Switch Settings	Setting 0: IGT function disabled Setting 1: PWR ON delay: 0.5 sec; PWR OFF delay: 30 sec Setting 2: PWR ON delay: 1 sec; PWR OFF delay: 30 sec Setting 3: PWR ON delay: 1 sec; PWR OFF delay: 60 sec Setting 4: PWR ON delay: 2 sec; PWR OFF delay: 60 sec Setting 5: PWR ON delay: 2 sec; PWR OFF delay: 90 sec Setting 6: PWR ON delay: 3 sec; PWR OFF delay: 90 sec Setting 7: PWR ON delay: 3 sec; PWR OFF delay: 150 sec Setting 8: PWR ON delay: 4 sec; PWR OFF delay: 180 sec Setting 9: PWR ON delay: 5 sec; PWR OFF delay: 180 sec

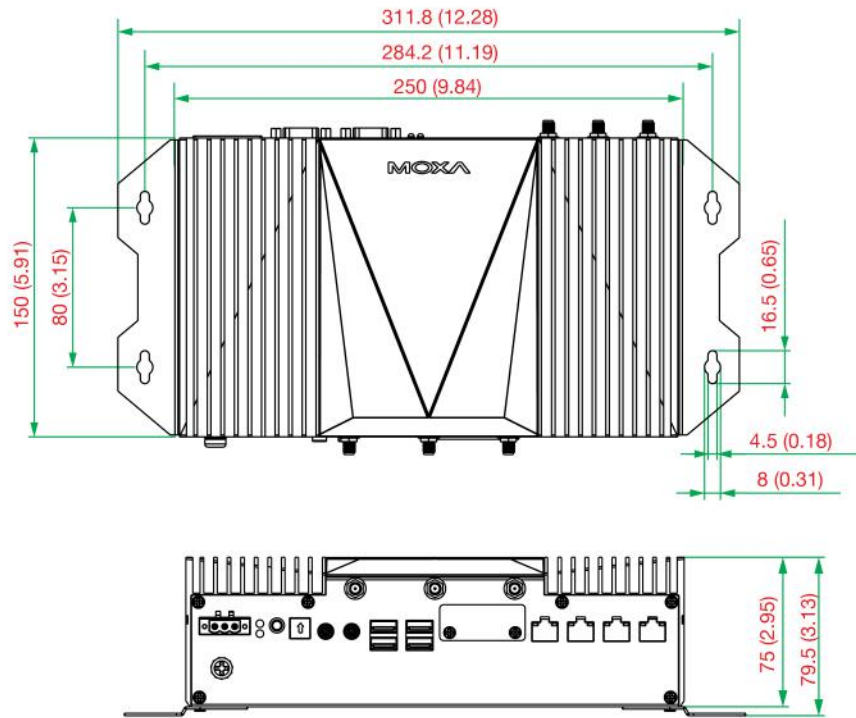
## Physical Characteristics

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)
<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>	
EMC	EN 55032/35
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
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
<b>Declaration</b>	
Green Product	RoHS, CRoHS, WEEE
<b>MTBF</b>	
Time	464,506 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 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-PJTB-10	Non-locking barrel plug to bare-wire cable
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### Wi-Fi Wireless Modules

V2400-WLAN22-AC	SparkLAN WPEQ-261ACNI (BT) Wi-Fi mini card, 4 black screws
V2400 Cover-DB9	Dual DB9 expansion cover, 4 male hex standoff spacer pillars
V2406C TPM2.0 Module	SLB9665XT2.0 TPM 2.0 module without conformal coating

### 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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