V2403C Series
Quick Installation Guide

Embedded Computers

Version 1.2, May 2022

Technical Support Contact Information
www.moxa.com/support

MOXA®

Overview

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.

Package Checklist

Each basic system model package is shipped with following items:

- V2403C Series embedded computer
- Wall-mounting kit
- Storage disk tray package
- HDMI cable locker
- Quick installation guide (printed)
- Warranty card

Hardware Installation

Front View

Rear View

Wireless Antenna Holes x 3 · LEDs x 8 (Tx/Rx) · DOs x 4/DIs x 4 (terminal block) · Reset Button

Expansion Module Cover (reserved) · HDMI · Display Port · Serial Ports x 4 (RS-232/422/485, DB9) · Battery Cover
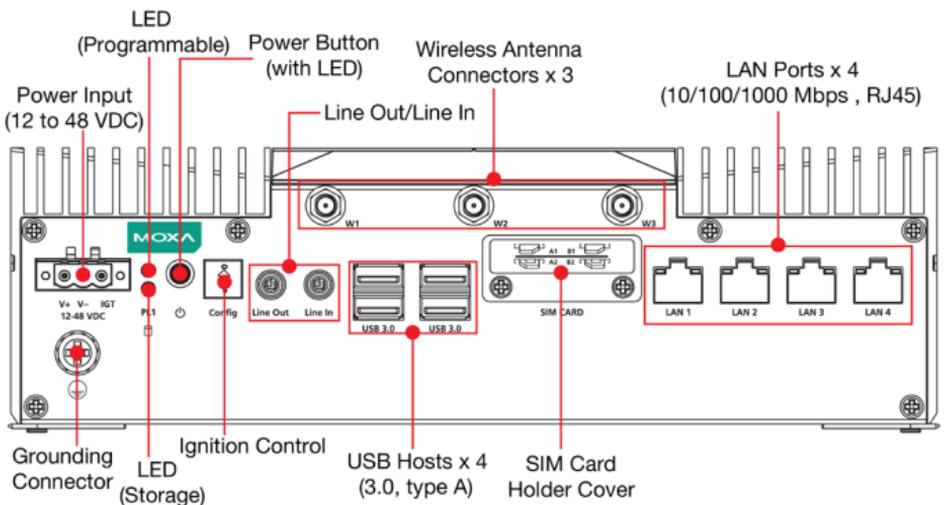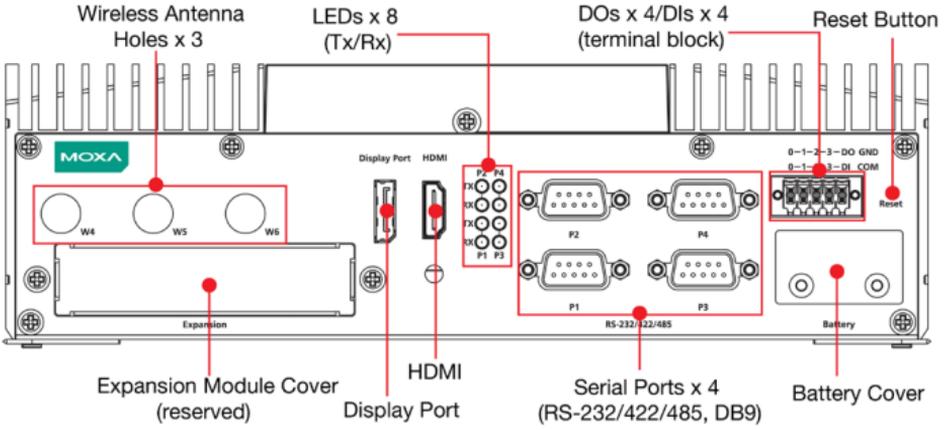
Dimensions

Unit: mm (inch)
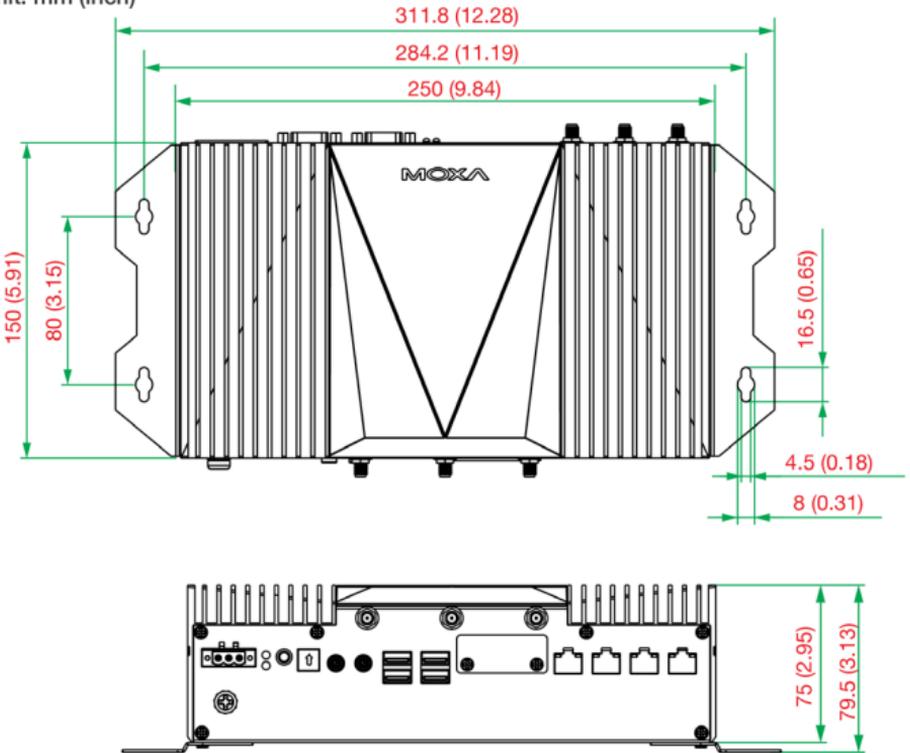
LED Indicators

The following table describes the LED indicators located on the front and rear panels of the V2403C computer.

LED Name	Status	Function
Power (On power button)	Green	Power is on
	Off	No power input or any other power error
Ethernet (100 Mbps) (1000 Mbps)	Green	Steady On: 100 Mbps Ethernet link Blinking: Data transmission is in progress
	Yellow	Steady On: 1000 Mbps Ethernet link Blinking: Data transmission is in progress
	Off	Data transmission speed at 10 Mbps or the cable is not connected

LED Name	Status	Function
Serial (TX/RX)	Green	Tx: Data transmission is in progress
	Yellow	Rx: Receiving Data
	Off	No operation
Storage	Yellow	Data is being accessed from either the mSATA or the SATA drives
	Off	Data is not being accessed from the storage drives

Installing the V2403C

The V2403C computer comes with two wall-mounting brackets. Attach the brackets to the computer using four screws on each side. Ensure that the mounting brackets are attached to the V2403C computer in the direction shown in the following figure.
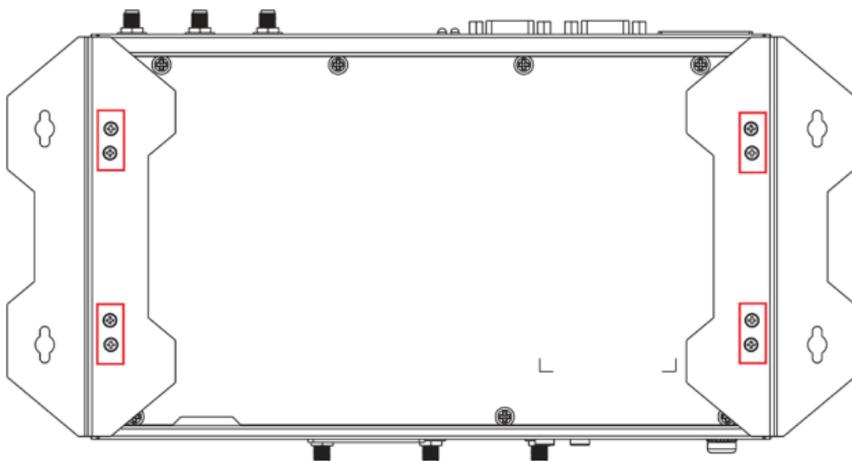
The eight screws for the mounting brackets are included in the product package. They are standard IMS_M3x5L screws and require a torque of 4.5 kgf-cm. Refer to the following illustration for details.
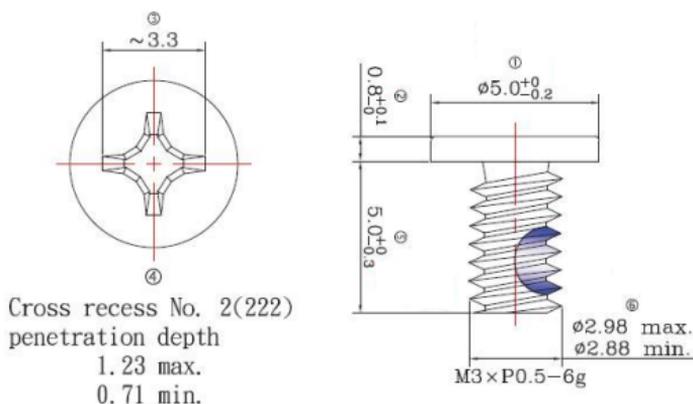
Use two screws (M3*5L standard is recommended) on each side to attach the V2403C to a wall or cabinet. The product package does not include the four screws required for attaching the wall-mounting kit to the wall; they need to be purchased separately. Ensure that the V2403C computer is installed in the direction shown in the following figure.
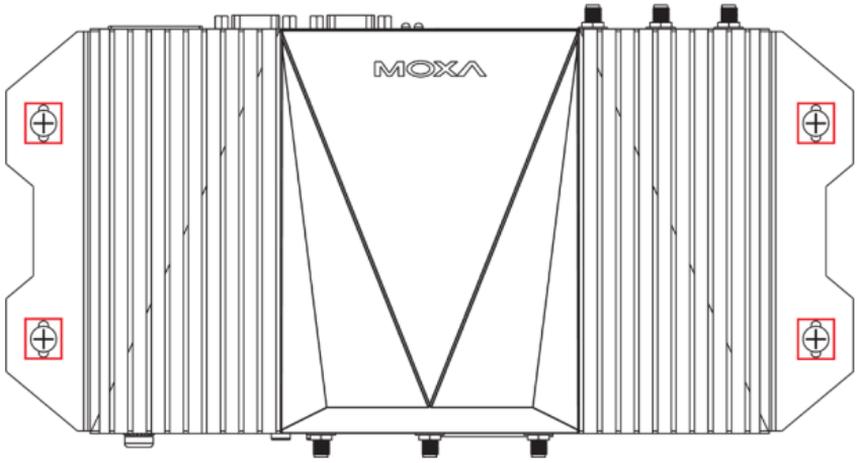
Connecting the Power

The V2403C computers are provided with 3-pin power input connectors in terminal block on the front panel. Connect the power cord wires to the connectors and then tighten the connectors. Push the power button. The **Power** LED (on the power button) will light up to indicate that power is being supplied to the computer. It should take about 30 to 60 seconds for the operating system to complete the boot-up process.

Pin	Definition
1	V+
2	V-
3	Ignition
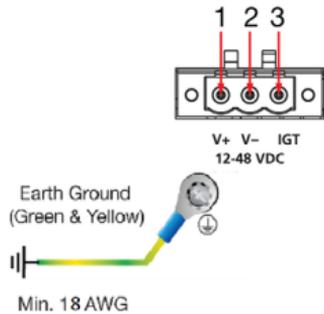
The power input specification is given below:

- The DC power source rating is 12 V @ 5.83 A, 48 V @ 1.46 A, and a minimum of 18 AWG.

For surge protection, connect the grounding connector located below the power connector with the earth (ground) or a metal surface.

In addition, there is an ignition control switch on the front panel, which can be used to control the power input. Refer to *the V2403C Hardware User's Manual* for details.

Connecting Displays

The V2403C has one display port connector on the rear panel. In addition, another HDMI interface is also provided on the rear panel.

> **NOTE** In order to have highly reliable video streaming, use premium HDMI-certified cables.

USB Ports

The V2403C comes with 4 USB 3.0 ports on the front panel. The USB ports can be used to connect to other peripherals, such as keyboard, mouse, or flash drives for expanding the system's storage capacity.

Serial Ports

The V2403C comes with four software-selectable RS-232/422/485 serial ports on the rear panel. The ports use DB9 male connectors.

Refer to the following table for pin assignments:

Pin	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	DCD	TxDA(-)	TxDA(-)	–
2	RxD	TxDB(+)	TxDB(+)	–
3	TxD	RxDB(+)	RxDB(+)	DataB(+)
4	DTR	RxDA(-)	RxDA(-)	DataA(-)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
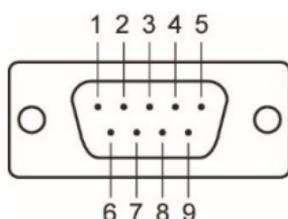
Ethernet Ports

The V2403C has 4 100/1000 Mbps RJ45 Ethernet ports with RJ45 connectors on the front panel. Refer to the following table for pin assignments:

Pin	10/100 Mbps	1000 Mbps
1	ETx+	TRD(0)+
2	ETx-	TRD(0)-
3	ERx+	TRD(1)+
4	–	TRD(2)+
5	–	TRD(2)-
6	ERx-	TRD(1)-
7	–	TRD(3)+
8	–	TRD(3)-
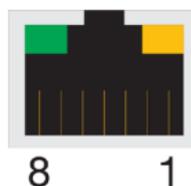
NOTE For reliable Ethernet connections, we recommend enabling the ports in standard temperatures and keeping them enabled in high/low temperature environment.

Digital Inputs/Digital Outputs

The V2403C comes with four digital inputs and four digital outputs in a terminal block. Refer to the following figures for the pin definitions and the current ratings.

0—1—2—3— DO GND

0—1—2—3— DI COM
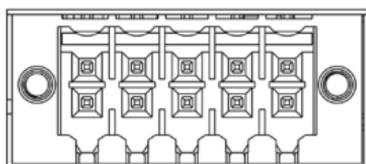
Digital Inputs

Dry Contact
Logic 0: Short to Ground
Logic 1: Open

Wet Contact (DI to COM)
Logic 1: 10 to 30 VDC
Logic 0: 0 to 3 VDC

Digital Outputs

Current Rating: 200 mA per channel

Voltage: 24 to 30 VDC

For detailed wiring methods, refer to *the V2403C Hardware User's Manual*.

Installing Storage Disks

The V2403C comes with two 2.5-inch storage sockets, allowing users to install two disks for data storage.

Follow these steps to install a hard disk drive.

1. Unpack the storage disk tray from the product package.

Screws x 2 for Disk Tray
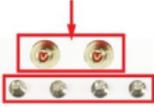
Screws x 4 for Hard Disk

Disk Tray

2. Place the disk drive on the tray.

3. Turn the disk and tray arrangement around to view the rear side of the tray. Fasten the four screws to secure the disk to the tray.

4. Remove all screws on the rear panel of the V2403C computer.
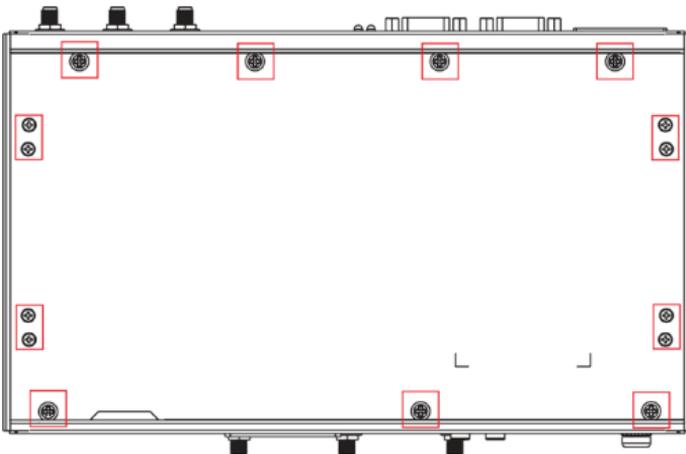
5. Take out the rear cover of the computer and find the location of the storage disk sockets. There are two sockets for the storage disk tray; you may install on either socket.
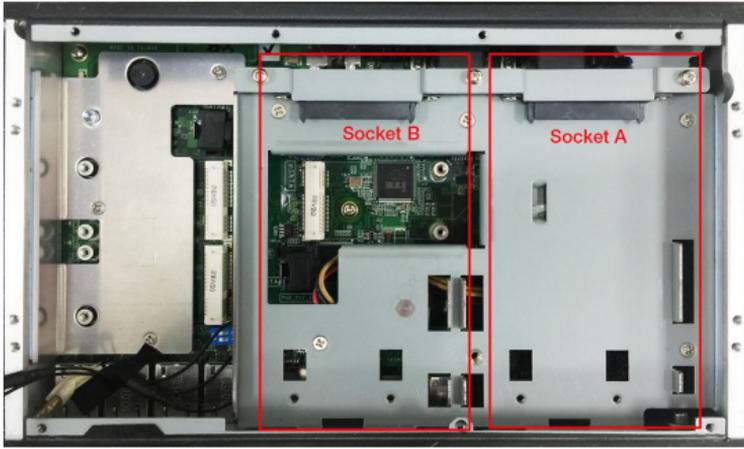
6. To place the storage disk tray, put the end of the tray near the groove on the socket.
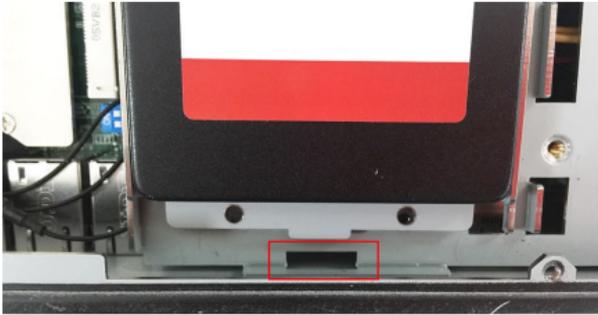
7. Place the tray on the socket and push upward so that the connectors on the storage disk tray and the socket can be connected. Fasten two screws on the bottom of the tray.

For instructions on installing other peripheral devices or wireless modules, refer to the *V2403C Hardware User's Manual*.

NOTE This computer is intended to be installed in a restricted access area only. In addition, for safety reasons, the computer should be installed and handled only by qualified and experienced professionals.

NOTE This computer is designed to be supplied by listed equipment rated 12 to 48 VDC, minimum 5.83 to 1.46 A, and minimum Tma=70°C. If you need assistance with purchasing a power adapter, contact the Moxa technical support team.

NOTE This computer can be deployed on vehicles as the control unit that collects data from different I/O devices and transmits the data to vehicle dispatch centers.

NOTE If using Class I adapter, the power cord adapter should be connected to a socket outlet with an earthing connection or the power cord and adapter must comply with Class II construction.

Replacing the Battery

The V2403C comes with one slot for a battery, which is installed with a lithium battery with 3 V/195 mAh specifications. To replace the battery, follow the steps below:

1. The battery cover is located on the rear panel of the computer.
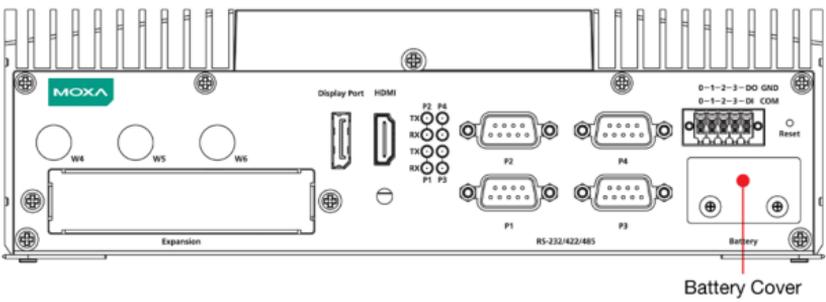
Battery Cover

2. Unfasten the two screws on the battery cover.
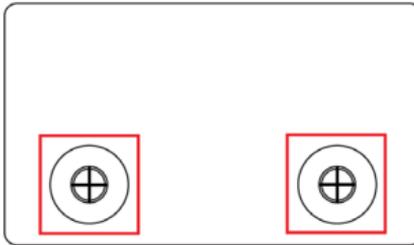
3. Take off the cover; the battery is attached to the cover.

connector
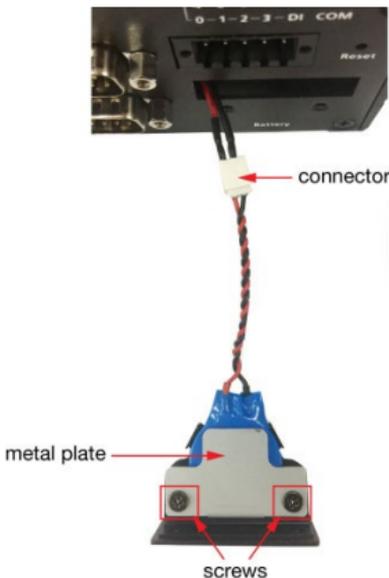
metal plate

screws

4. Separate the connector and remove the two screws on the metal plate.

battery holder →   ← battery

5. Replace the new battery in the battery holder, place the metal plate on the battery and fasten the two screws tightly.
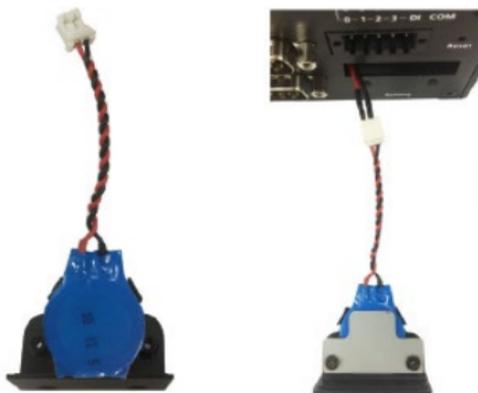
6. Reconnect the connector, place the battery holder into the slot, and secure the cover of the slot by fastening the two screws on the cover

---

NOTE
- Be sure to use the correct type of battery. Incorrect battery may cause system damage. Contact Moxa's technical support staff for assistance, if necessary.
- To reduce the risk of fire or burns, do not disassemble, crush, or puncture the battery; do not dispose of in fire or water and do not short external contacts.

⚠️ **ATTENTION**

Before connecting the V2403C to the DC power inputs, make sure the DC power source voltage is stable.
- The wiring for the input terminal block shall be installed by a skilled person.
- Wire type: Cu
- Only use 28-18 AWG wire size and a torque value of 0.5 N-m.
- Use only one conductor in a clamping point between the DC power source and the power input.