

# V2200D Series

*Rail DIN-rail computers with Intel Atom® x7000 Series processor, 3 M.2 storage slots, 24 to 110 VDC power input with isolation, -40 to 70°C operating temperature*



## Features and Benefits

- Intel® Atom® x7000 processor based embedded computer
- DDR4 memory slot; up to 32 GB capacity
- Dual independent displays (HDMI and DisplayPort)
- 2 secure easy-to-swap M.2 M-key slots with locks
- 2 Gigabit Ethernet ports with M12 X-coded inner push-pull connectors
- Onboard TPM module for enhanced cybersecurity
- Complies with all EN 50155 mandatory test items<sup>1</sup>
- -40 to 70°C wide-temperature design

## Certifications



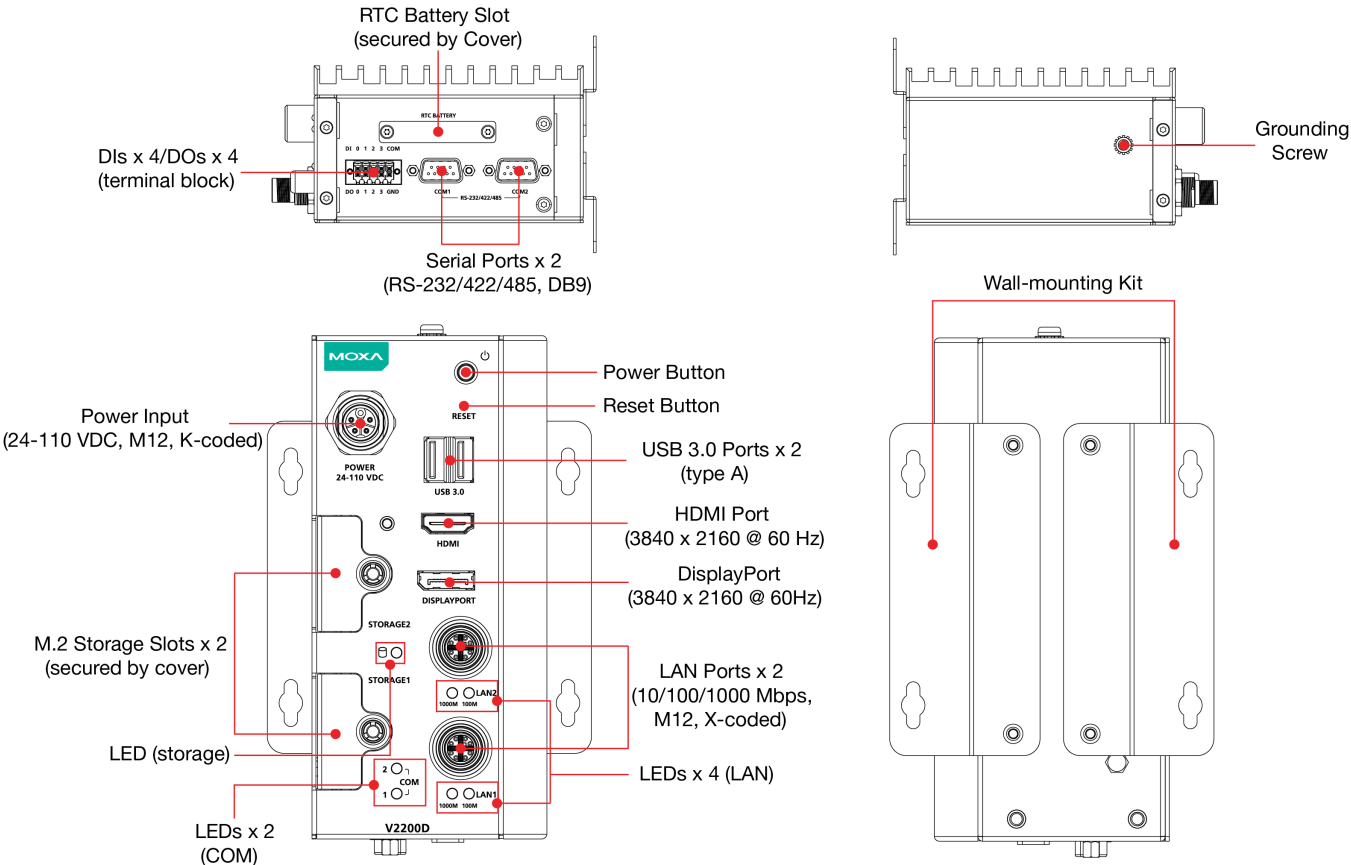
## Introduction

The V2200D Series embedded computers are built around an Intel Atom® Amston Lake x7433RE processor and come with up to 32 GB DDR4 memory, one internal M.2 2242 M-key storage slot, and two front-accessible easy-swappable M.2 2280 M-key storage slots for flexible and reliable data storage. The computers comply with railway requirements for operating temperature, power input, and EMC, making them suitable for onboard and wayside applications in harsh railway environments.

For enhanced data protection, the front-accessible storage slots are equipped with a lock, allowing only authorized personnel to access the storage devices. The V2200D computers provide essential industrial interfaces, including 2 Gigabit Ethernet ports, 2 RS-232/422/485 serial ports, 4 digital inputs, 4 digital outputs, 2 USB 3.0 ports, 1 HDMI, and 1 DisplayPort, enabling seamless integration with onboard systems and field devices. A built-in TPM 2.0 module further strengthens platform integrity and provides hardware-based protection against unauthorized access and tampering.

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



Specifications

Computer

|                    |                                                                                                                                                                                                                     |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU                | Intel Atom® x7433RE processor (quad-core, 6M, 3.40 GHz)                                                                                                                                                             |
| System Memory Slot | SODIMM DDR4 slots x 1 (up to 32 GB)                                                                                                                                                                                 |
| Storage Slot       | (internal) M.2 M key 2242 slots x 1<br>(external for expansion) M.2 M key 2280 slots x 2                                                                                                                            |
| Supported OS       | Windows 10 IoT Enterprise LTSC 2021<br>Windows 11 IoT Enterprise LTSC 2024<br>Linux:<br>Debian 12<br>Ubuntu 22.04 (driver)<br>Moxa Industrial Linux 4<br>See <a href="http://www.moxa.com/MIL">www.moxa.com/MIL</a> |

Computer Interface

|                |                                                                                 |
|----------------|---------------------------------------------------------------------------------|
| Ethernet Ports | Auto-sensing 100/1000 Mbps Ethernet (M12 X-coded inner push-pull connector) x 2 |
| Serial Ports   | RS-232/422/485 ports x 2 (software-selectable, DB9 male connector)              |
| Digital Input  | DIs x 4                                                                         |
| Digital Output | DOs x 4                                                                         |
| Video Output   | HDMI x 1, HDMI connector (type A)<br>DisplayPort x 1                            |
| USB 3.0        | USB 3.0 hosts x 1, type-A connectors                                            |
| TPM            | TPM v2.0                                                                        |

### Digital Inputs

|                         |                                              |
|-------------------------|----------------------------------------------|
| Connector               | Screw-fastened Euroblock terminal            |
| Sensor Type             | Dry contact<br>Wet contact (PNP)             |
| Dry Contact             | Logic 0: Short to GND<br>Logic 1: Open       |
| Wet Contact (COM to DI) | Logic 0: 10 to 30 VDC<br>Logic 1: 0 to 3 VDC |
| Isolation               | 3k 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                            |

### Serial Interface

|              |                                                                                                 |
|--------------|-------------------------------------------------------------------------------------------------|
| Connector    | DB9 male                                                                                        |
| Baudrate     | 50 bps to 115.2 kbps                                                                            |
| Isolation    | 2k VDC                                                                                          |
| Flow Control | RTS/CTS, XON/XOFF, Automatic Data Direction Control (ADDC) 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                |

### LED Indicators

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

### Power Parameters

|                   |                  |
|-------------------|------------------|
| Power Connector   | M12 K-coded male |
| Input Voltage     | 24 to 110 VDC    |
| Power Consumption | 40.8 W (max.)    |

## Physical Characteristics

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| Housing                   | Aluminum                                                  |
| IP Rating                 | IP30                                                      |
| Dimensions (without ears) | 150 x 120 x 70 mm (5.91 x 4.73 x 2.95 in)                 |
| Weight                    | 1680 g (3.70 lb)                                          |
| Installation              | Wall mounting (default), DIN-rail mounting, desk mounting |
| Protection                | PCB conformal coating                                     |

## 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

|                         |                                                                                                                                                                                                                                            |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC                     | EN 55032/35                                                                                                                                                                                                                                |
| EMI                     | CISPR 32, FCC Part 15B Class A                                                                                                                                                                                                             |
| EMS                     | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF |
| Railway                 | EN 50155<br>EN 50121-4<br>EN 50121-3-2                                                                                                                                                                                                     |
| Railway Fire Protection | EN 45545-2                                                                                                                                                                                                                                 |
| Safety                  | EN 62368-1<br>IEC 62368-1<br>UL 62368-1                                                                                                                                                                                                    |
| Shock                   | IEC 60068-2-27<br>IEC 61373<br>EN 50155                                                                                                                                                                                                    |
| Vibration               | IEC 60068-2-64<br>IEC 61373<br>EN 50155                                                                                                                                                                                                    |

## Declaration

|               |                   |
|---------------|-------------------|
| Green Product | RoHS, CRoHS, WEEE |
|---------------|-------------------|

## MTBF

|           |                          |
|-----------|--------------------------|
| Time      | 1,318,292 hrs            |
| Standards | Telcordia (Bellcore), GB |

## Warranty

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

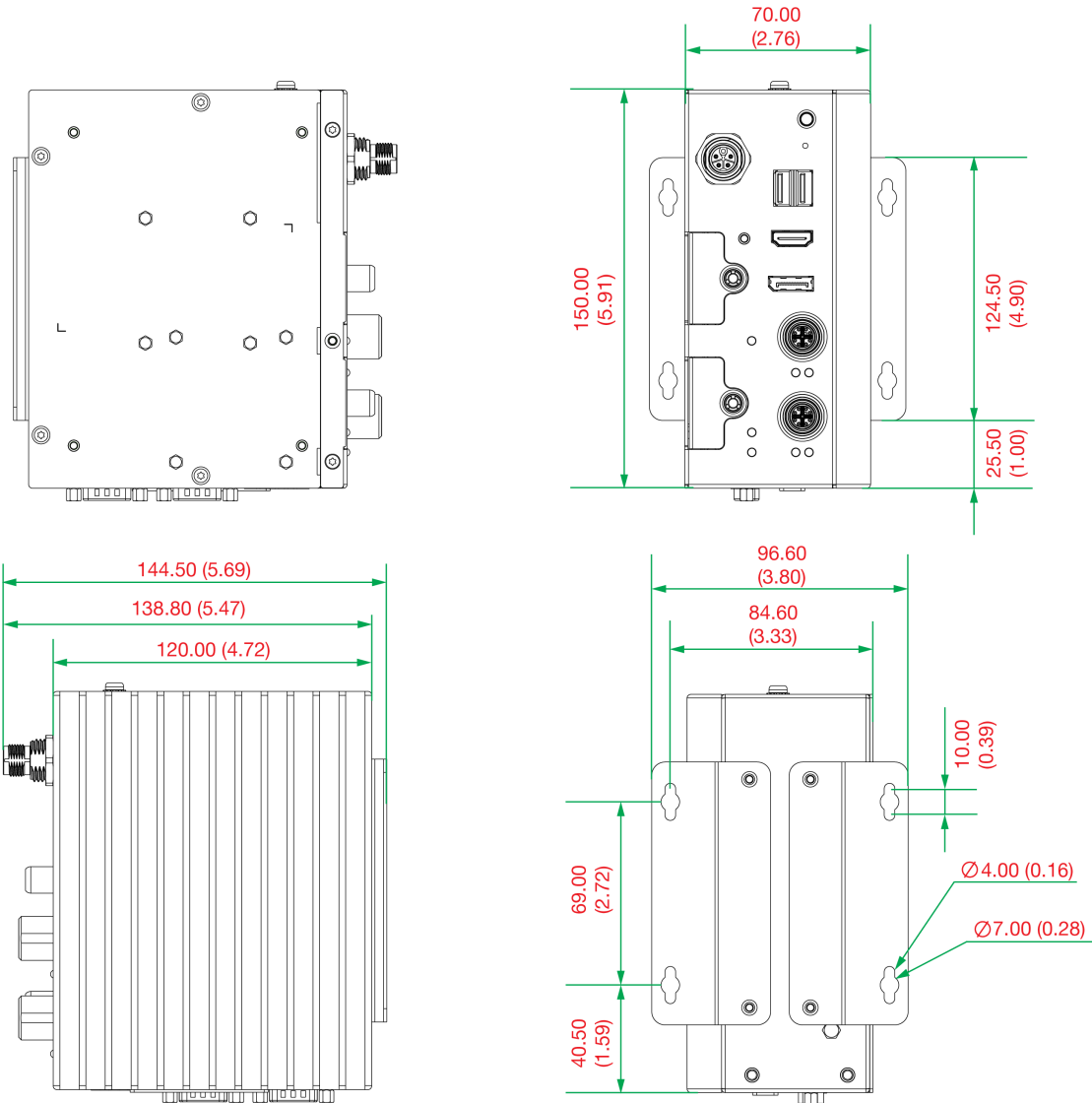
## Package Contents

|                  |                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Device           | 1 x V2200D Series computer                                                                                                     |
| Installation Kit | 1 x wall-mounting kit<br>2 x keys (to lock the external M.2 M-key slot trays)<br>1 x HDMI cable clamp (with 1 M3 x 5 mm screw) |
| Documentation    | 1 x quick installation guide<br>1 x warranty card                                                                              |

## Dimensions

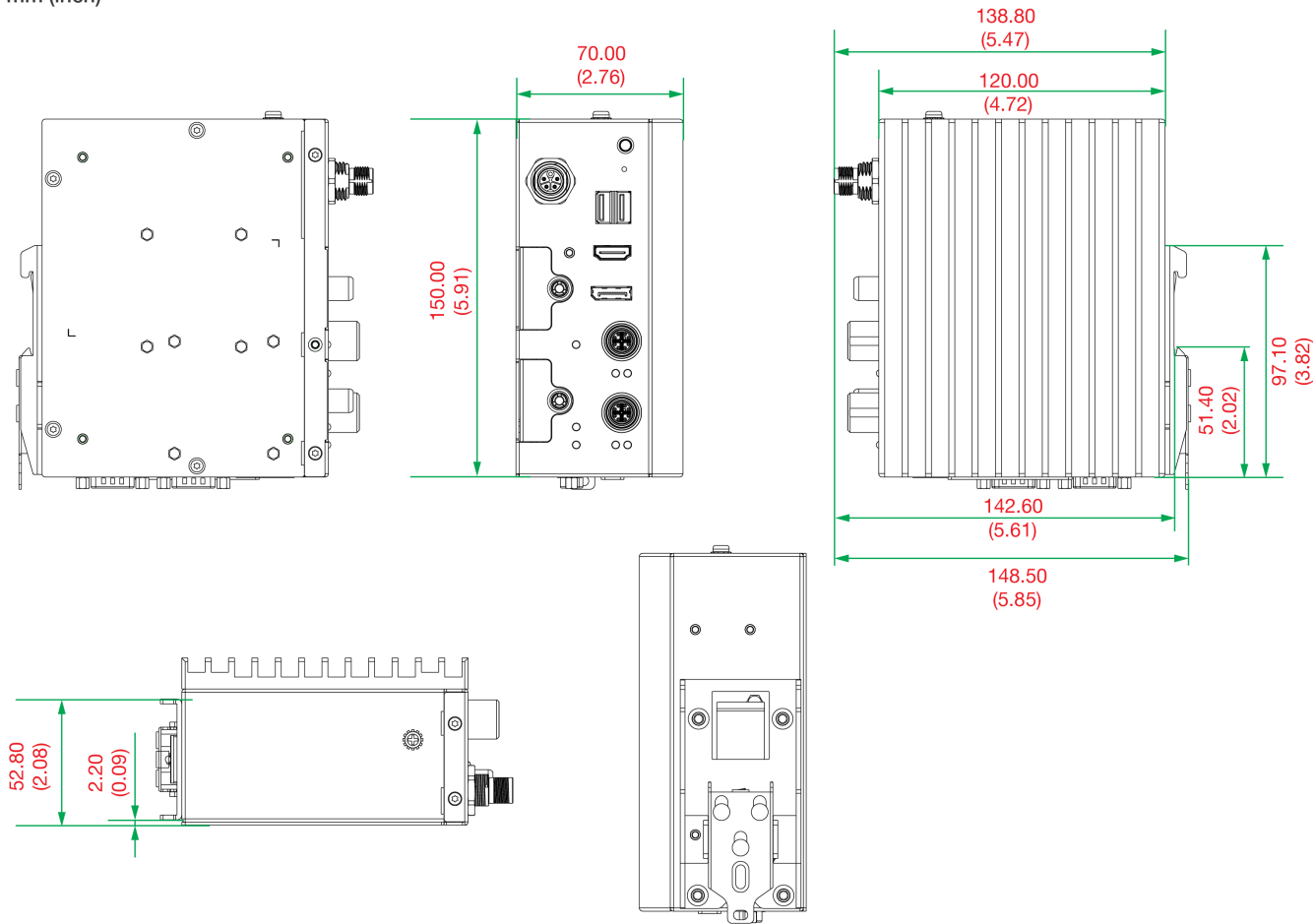
### Wall-mount Models

Unit: mm (inch)



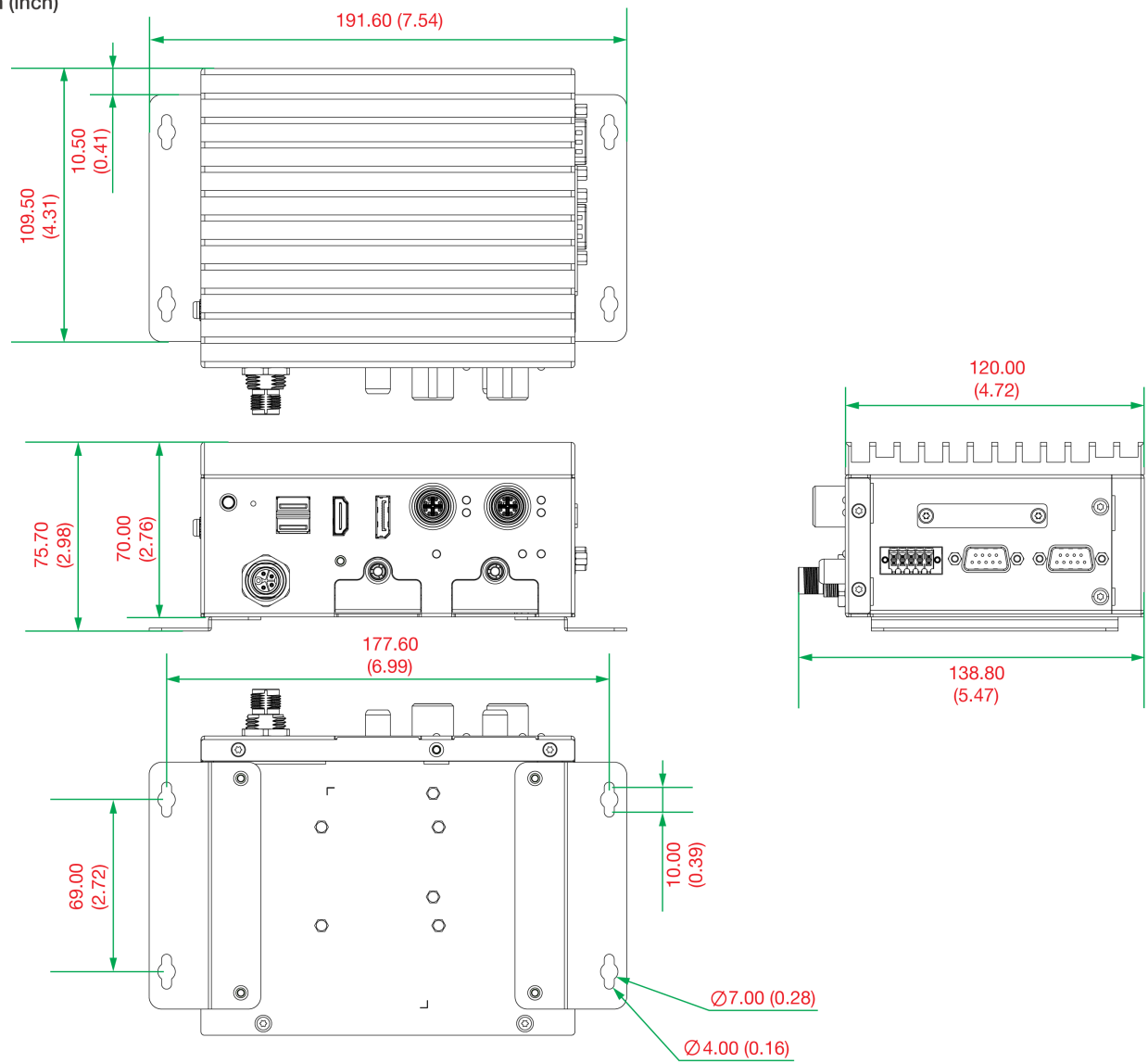
DIN-rail Mount Models

Unit: mm (inch)



Desk-mount Models

Unit: mm (inch)



Ordering Information

| Model Name      | CPU                 | Memory                  | M.2 2280 M-key External Storage | M.2 2242 M-key Internal Storage | GbE Ports | Serial     | USB 3.0 | Power Input   | Operating Temp. |
|-----------------|---------------------|-------------------------|---------------------------------|---------------------------------|-----------|------------|---------|---------------|-----------------|
| V2202D-AL4-CT-T | Intel Atom® x7433RE | 1 DDR4 8 GB (32 GB max) | 2 (optional)                    | 1 (128 G, preinstalled)         | 2         | 2 (3-in-1) | 2       | 24 to 110 VDC | -40 to 70°C     |

Accessories (sold separately)

Cables

|                             |                                                                              |
|-----------------------------|------------------------------------------------------------------------------|
| CBL-M12KFF5POPEN-O-150-IP67 | K-coded female M12-to-5-pin open wire power cable, orange, IP67-rated, 1.5 m |
| CBL-M12XMM8P-Y-300-IP67     | X-coded male M12-to-8-pin open wire cable, yellow, IP67-rated, 3 m           |
| CBL-M12XMM8P-Y-100-IP67     | X-coded male M12-to-8-pin open wire cable, yellow, IP67-rated, 1 m           |
| CBL-M12XMM8PRJ45-Y-200-IP67 | X-coded male M12-to-RJ45 Ethernet cable, yellow, IP67-rated, 2 m             |

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