

VM-1220 Series Quick Installation Guide

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Technical Support Contact Information
www.moxa.com/support



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P/N: 1802012203010



Overview

The VM-1220 Series is an all-in-one controller with various I/O interfaces. This controller comes with 4 serial ports, 4 10/100 Mbps Ethernet ports, 2 CAN ports, 16 DIs, 4 DOs, and 4 DIOs.

Package Checklist

Before installing the VM-1220 Series, verify that the package contains the following items:

- VM-1220 Series controller
- Screws for Mini PCIe module x 2
- Console cable
- Wall-mount kit
- Quick installation guide (printed)
- Warranty card



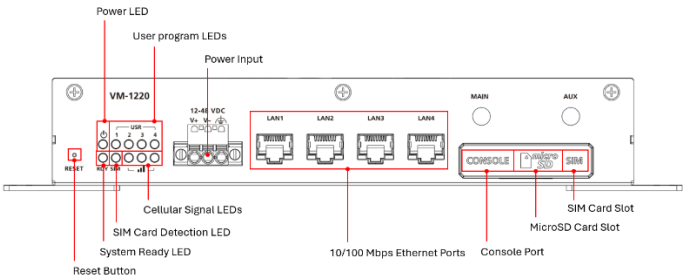
IMPORTANT!

Notify your sales representative if any of the above items are missing or damaged.

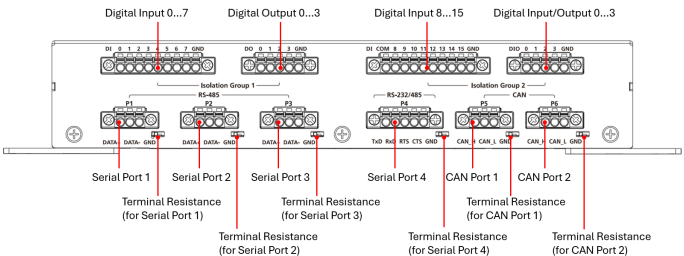
Panel Layout

See the panel layouts of the VM-1220 models below.

Front Panel View



Back Panel View



LED Indicator

LED Name	LED Status		Function
PWR	Green	Steady on	Power is on
		Off	Power is off
RDY	Green	Steady on	Device has booted (all system services initialized).
		Blinking	Device is booting up
	Red	Steady on	Device boot failure, meaning any of the system services cannot initialize
		Off	The device is still in the bootloader stage, and has not booted into the kernel yet
SIM	Green	Steady on	SIM card is inserted and functional
	Off	-	SIM not detected
Cellular signal	Green	Steady on	The number of glowing LEDs indicates the signal strength. 3: Excellent 2: Good 1: Poor
		Blinking	1: Very poor
	Off	Off	All 3 LED off: LTE disconnected
USR 1 to 4	Green	Steady on/ Blinking/Off	User programmable

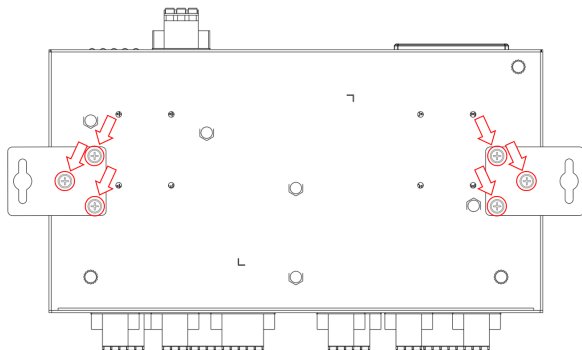
Installing the VM-1220 Series

Wall Mounting

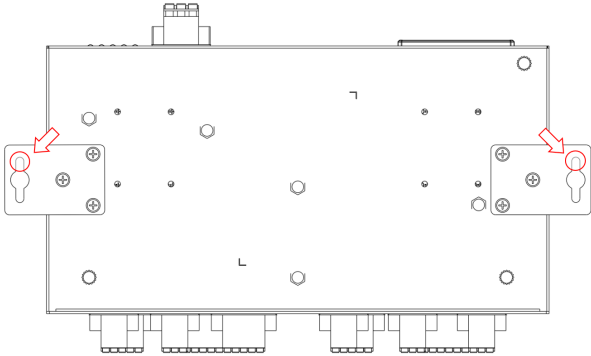
Mount the VM-1220 Series on a wall using a wall-mounting kit. The wall-mounting kit contains 2 plates (43 x 30 mm) and 6 screws (FMS M3 x 4 mm).

Follow these steps to mount the computer on to a wall:

Step 1 Use six screws to fasten the wall-mounting kits on the computer.



Step 2 Use other screws to mount the computer on a wall or in a cabinet.



IMPORTANT!

To firmly install the computer on the wall, the diameter of the screw heads must be greater than 5.25 mm and less than 7 mm; the diameter of the shafts must be 3 mm. The length of the screws must be greater than 7 mm.

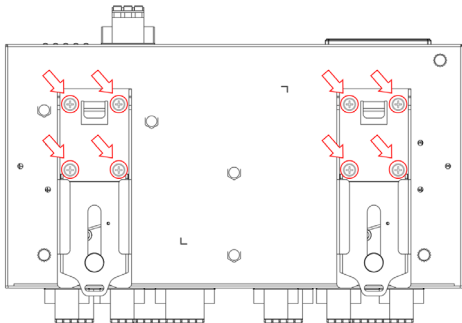
- NOTE**
- Test the screw head and shank size by inserting the screws into one of the keyhole shaped apertures of the wall-mounting plates before attaching the plate to the wall.
 - Do not drive the screws in all the way—leave a space of about 2 mm to allow room for sliding the wall mount panel between the wall and the screws.

DIN-rail Mounting (optional)

The VM-1200 Series has a DIN-rail kit option to allow installation on a DIN rail. You can purchase separate DIN-rail attachments to mount the product on a DIN rail. The DIN-rail kit contains 2 plates (100 x 35 mm) and 8 screws (FMS M3 x 4 mm).

Follow these steps to mount the VM-1220-T on to a DIN rail:

Step 1 Use eight screws to fasten the DIN-rail kits on the computer with tightening torque: 4.5 kgf-cm +/- 0.5, screw type: type F, PH2.



Step 2 Insert the upper lip of the DIN-rail kit into the mounting rail.



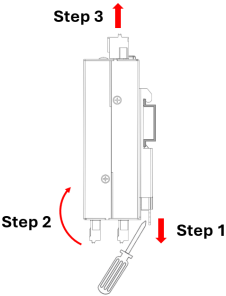
Step 3 Press the VM-1220 product towards the mounting rail until it snaps into place.



To remove the VM-1220 from the DIN rail, do:

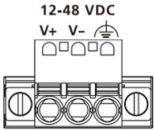
Step 1 Pull down the latch on the DIN-rail kit with a screwdriver.

Step 2&3 Slightly pull the VM-1220 forward and lift it up to remove it from the mounting rail.



Connector Description

Power Connector



Connect the DC power to the terminal block of the VM-1220 Series. It takes about 30 seconds for the system to boot up. Once the system is ready, the Power LED will light up.

Use wires with 12 to 26 AWG (3.31 to 0.129 mm²) to connect to V+, V-, and GND. The wire size of the power input and the earthing conductor must be the same. The wiring for the input terminal block should be installed by a skilled person. The wire type should be copper (Cu).



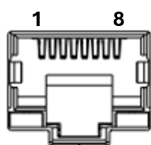
WARNING

- This product is intended to be supplied by a UL Listed power adapter or DC power source, which output meets SELV/LPS. A power source rated 12 to 48 VDC, with a minimum of 1 A and a Tma of at least 75°C, is required.
- Connect the power adapter to a socket outlet with an earthing connection.

If you need further information or help, contact a Moxa representative.

Ethernet Ports

The two 10/100 Mbps Ethernet ports (LAN 1 to LAN 4) use RJ45 connectors.

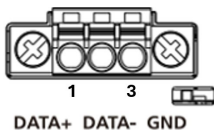


Pin	10/100 Mbps
1	Tx+
2	Tx-
3	Rx+
4	-
5	-
6	Rx-
7	-
8	-

Serial Ports

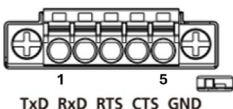
The four serial ports (P1 to P4) use a terminal block. P1 to P3 support RS-485 2-wire, the P4 can be assigned to RS-232 or RS-485 2-wire by software settings. The pin definition is shown in the following table:

P1-P3



Pin	RS-485
1	DATA+
2	DATA-
3	GND

P4



Pin	RS-232	RS-485
1	TxD	-
2	RxD	-
3	RTS	DATA+
4	CTS	DATA-
5	GND	GND

There is a slide switch for each serial port at the right-bottom corner of the terminal block for the 120-ohm terminal resistance setting.

The definition is as follows:



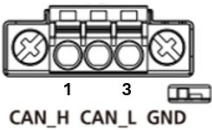
Open (default)



120 ohm

CAN Ports

The two CAN ports (P5 to P6) use terminal blocks. The pin definition refers to the figure below:



Pin	Definition
1	CAN_H
2	CAN_L
3	GND

There is a slide switch for each serial port at the right-bottom corner of the terminal block for the 120-ohm terminal resistance setting.

The definition is as follows:



Open (default)

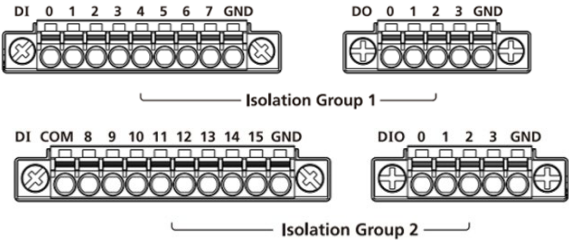


120 ohm

Digital Inputs and Outputs

The VM-1220 Series features 16 DIs, 4 DOs, and 4 DIOs using terminal blocks. The DIO 0...3 can be configured to either digital input or digital output via software settings.

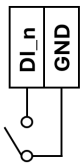
For the pin definition and the wiring diagram, refer to the figure below:



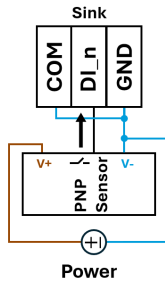
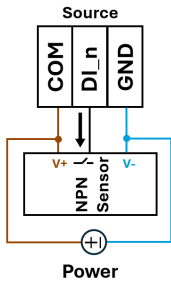
I/O	Support I/O Type
DI 0...7	DI dry contact
DO 0...3	DO (Sink)
DI 8...15	DI dry or wet contact (sink or source)
DIO 0...3	DI mode: DI dry DO mode: DO (Sink)

I/O Wiring

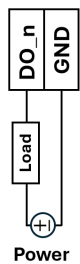
DI Dry Contact



DI Wet Contact



DO (Sink)



microSD Card Sockets

The VM-1220 Series comes with a microSD socket for storage expansion. The microSD socket is in the rubber cover on the front panel. To install the card, remove the rubber cover to access the socket, and then insert the microSD card into the socket directly. You will hear a click when the card is in place. To remove the card, push the card in before releasing it.



Console Port

The console port is an RS-232 port in the rubber cover and can be connected to a 4-pin header cable. Use this port for debugging or firmware upgrade.

1 2 3 4	Pin	Signal
	1	TxD
	2	RxD
	3	NC
	4	GND

Real-time Clock

The real-time clock in the VM-1220 Series is powered by a lithium battery. We strongly recommend that you do not replace the lithium battery without the help of a Moxa support engineer. If you need to change the battery, contact the Moxa RMA service team.



WARNING

To reduce the risk of fire or burns, do not disassemble, crush, or puncture the battery; do not dispose of it in fire or water and do not short external contacts.

Accessing the VM-1220 Series Using a PC

Use a PC to access the VM-1220 Series by one of the following methods:

- A. Through the serial console port with the following settings:

Baudrate=115200 bps, **Parity**=None, **Data bits**=8, **Stop bits**=1, **Flow Control**=None



ATTENTION

Remember to choose the "VT100" terminal type. Use the console cable to connect a PC to the VM-1220 Series' serial console port.

- B. Using SSH over the network.

Refer to the following IP addresses and login information:

	Default IP Address	Netmask
LAN 1	DHCP	-
LAN 2	192.168.4.127	255.255.255.0
LAN 3	192.168.5.127	255.255.255.0
LAN 4	192.168.6.127	255.255.255.0

Login: moxa

Password: moxa