MxNVR-MO4 Series
Quick Installation Guide

Sub-heading to Main Title

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P/N: 5555555555555

Overview

The MxNVR-MO4 is a network DVR (digital video recorder), which can transmit and record dual H.264 or MJPEG video streams simultaneously. With a rugged design that meets EN50155 criteria for power characteristics, EMC, vibration, shock, and operating temperature (T model, TX temperature level), the MxNVR-MO4 excels in rolling stock IP video surveillance applications. Moreover, the MxNVR-MO4 passed EN61373 standard anti-vibration tests with a 2.5-inch hard disk (purchased separately), delivering highly reliable storage performance for rolling stock applications. The MxNVR-MO4 can be triggered to begin recording by system boot, by event, by schedule, or by external commands, such as CGI or SNMP. The embedded DyanStream™ technology increases the network transmission efficiency by dynamically adjusting the video frame rate. To prevent unauthorized access advanced 802.1X authentication is included for high network security. The MxNVR-MO4 also supports the OnVIF standard to be easily integrated and interoperated with 3-party systems and software.

Package Checklist

The MxNVR-MO4 ships with the following items:

- MxNVR-MO4.
- Panel mounting kit and 6 screws
- 4 hard disk screws
- Quick installation guide.
- Documentation & Software CD
- Warranty card.

Note: If any of these items are missing or damaged, please contact your customer service representative for assistance.

NOTE This product must be installed in compliance with your local laws and regulations.

NOTE The 2.5-inch hard disk or SSD (solid state disk) are not included in the standard package. The user must purchase the storage disk through a disk vendor.

NOTE For 35mm DIN-Railing mounting, a DK-DC50131 DIN-Rail mounting kit, sold separately, is required.

Features

High Performance Audio-Video Networking Solution

- Compatible with NTSC/PAL analog video cameras
- H.264 and MJPEG video compression standards
- Dual simultaneous video streams (1 H.264 and 1 MJPEG)
- Lower latency, under 200 ms
- 4 BNC video inputs

  Single video stream up to 30 frames/sec in Full D1 (720 x 480) resolution in NTSC, and 25 frames/ sec in Full D1 (720 x 576) resolution in PAL (When both H.264 and MJPEG video streams are

transmitted, the total frames/second of these 2 streams for each channel are 30.)

- Select between Full D1/ 4CIF/ VGA/ CIF/ QCIF resolutions
- 2 audio inputs with line-in or microphone-in supported for complete video/audio surveillance
- TCP, UDP, and HTTP network transmission modes
- Standard RTSP (Real-time streaming protocol) for easy integration
- DynaStream™ for automatic frame rate adjustment to control IP video traffic
- Multicast (IGMP) protocols for efficient network transmission
- QoS (TOS) for priority transmission
- SNMP V1/V2c/V3 for network management
- Supports Modbus/TCP for easy SCADA communication
- Built-in web server and RS-232 console for remote access and configuration
- One auto-sensing 10/100BaseT(X) or 100BaseFX (M12 connector) Ethernet port
- 8 output video streams and 8 client connections
- 50 multicast clients for receiving multicast video streams
- Multicast push for all the clients
- Video quality in CBR (constant bit rate) or VBR (variable bit rate)
- UPnP and IP filtering
- OnVIF supported for standardization and interoperability

Easy-to-use Video/Audio Recording Functions

- Recording modes: Continuous, schedule, event, and external commands
- Recording capability: Total 120 frames/ seconds H.264 or 60 frames/second for 4-channel videos
- Disconnected recording can be retrieved once the power input is recovered.
- Recorded video can be downloaded via FTP. Users don't need to remove the hard disk.
- Records videos in AVI format (compatible with popular media players)
- Alarm notification for recording failure

Rugged Industrial Design

- High reliability with embedded system design, no heater and fan, and low power consumption
- -40 to 75°C operating temperature for harsh industrial environments ("T" models) (Solid State Disk required)
- Anti-vibration with M12 connectors for Ethernet and power input, DB9 connectors for audio inputs and DI/DO
- Panel mounting or 35mm DIN-rail mounting (with mounting kits)
- Compliant with relative EN 50155 sections in power, EMC, vibration, shock, and Class TX temperature (T model)
- Passed the EN50155 vibration test (EN 61373) with a general 2.5-inch hard disk (purchased separately)
- CE, FCC, and UL60950-1

Intelligent Alarm Trigger Capability

- Supports system alarms, including network link
- Supports event alarms, including video motion detection (VMD), video loss, digital input, and CGI event
- Equipped with 4 DIs and 1 relays (DO) for external sensors and alarms.
- Pre, trigger, and post alarm snapshot images provided.
- 16 MB video buffer for JPEG snapshot images
- Supports sequential snapshot images
- Messages with snapshot images can be sent via FTP and email.
- Capable of setting an alarm schedule

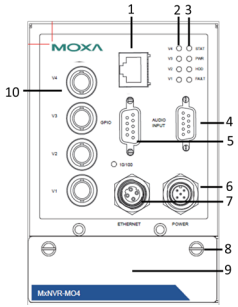
Video Management and Control

- Free Moxa VPort SDK Plus (software development kits) supported with flexible interface and sample codes for customized application or system integration.

NOTE If you are interested in the VPort SDK PLUS, visit Moxa's website (www.moxa.com) to download the software, or contact a Moxa sales representative for more information.

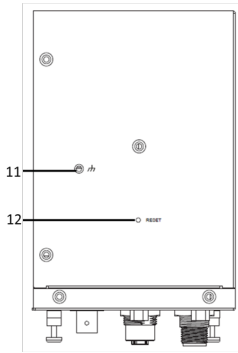
MxNVR-MO4 Panel Layout

Front View

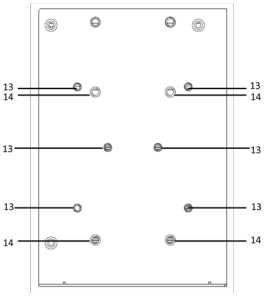


1. RS-232 console port
2. LEDs for V1 to V4
3. LEDs for STAT, PWR, HDD, and FAULT
4. DB9 male connector for 2 audio inputs (line-in port)
5. DB9 male connector for 4 digital inputs and 1 relay output
6. 5-pin M12 A-code connector for one 12/24VDC power input
7. 4-pin M12 D-code connector for 10/100 Mbps Ethernet connector
8. 2 thumbscrews for loosening and pulling out the HDD tray
9. HDD (Hard disk) tray
10. 4 BNC connector for V1 to V4 video inputs
11. Ground screw
12. Hard reset button
13. Screw hole for wall mounting
14. Screw hole for DIN-Rail mounting

Top View



Back View



First-Time Installation and Configuration

Before installing the MxNVR-MO4, check to make sure that all the items in the package checklist are in the box. In addition, you will need access to a notebook computer or PC equipped with an Ethernet port.

Attention

The MxNVR-MO4 series are high-performance video recorders designed to perform without a cooling fan. Therefore, it is recommended that each MxNVR-MO4 be installed with at least a 5mm clearance on all surfaces for effective heat-dissipation.

Warning

- This equipment is intended to be used in a Restricted Access Location, such as a cabinet or a dedicated computer room. Access should only be allowed to SERVICE PERSONS or USERS who have been instructed on proper handling of the device's metal chassis, which becomes extremely hot. Further, access should be restricted through the use of a key or secure identity system, to ensure only qualified personnel have access to the restricted access location.
- External metal parts are hot!! Before touching it, special attention or protection is necessary.

Step 1: Select the Power Source
The MxNVR-MO4 can be powered by a DC power input from 12 to 32 VDC. One A-code 5-pin M12 connector power input is provided. Users can check the LED status located in the front panel to see if the power input is connected appropriately.

NOTE The MxNVR-MO4 series supports power input specifications of 12-32 VDC for 12/24 VDC power input (note that this is different from Moxa EDS switch's 12-45 VDC power input).

Step 2: Connect the MxNVR-MO4 to a Network
The MxNVR-MO4 has one auto-sensing 10/100 Mbps Ethernet port in 4-pin M12 D-code connector. A 10/100 LED indicator located on the top of it indicates a 10 Mbps or 100 Mbps Ethernet connection.

Step 3: Connect the MxNVR-MO4 to cameras and an audio source
The MxNVR-MO4 has four VIDEO INPUT ports (V1, V2, V3, and V4). Use the BNC connector (1.0 Vpp, 75Ω) and coaxial cable to connect video cameras to the VPort to input analog video signals.

The MxNVR-MO4 has 2 line-in audio inputs, DB9 male connector. An amplifier can be plugged directly into the AUDIO INPUT port.

NOTE The four LEDs (V1, V2, V3, and V4) located on the MxNVR-MO4's front panel indicate the video signal transmission status for video inputs. You may refer to these LEDs to verify video signal status.

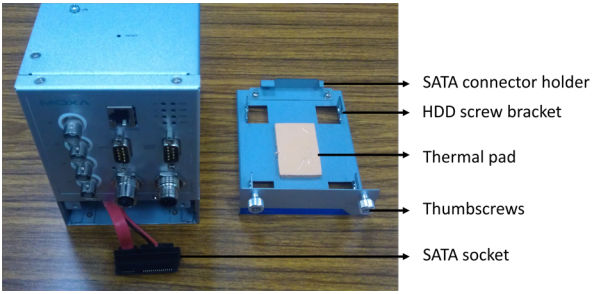
ATTENTION

A ground loop isolator is recommended to be used between the camera and the MxNVR-MO4 to avoid a sudden current that burns out the VPort's chips and boards, generated by the electric potential difference between these two device's ground power.

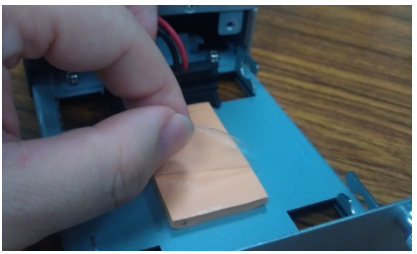
Step 4: Install the 2.5" HDD (hard disk) or SSD (solid state disk)
The MxNVR-MO4 has a HDD tray located in the bottom. There are few steps to install the HDD or SSD.

NOTE It is recommended to remove the power input installing the hard disk.

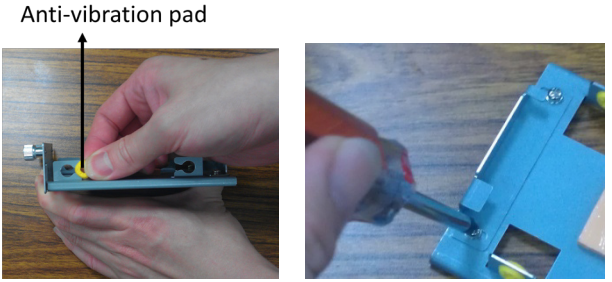
a. Loosen the 2 thumbscrews and use them to pull out the HDD tray.

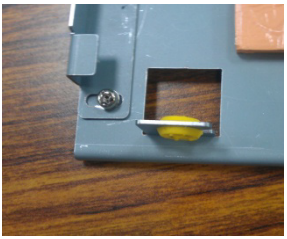


b. Remove the protective membrane of the thermal pad located on the top of the HDD tray.



c. Install the 4 yellow anti-vibration pads into the 4 HDD screw brackets, and loosen the 2 screws of SATA connector holder





d. Connect the 2.5-inch HDD or SSD with the SATA socket, and then screw the 4 HDD screws on it with the HDD tray.

e. Remove the protective membrane of the thermal pad located on the bottom of HDD tray.

f. Push the HDD tray back to MxNVR-MO4, and then fix the 2 thumbscrews to complete the installation.

NOTE When push the HDD tray back to MxNVR-MO4, please be careful not to damage the SATA cable.

NOTE The MxNVR-MO4 is designed for high-vibration environments. For best results when using a normal 2.5 inch hard disk, we recommend the Toshiba MK series 2.5-inch hard disk. The 2.5-inch hard disk used in the MxNVR-MO4 to pass the vibration criteria of EN/IEC 61373 was the Toshiba MK1059GSM (1 TB).

NOTE For using MxNVR-MO4-T in -40 to -75°C environments, a SSD (solid state disk) with -40 to 75°C operating temperature capability is required. The SSD installed in the MxNVR-MO4 used to pass the -40 to 75°C operating temperature tests was an Intel SSD.

Step 5: Configure the MxNVR-MO4's IP address

After powering on the MxNVR-MO4, wait a few seconds for the POST (Power On Self Test) to run. The STAT LED turns green to indicate that the POST process has completed. The IP address will be assigned when the 10/100 Mbps NETWORK LED blinks. The IP address assigned after the POST is completed depends on the network environment.

Network Environment with DHCP Server

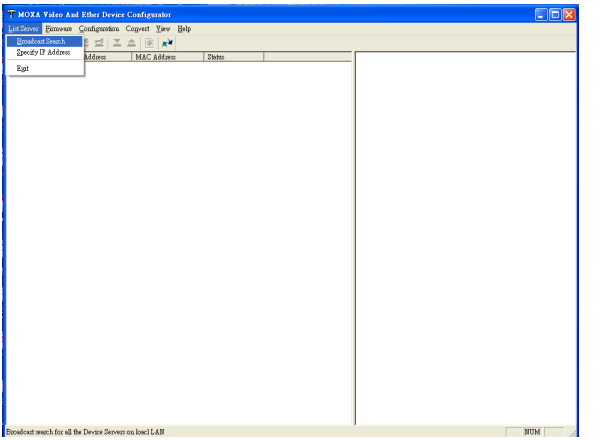
In this case, the IP address of the MxNVR-MO4 is assigned by a DHCP Server. Use the DHCP Server's IP address table, or use the Moxa utility to determine the IP address that was assigned by the DHCP Server.

NOTE After powering on the MxNVR-MO4, wait a few seconds for the POST (Power On Self Test) to run. The IP address will be assigned when the 10/100 Mbps NETWORK LED blinks.

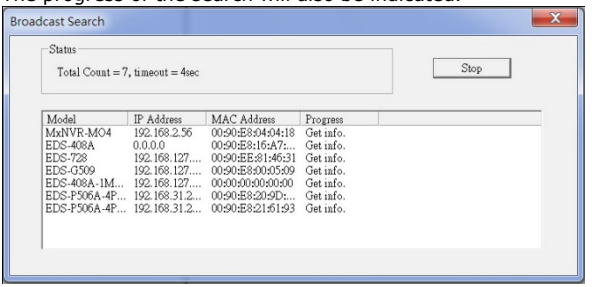
Using the Moxa VPort and EtherDevice Configurator Utility (edscfgui.exe)

1. Run the edscfgui.exe program to search for the VPort IP video products and EDS switches. After the Utility window opens, select or click on **Broadcast Search**, which is located under the **List Server** menu, to initiate a search (note that you can also click on the **Broadcast Search**  icon to initiate a search).

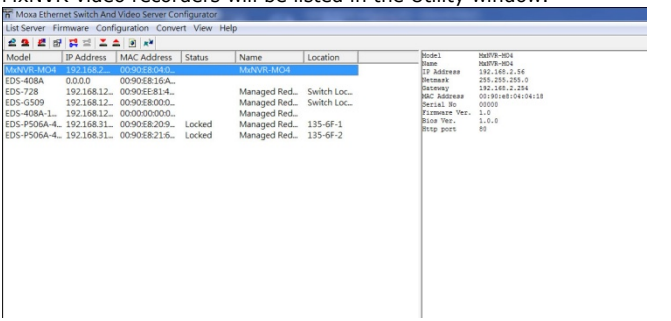
NOTE You may download the VPort and EtherDevice Configurator software from Moxa's website at www.moxa.com.



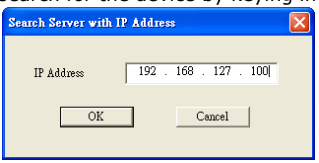
2. The Broadcast Search window will show a list of all switches. video servers, IP cameras, and video recorders located on the network. The progress of the search will also be indicated.



3. When the search has ended, the Model Name, MAC address, and IP address of the EDS switches, VPort IP cameras/video servers, and MxNVR video recorders will be listed in the Utility window.



NOTE Broadcast Search can only search for devices connected to the same LAN subnet as the VPort. If your devices are located on a different LAN subnet, use the **Specify IP Address** function to search for the device by keying in the IP address.



4. Double click the selected VPort, or use Internet Explorer to access the VPort's web-based manager (web console).

Network Environment without a DHCP Server

If your MxNVR-MO4 is connected to a network that does not have a DHCP server, then you will need to configure the IP address manually. The default IP address of the MxNVR-MO4 is **192.168.127.100** and the default subnet mask is 255.255.255.0. Note that you may need to change your computer's IP address and subnet mask so that the computer is on the same subnet as the MxNVR .

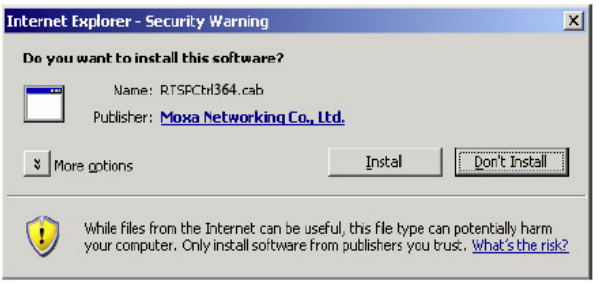
To change the IP address of the MxNVR manually, access the MxNVR's web server, and then navigate to the **System Configuration → Network → General** page to configure the IP address and other network settings. Select the **Use fixed IP address** checkbox to ensure that the IP address you assign is not deleted each time the MxNVR is restarted.

Step 6: Log on to the MxNVR-MO4 web-based manager (web console)

Type the IP address in the web browser's address input box and then press enter.

Step 7: Install the ActiveX Control Plug-in

A security warning message will appear the first time you access the MxNVR-MO4's web-based manager. The message is related to installing the VPort ActiveX Control component to your PC or notebook. Click on Yes to install this plug-in to enable the ability to view video in the IE web browser.



NOTE For Windows XP SP2 or later operating systems, the ActiveX Control component will be blocked for system security reasons. In this case, the VPort's security warning message window may not appear. Users should unblock the ActiveX control function or disable the security configuration to enable the installation of VPort's ActiveX Control component.

Step 8: Accessing the homepage of the MxNVR-MO4's web-based manager

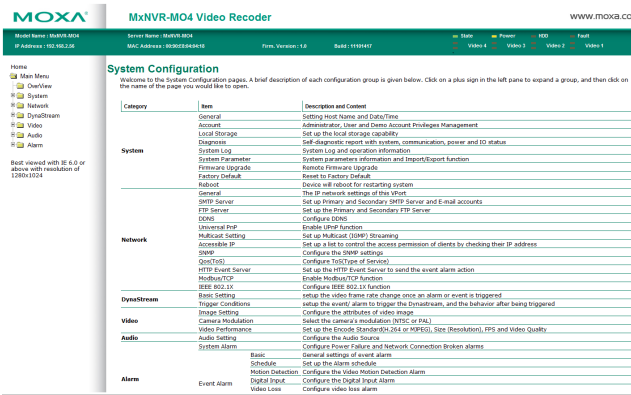
After installing the ActiveX Control component, the homepage of the MxNVR-MO4's web-based manager will appear. Check the following items to make sure the system was installed properly:

1. Video images
2. Audio (make sure your PC or notebook's sound is turned on)
3. Video information

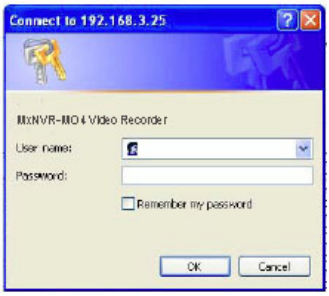
Step 9: Accessing the MxNVR's System Configuration

Click on System Configuration to access the overview of the system configuration to change the configuration. Model Name, Server Name, IP Address, MAC Address, Firmware Version, and LED Status appear in the green bar near the top of the page. Use this information to check the system information and installation.

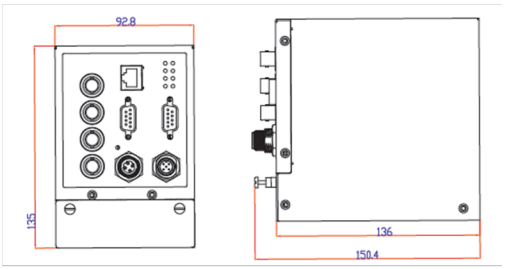
For details of each configuration, check the User's Manual on the software CD.



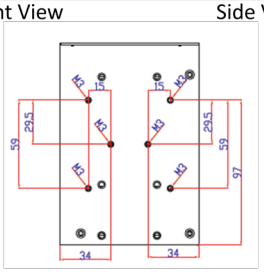
NOTE After accessing the MxNVR-MO4's web-based manager, administrators should access System configuration > System > Account to set up the administrator's password and enable the authentication function. The administrator account name is admin. An authentication window will pop up requesting the account name and password each time the MxNVR-MO4 is accessed.



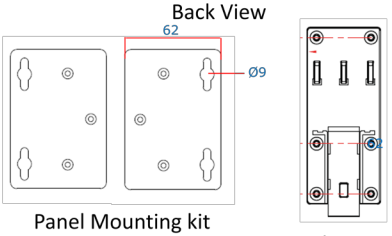
Mounting Dimensions (unit = mm)



Front View Side View



Back View

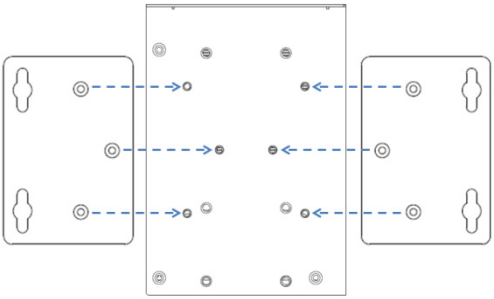


Panel Mounting kit DIN-Rail Mounting kit

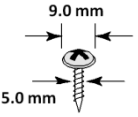
Panel Mounting

For some applications, you will find it convenient to mount the MxNVR-MO4 on a wall, as illustrated below.

STEP 1:
Attach the panel mount plates, as shown in the diagrams below.

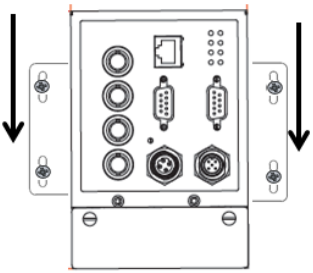


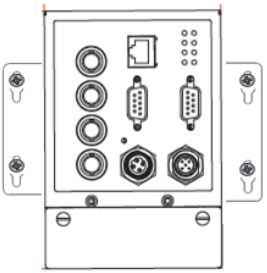
STEP 2:
Mounting MxNVR-MO4 on the wall requires 4 screws. Use the MxNVR-MO4, with panel mount plates attached, as a guide to mark the correct locations of the 4 screws. The heads of the screws should be less than 9.0 mm in diameter, and the shafts should be less than 5.0 mm in diameter, as shown in the figure at the right.
Do not screw 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.



NOTE Test the screw head and shank size by inserting the screw into one of the keyhole shaped apertures of the wall mounting plates, before it is screwed into the wall.

STEP 3:
Once the screws are fixed in the wall, insert the four screw heads through the large parts of the keyhole-shaped apertures, and then slide the MxNVR-MO4 downwards, as indicated below. Tighten the four screws for added stability.

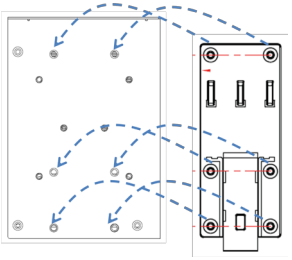




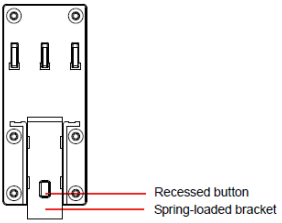
DIN-Rail Mounting (Optional)

You can mount the MxNVR-MO4 on a 35 mm DIN-Rail with the optional DK-DC50131 DIN-Rail mounting kit (must be purchased separately).

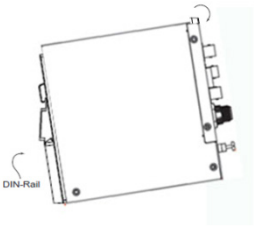
STEP 1:
Use 6 screws to attach the DIN-Rail attachment plates to the rear panel of the MxNVR.



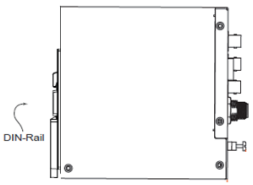
STEP 2:
If the spring-loaded bracket is locked in place, push the recessed button to release it. Once released, you should feel some resistance from the spring as you slide the bracket up and down a few millimeters in each direction.

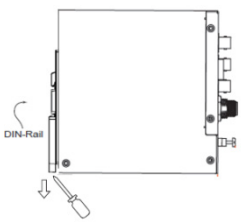


STEP 3:
Position the MxNVR on the DIN-Rail, tilting the switch to hook the clamps over the top edge of the rail.



STEP 4:
Swing the switch into a vertical position until both clamps latch completely to the DIN-Rail,.





To remove the MxNVR-MO4 from the DIN-Rail, use a screwdriver to pull out the two spring-loaded brackets from the bottom until they are fixed in the "locked" position. Next, reverse Steps 3 and 4 above.

Wiring Requirements

WARNING

Safety First!

Be sure to disconnect the power cord before installing and/or wiring your Moxa MxNVR-MO4.

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum allowable current for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

You should also pay attention to the following items:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

NOTE Do not run signal or communications wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separated.
- It is strongly advised that you label wiring to all devices in the system.

Grounding the Moxa MxNVR-MO4

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

ATTENTION

This product is intended to be mounted to a well-grounded mounting surface, such as a metal panel.

Wiring the Power Input

The MxNVR-MO4 has one power input, which is located on the 5-pin M12 A-code connectors. Below is its pin assignment.

Configuration:05 Pins
System: Connector(M)
Mating Cable :Socket (F)
Code : A-polarization

PIN	Definition
1	V+
2	--
3	V-
4	--
5	GND

STEP 1: Plug your power cord connector to the power input port of the MxNVR
STEP 2: Screw the nut on your power cord connector to the power input connector on the MxNVR to ensure a tight connection.

ATTENTION

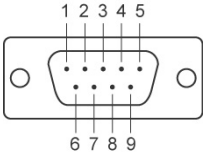
The power for this product is intended to be supplied by a Listed Power Unit, with output marked LPS, and rated to deliver 12 to 32 VDC with the maximum power consumption is 11W (include the 2.5" Hard disk).

ATTENTION

Before connecting the VPort to the DC power inputs, make sure the DC power source voltage is stable.

Wiring the Digital Input / Relay Output

The MxNVR-MO4 has four digital inputs and one relay output, which is located on the GPIO port with 9-pin DB9 male connectors.



PIN	Definition
1	DI1
2	GND
3	DI3
4	NC
5	NO
6	DI2
7	GND
8	DI4
9	C

The MxNVR-MO4 has four sets of digital input, DI1, DI2, DI3 and DI4. Each DI consists of two contacts of the 9-pin DB9 connector: DI (positive wire) and GND (negative wire). These 4 digital inputs can connect with the external sensor or device as the alarms.

ATTENTION

The current and power capacity of the digital input is:

- Max. 8 mA
- High: +13 V to +30 V
- Low: -30 V to +3 V

The MxNVR-MO4 has one relay output with3 contacts: NC (Normal close), NO (Normal close) and C (Common), which can be set up for:

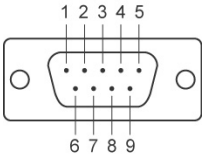
1. System alarm: Power failure and Network disconnected.
2. Event alarm: VMD (Video Motion Detection) , Video loss, Digital Inputs and CGI Event

ATTENTION

The current and power capacity of the relay output is a maximum of 24 VDC @ 1A. You should be careful not to exceed this power specification.

Wiring audio input

The MxNVR-MO4 has 2 audio line-in inputs with DB9 male connector. A pre-amplifier is required, and the audio format is Mono, G.711.



PIN	Definition	Description
1	GND	Ground
2	A1+	Audio 1 +
3	--	Not in use
4	A2+	Audio 2 +
5	GND	Ground
6	A1-	Audio 1 -
7	GND	Ground
8	GND	Ground
9	A2-	Audio 2 -

Communication Connections

MxNVR-MO4 models have one RJ45 console port (RS-232 interface), and one 10/100BaseT(X) Ethernet port with 4-pin M12 connector.

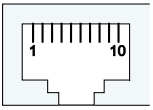
RS-232 Console Port Connection

MxNVR-MO4 has one RS-232 (10-pin RJ45) console port, located on the front panel. Use either an RJ45-to-DB9 or RJ45-to-DB25 cable (see the cable following wiring diagrams) to connect MxNVR-MO4's console port to your PC's COM port.

You may then use a console terminal program, such as the Moxa PComm Terminal Emulator, to access MxNVR-MO4's console configuration utility.

RJ45 (10-pin) Console Port Pinouts

Pin	Description
1	–
2	DSR
3	–
4	GND
5	TxD
6	RxD
7	GND
8	–
9	DTR
10	–



10/100BaseT(X) M12 Ethernet Port Connection

The 10/100BaseT(X) Ethernet connector (4-pin shielded M12 connector with D coding) located on the MxNVR-MO4's front panel is used to connect to Ethernet-enabled devices.

Most users configure these ports for Auto MDI/MDI-X mode, in which case the port's pinouts are adjusted automatically depending on the type of

Ethernet cable used (straight-through or cross-over), and the type of device (NIC-type or HUB/Switch-type) connected to the port.

The 10/100BaseT(X) port of the MxNVR-MO4 is an MDI port, which means that you should use a cross-over Ethernet cable to connect to the MDI NIC port, and a straight-through Ethernet cable to connect to the MDI-X HUB/Switch port.

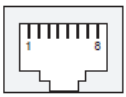
Pinouts for the 10/100BaseT(X) Ports

PIN	TX
1	TD+
2	RD+
3	TD−
4	RD−

Housing: shield

Pinouts for the RJ45 (8-pin) Port

RJ45 (8-Pin)



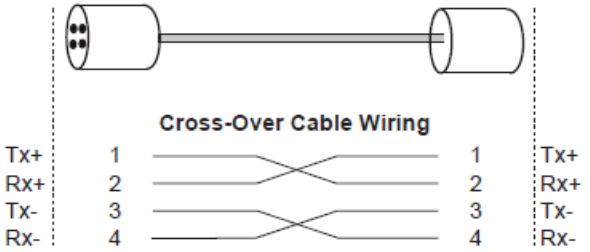
MDI Port Pinouts

Pin	Signal
1	Tx +
2	Tx -
3	Rx +
6	Rx -

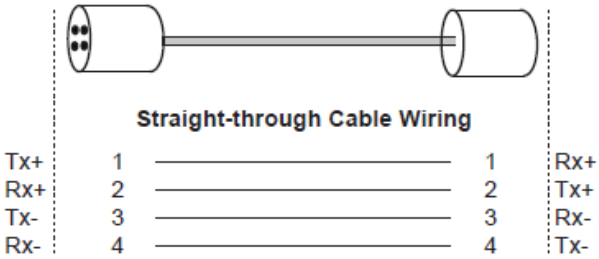
MDI-X Port Pinouts

Pin	Signal
1	Rx +
2	Rx -
3	Tx +
6	Tx -

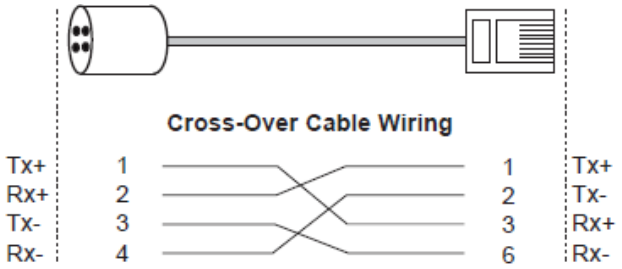
M12 (4-pin, M) to M12 (4-pin, M) Cross-Over Cable Wiring



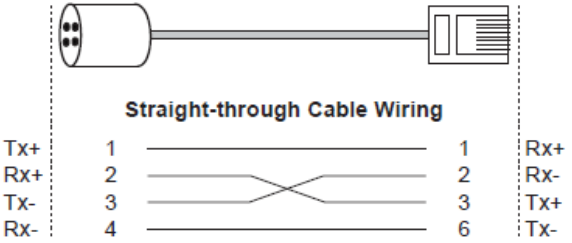
M12 (4-pin, M) to M12 (4-pin, M) Straight-Trough Cable Wiring



M12 (4-pin, M) to RJ45 (8-pin) Cross-Over Cable Wiring



M12 (4-pin, M) to RJ45 (8-pin) Straight-Trough Cable Wiring



LED Indicators

The front panel of Moxa's MxNVR-MO4 contains several LED indicators. The function of each LED is described in the table below.

LED	Color	State	Description
STAT	Green/Red	Steady Red	Hardware initialization stage.
		Flashing Red	Software initialization stage.
		Steady Green	System has booted up and is ready to run.
		Flashing Green	Firmware is being upgraded.
PW1	AMBER	On	Power is being supplied through power input PWR.
		Off	Power is not being supplied through power input PWR1.
HDD	AMBER	On	The hard disk is installed properly
		Flash	The hard disk is in read/write status
		Off	The hard disk is not installed or has failed
FAULT	RED	On	Once the network is disconnected, the fault LED will be lit red.
		Off	The network link is normal.
V1 V2 V3 V4	GREEN	On	Video signal is detected
		Off	Video signal is not detected

10/100	AMBER	On	10 Mbps link is active
		Blinking	Data is being transmitted at 10 Mbps
		Off	10 Mbps link is inactive
	GREEN	On	100 Mbps link is active
		Blinking	Data is being transmitted at 100 Mbps
		Off	100 Mbps link is inactive

Hardware Reset

A recessed RESET button is provided for restoring the system to the factory default settings. When the system fails to install properly, or operates abnormally, use the RESET button located on the top panel of the MxNVR-MO4 to restore the factory defaults.

To do this, use a pointed object such as a straightened paper clip or toothpick, to depress the reset button continuously. Release the reset button when the STAT LED stops flashing in red. At this point, the POST process will run, and the MxNVR will reboot. The STAT LED will light in green when the MxNVR has finished rebooting.

Specifications

Video				
Video Compression	H.264 (MPEG4 Part 10, AVC), MJPEG			
Video Streams	2 (1 H.264 and 1 MJPEG)			
Video Inputs	4, BNC connector (1 Vpp, 75 ohms)			
Video Latency	Under 200 ms			
NTSC/PAL	Manual			
Video Resolution and FPS (frames per second):				
	NTSC		**PAL**	
	Size	Max. FPS	Size	Max. FPS
QCIF	176 x 112	30	176 x 144	25
CIF	352 x 240	30	352 x 288	25
VGA	640 x 480	30	640 x 480	25
4CIF	704 x 480	30	704 x 576	25
Full D1	720 x 480	30	720 x 576	25

NOTE When enabling simultaneous H.264 and MJPEG video streaming at Full D1 resolution, the total FPS of these 2 video streams will be about 30 FPS. For example, if MJPEG is set as 10 FPS, then H.264 must be set as 20 FPS.

NOTE 4 channels of the MJPEG video streaming support up to VGA, 4CIF and Full D1 resolution at 60 FPS (including pre-event JPEG snapshot image).

Video Viewing	• DynaStream™ for automatic frame rate adjustment • Adjustable image size and quality • Timestamp and text overlay • Maximum of 8 simultaneous unicast connections
Audio	
Audio Input	2, Line-in or MIC-in, DB9 connector

Audio Format	Mono, PCM (G.711)
Recording	
Stream Types	H.264 @ 120 FPS or MJPEG @ 60 FPS
Video File Format	AVI
Record Modes	continuous recording, schedule recording, event recording
Searching	
Search Modes	By camera, by event and time (A customized software is required)
Playback Methods	Playback with popular media players (such as VLC)
Video Clips Download	Remote download via FTP
Storage	
Disk Interface	1 SATA interface for 2.5-inch hard disk or SSD (solid state disk)
Disk Tray	Removable disk tray

NOTE The 2.5-inch hard disk or SSD needs to be purchased separately and installed by the user.

Network	
Protocols	TCP, UDP, HTTP, SMTP, FTP, NTP, DNS, DHCP, UPnP, RTP, RTSP, ICMP, IGMPv3, QoS, SNMPv1/v2c/v3, DDNS, DHCP OPT66/67, Modbus/TCP
Ethernet	1 10/100BaseT(X), 4-pin M12 D-code connector
Serial Port	
Console port	1 RS-232 RJ45 port
GPIO	
Digital Inputs	4, max. 8 mA Low: +13V to +30V High: -30V to +3V
Relay Output	1, max. 24 VDC @ 1A
Connector	DB9, male
LED Indicators	
STAT	Indicates if system has booted up properly
PWR	Power on/off
HDD	Storage disk status
FAULT	Can be configured for network down.
V1, V2, V3, V4	Video input signal active
10/100	10Mbps or 100Mbps
Power	
Inputs	1, 12 VDC or 24 VDC input (12 to 32VDC)
Consumption	Approximately 11Watt (with a 2.5-inch hard disk)
Mechanical	
Casing	metal case
Dimensions (W x D x H)	92.8 x 135 x 150.4 mm (3.93 x 5.31 x 5.35 in)
Weight	1100 g
Installation	Panel mounting or DIN-rail mounting (The DIN-rail kit DK-DC50131 is optional)

Environmental	
Operating Temperature	0 to 60°C (32 to 140°F) -40 to 75°C (-40 to 167°F) for -T models
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Regulatory Approvals	
Safety	UL 60950-1
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), Level 3 EN61000-4-3 (RS), Level 3 EN61000-4-4 (EFT), Level 3 EN61000-4-5 (Surge), Level 3 EN61000-4-6 (CS), Level 3 EN61000-4-8 EN61000-4-11
Shock	IEC60068-2-27
Freefall	IEC60068-2-32
Vibration	EN/IEC 61373 (with Toshiba 2.5-inch hard disk)
EN50155	Power characteristic, shock, vibration, temperature (TX temperature level in –T model), EMC
Warranty	5 years
Alarm Features	
• Video Motion detection with sensitivity tuning • Video loss alarm. • Daily timing schedule. • JPEG snapshots for pre/trigger/post alarm images. • Automatic transfer of stored images via email or FTP with event-triggered actions. • HTTP event servers and CGI commands for setting customized alarm actions. • Pre-alarm Buffer: 16 MB video buffer for JPEG snapshot images	
Security	
• User level password protection • IP address filtering • 802.1X for access authentication	
Recommended Minimum Viewing System Requirements	
• Pentium 4, 2.4 GHz • 512 MB memory • Windows XP/2000 with SP4 • Internet Explorer 6.x • DirectX 9.0c	
Software Bundled Free	
VPort SDK PLUS	Includes CGI commands and ActiveX Control for customized applications or system integration for third-party developers
Standardization	ONVIF (for IP video streaming)

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