

NAT-102 Series Quick Installation Guide

Moxa Industrial NAT Device

Version 1.0, November 2021

Technical Support Contact Information
www.moxa.com/support

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P/N: 1802001024010



Package Checklist

The NAT-102 Series, which is a NAT device, is shipped with the items listed below. If any of these items are missing or damaged, please contact your customer service representative for assistance.

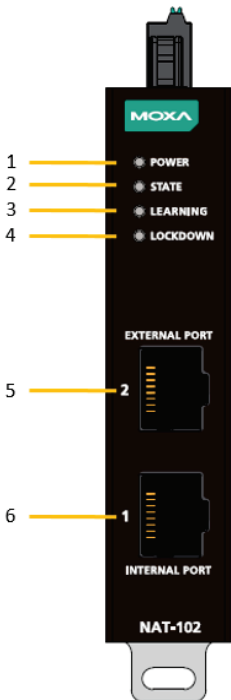
- 1 Industrial NAT device
- 1 USB-C-to-DB9 cable
- Quick installation guide (printed)
- Protective caps for unused ports
- Warranty card

Features

- Complete NAT functionality for speeding up Industry 4.0 connectivity
- Enhanced security through automatic network access control with auto whitelisting of locally connected devices
- Ultra-compact size for cabinet installation
- Rugged hardware that supports a -40 to 75°C operating temperature (T model)

Panel Views of NAT-102 Series

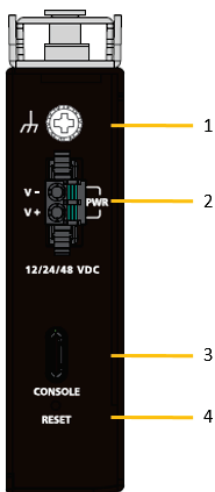
Front Panel



Front Panel:

1. POWER LED indicator
2. STATE LED indicator
3. LEARNING LED indicator
4. LOCKDOWN LED indicator
5. 10/100 Mbps copper external port
6. 10/100 Mbps copper internal port

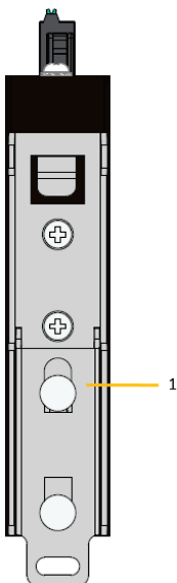
Top Panel



Top Panel:

1. Grounding screw
2. Terminal block with latch for power input
3. Type-C serial console port
4. Reset button

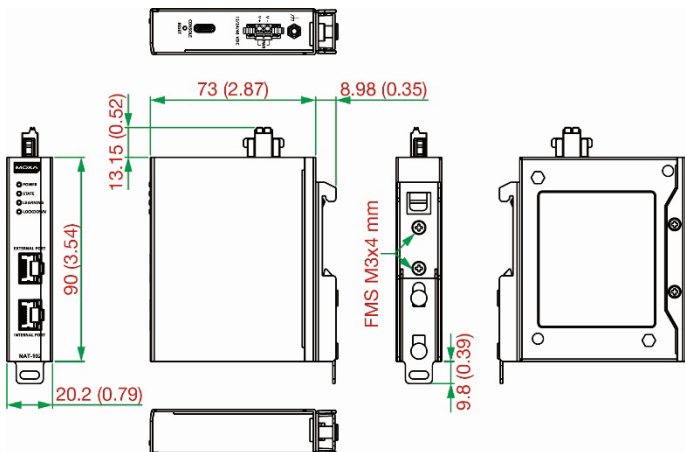
Rear Panel



Rear Panel:

1. DIN-rail mounting kit

Mounting Dimensions



DIN-rail Mounting

In the package, the metal DIN-rail mounting kit is fixed to the back panel of the NAT-102 Series. Mount the NAT-102 Series on a corrosion-free mounting rail that adheres to the EN 60715 standard.

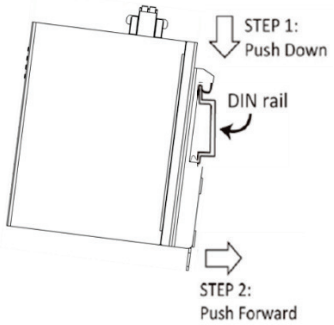
Suggested Installation Method

STEP 1:

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

STEP 2:

Press the NAT-102 Series towards the mounting rail until it snaps into place.



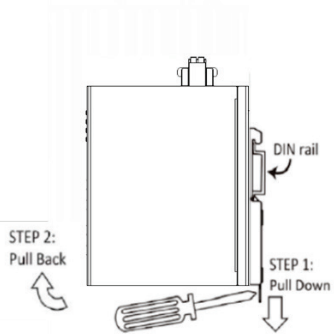
Suggested Removal Method

STEP 1:

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

STEPS 2 & 3:

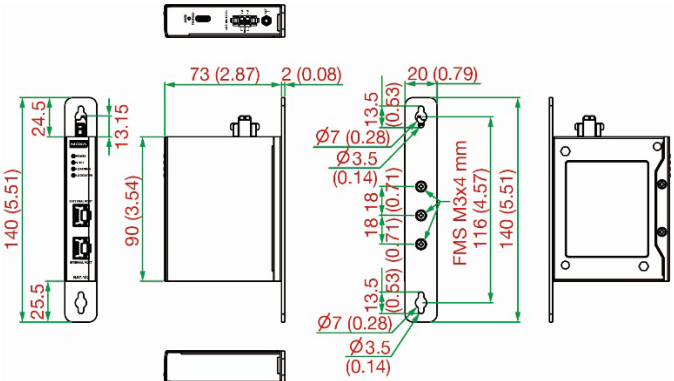
Slightly pull the NAT-102 Series forward and lift it up to remove it from the mounting rail.



Wall Mounting

For some applications, you will find it convenient to mount the NAT-102 Series on the wall, as shown in the following illustrations.

STEP 1: Remove the aluminum DIN-rail attachment plate from the rear panel of the NAT-102 Series, and then attach the wall mount plates with three M3 screws.



STEP 2: Mounting the NAT-102 Series on the wall requires two M3 screws. Use the NAT-102 Series with the wall mount plates attached as a guide to mark the correct location of the two screws.

Wiring Requirements



WARNING

Do not disconnect modules or wires unless power has been switched off or the area is known to be non-hazardous. The devices may only be connected to the supply voltage shown on the type plate.



ATTENTION

This unit is a built-in type. When the unit is installed in another piece of equipment, the equipment enclosing the unit must comply with fire enclosure regulation IEC 60950-1/EN60950-1 (or similar regulation).



ATTENTION

Safety First!

Be sure to disconnect the power cord before installing and/or wiring your NAT-102 Series.

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

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

Please read and follow these guidelines:

- 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 through 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 sharing similar electrical characteristics can be bundled together.
- You should separate input wiring from output wiring.
- We advise that you label the wiring to all devices in the system.
- This product is intended for installation in Restricted Access Location.



WARNING

Hot Surface. Do not touch.

Grounding the NAT-102 Series

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw (M4 type) to the grounding surface prior to connecting devices.

The grounding wire must be connected to the grounding screw using a cable lug. The grounding cable must have a cross-sectional area that is the same or larger than the 0.08 mm² (28 AWG) to 1.31 mm² (16 AWG) terminal input conductor wire.

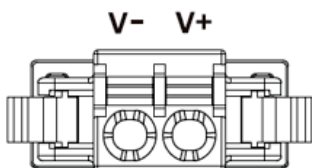


ATTENTION

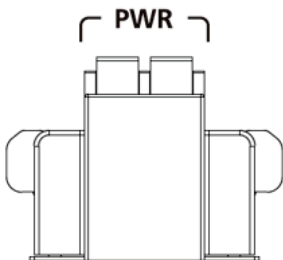
This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

Wiring the Power Inputs

The NAT-102 Series has one power input. The top and side views of the terminal block connector are shown below.



Top View



Right View

STEP 1:

Use a small flat-blade screwdriver to press a wire locker.

STEP 2:

Insert a positive/negative DC wire into the V+/V- terminals respectively.

STEP 3:

Release the wire locker and check whether the wire is fixed.

The input terminal block (J1) should be installed using 16-28 AWG wires with 8-9 mm of the conductor insulation stripped.

The power cord adapter should be connected to a socket outlet with an earthing connection. The power cord and adapter must comply with Class II construction.

This product is intended to be supplied by a UL Listed Power Adapter or DC power source marked 'L.P.S' or 'Limited Power Source', rated 12 to 48 VDC, 0.196 A (min.), and Tma 75°C (min.). If you require further assistance, please contact your Moxa representative.

Communication Connections

Each NAT-102 Series has two types of communication ports:

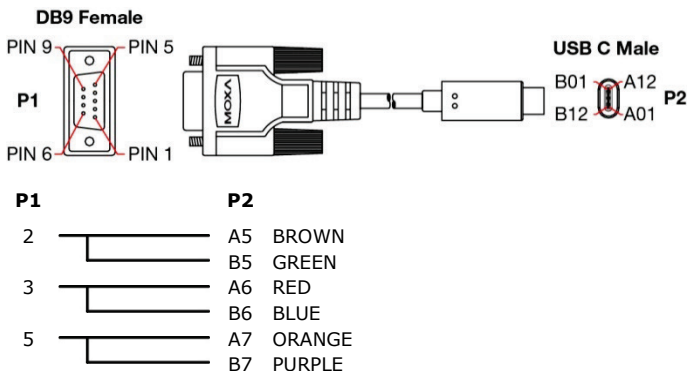
- 1 Type-C console port (RS-232 interface, baudrate: 115200, 8-N-1)

- 2 10/100BaseT(X) Ethernet ports

TYPE-C Console Port Connection

The NAT-102 Series provides one TYBP-C console port located on the top panel. Connect the industrial secure router to a PC COM port using the Type-C-to-DB9 connection cable, and then launch a console terminal software, e.g. Moxa PComm Terminal Emulator, to access the NAT-102 Series' console configuration utility.

TYPE-C-to-DB9 Cable Wiring



PIN Definition

| Description | P1 | P2 |
|-------------|----|--------|
| TXD | 2 | A5, B5 |
| RXD | 3 | A6, B6 |
| GND | 5 | A7, B7 |

10/100BaseT(X) Ethernet Port Connection

The 10/100BaseT(X) ports located on the NAT-102 Series front panel are used to connect to Ethernet-enabled devices. Most users will choose to 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. No matter which case you are connecting, we share pinouts for both MDI (NIC-type) ports and MDI-X (HUB/Switch-type) ports.

10/100Base T(x) RJ45 Pinouts

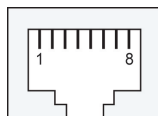
MDI Port Pinouts

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

MDI-X Port Pinouts

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

8-pin RJ45



The Reset Button

Using a pointed object such as a straightened paperclip or toothpick, depress the Reset button for five seconds to load the factory default settings. When pressing down, the STATE LED will start to blink about once per second. Continue to depress until the STATE LED begins

blinking more quickly, indicating that the device is resetting and you can release.

NOTE DO NOT power off the device when loading default settings.

LED Indicators

The front panel of the NAT-102 Series has several LED indicators. The function of each LED is described in the following table:

| LED | Color | State | Description |
|-----------------|-------|----------|---|
| PWR | Amber | On | Power is being supplied to the power input. |
| | | Off | Power is NOT being supplied to the power. |
| STATE | Green | On | The system passed the self-diagnosis test on boot-up and is ready to run. |
| | | Blinking | Device reset is in progress, blinking once per second. |
| | | Off | The system failed the self-diagnosis test on boot-up. |
| LEARN | Amber | Blinking | The device lockdown learning is in progress. |
| | | Off | Learning finished. |
| LOCKDOWN | Green | On | The device lockdown whitelist is enabled. |
| | | Off | The device lockdown whitelist is disabled. |

Specifications

| | |
|-----------------------|---|
| Input Current | 0.196 A @ 12 V 0.100 A @ 24 V 0.056 A @ 48 V |
| Input Voltage | 12/24/48 VDC |
| Power Consumption | 2.69 W (max.) |
| Operating Temperature | -10 to 60°C (14 to 140°F), standard models -40 to 75°C (-40 to 167°F), wide-temp. models |
| Storage Temperature | -40 to 85°C (-40 to 185°F) |

Standards and Certifications





WARNING

사 용 자 안 내 문

이 기기는 업무용 환경에서 사용할 목적으로 적합성 평가를 받은 기기로서

가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

| | |
|-----------------------------|--|
| ATEX information |   II 3 G Ex ec IIC T4 Gc UL 21 ATEX 2604X Ambient Range : $-40\text{ }^{\circ}\text{C} \leq T_{amb} \leq +75\text{ }^{\circ}\text{C}$ (With -T) Ambient Range : $-10\text{ }^{\circ}\text{C} \leq T_{amb} \leq +60\text{ }^{\circ}\text{C}$ (Without -T) Rated Cable Temp $\geq 82\text{ }^{\circ}\text{C}$ |
| Address of the manufacturer | No. 1111, Heping Rd., Bade Dist., Taoyuan City 334004, Taiwan |

| | |
|-----------|-----------------------------|
| Hazardous | EN IEC 60079-0:2018 |
| Location | EN IEC 60079-7:2015+A1:2018 |

Special Use Conditions

- The equipment shall only be used in an area of at least pollution degree 2, as defined in EN IEC 60664-1.
- The equipment shall be mounted in vertical position and installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with EN IEC 60079-0 and only accessible by use of a tool.