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MOXA NPort IA5000A Series Device Server

MOXA NPort IA5000A Series Device Server Installation Guide

Contents

MOXA®

MOXA NPort IA5000A Series Device Server

Product Information

Specifications

- Model: NPort IA5000A Series
- Version: 5.3
- Release Date: July 2023
- Technical Support Contact Information: **www.moxa.com/support**
- All rights reserved. P/N: 1802051500318 *1802051500318*

Overview

The NPort IA5000A series of device servers delivers easy and reliable serial-to-Ethernet connectivity for the industrial automation market. The servers support several operation modes–TCPServer, TCP Client, UDP, Real COM, RFC2217, RTelnet, Pair Connection, and Ethernet Modem–ensuring the compatibility ofnetwork software. They are an ideal choice for connecting RS-232/422/485 serial devices, such as PLCs, sensors, meters, motors, drives, barcode readers, and operator displays.

Package Checklist

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

- NPort IA5000A Series device server
- Power adapter
- Terminal block (8-contact screw-type)
- RS-232 DB9 serial port cable
- RS422/485 terminal block (for NPort IA5150A Series)
- 2/4 RS-232/422/485 3-in-1 DB9 serial ports (for NPort IA5250A/IA5450A Series)

- Wall-mount kit (optional)

Hardware Introduction

The NPort IA5150A Series has one RS-232 DB9 serial port and one RS422/485 terminal block for serial data communication. The NPort IA5250A/IA5450A Series has two/four RS-232/422/485 3-in-1 DB9serial ports for serial data communication. Each model has one 8-contact screw-type terminal block, which is located at the top for power input and relay output.

Dimensions

The Reset to Default Button: Depress the reset to default button for 5 continuous seconds to load the factory default settings. Use a pointed object, such as a straightened paper clip or toothpick, to depress the reset to default button. This will cause the ReadyLED to blink on and off. The factory default settings are loaded once the Ready LED stops blinking (after about 5 seconds). At this point, you can release the reset to default button.

NPort IA5000A Series LED Indicators (front panel)

Name	Color
PWR1, PWR2	Red
Ready	Red
E1, E2	Green
P1, P2, P3, P4	Off Orange Green

Hardware Installation Procedure

1. After removing the NPort IA5000A Series from the box, the first thing you should do is connect the power adapter. Connect the 12-48VDC power line with the NPort IA5000A Series' terminal block, or connect the DIN-Rail power supply with the NPort IA5000A Series' terminal block.
2. Connect the NPort IA5000A Series to a network. Use a standard straight-through Ethernet cable to connect to a hub or switch. Whensetting up or testing the NPort IA5000A Series, you might find itconvenient to connect directly to your computer's Ethernet port. In this case, use a crossover Ethernet cable.
3. Connect the NPort IA5000A Series' serial port to a serial device.
4. The NPort IA5000A Series is designed to be attached to a DIN-rail or mounted on a wall. For DIN-rail mounting, push down the spring and properly attach it to the DIN-rail until it snaps intoplace. For wall mounting, install the wall-mount kit (optional) first, and then screw the device onto the wall.

Grounding the NPort IA5000A Series

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 before connecting the devices.

FAQ

Q: What operation modes are supported by the NPort IA5000A series?
A: The NPort IA5000A series supports TCP Server, TCP Client, UDP, Real COM, RFC2217, RTelnet, Pair

Connection, and Ethernet Modem operation modes.

Q: What type of serial devices can be connected to the NPort IA5000A series?
A: The NPort IA5000A series can connect RS-232/422/485 serialdevices such as PLCs, sensors, meters, motors, drives, barcode readers, and operator displays.

Version 5.3, July 2023
Technical Support Contact Information **www.moxa.com/support**

Overview

The NPort IA5000A series of device servers delivers easy and reliable serial-to-Ethernet connectivity for the industrial automation market. The servers support several operation modes—TCP Server, TCP Client, UDP, Real COM, RFC2217, RTelnet, Pair Connection, and Ethernet Modem—ensuring the compatibility of network software. They are an ideal choice for connecting RS-232/422/485 serial devices, such as PLCs, sensors, meters, motors, drives, barcode readers, and operator displays.

Package Checklist

Before installing the NPort IA5000A Series device servers, verify that the package contains the following items:

- 1 NPort IA5150A/IA5250A/IA5450A Series device server
- Quick installation guide (printed)
- Warranty card

Optional Accessories

- DR-4524: 45W/2A DIN-Rail 24 VDC Power Supply with universal 85 to 264 VAC input
- DR-75-24: 75W/3.2A DIN-Rail 24 VDC Power Supply with universal 85 to 264 VAC input
- DR-120-24: 120W/5A DIN-Rail 24 VDC Power Supply with 88 to 132 VAC/176 to 264 VAC input by switch
- WK-36-01: Wall-mounting kit

For more optional accessories suitable for additional installation options, for example, other regional power adapters/supplies or serial/power cables for different models, please check the datasheet on the Moxa website for the complete accessory list.

NOTE
Please notify your sales representative if any of the above items are missing or damaged.

Hardware Introduction

The NPort IA5150A Series has one RS-232 DB9 serial port and one RS-422/485 terminal block for serial data communication. The NPort IA5250A/IA5450A Series has two/four RS-232/422/485 3-in-1 DB9 serial ports for serial data communication. Each model has one 8-contact screw-type terminal block, which is located at the top for power input and relay output.

Dimensions

NPort IA5150A
NPort IA5150AI

NPort IA5250A
NPort IA5250AI

149 (5.87)

140 (5.51)

105 (4.14)

8.8 (0.35)

24 (0.94)

36 (1.42)

200 (7.87)

174 (6.85)

13 (0.51)

6 (0.24)
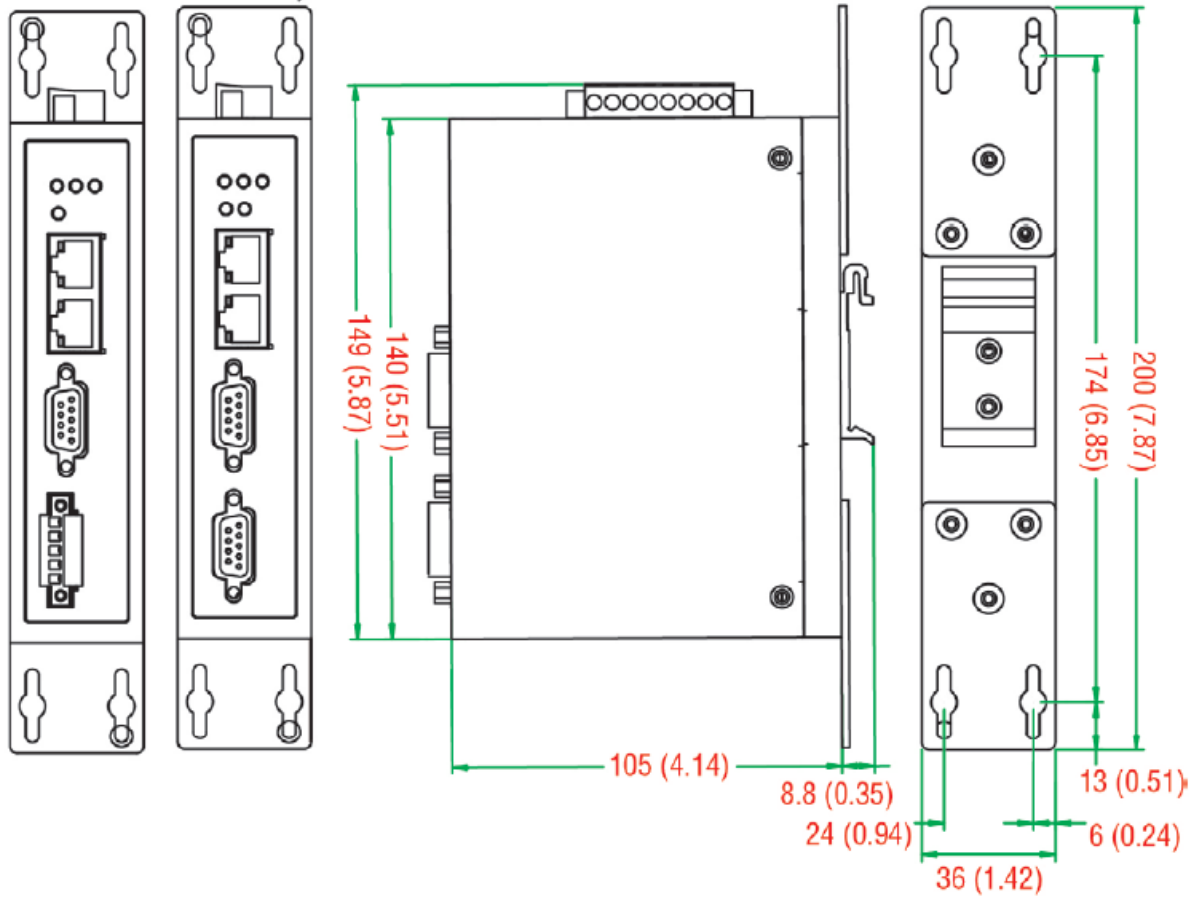
NPort IA5450A
NPort IA5450AI
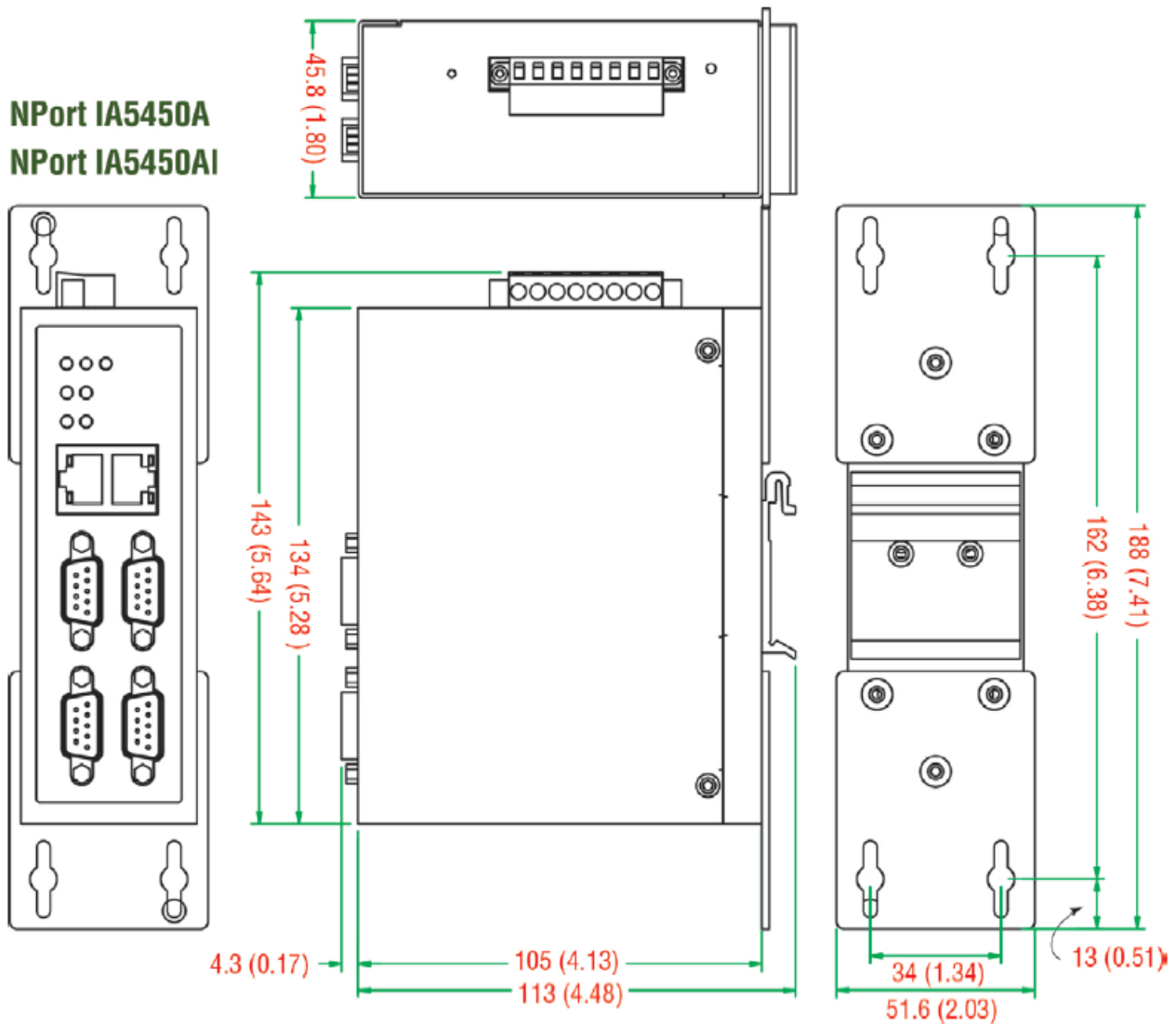
The Reset to Default Button—Depress the reset to default button for 5 continuous seconds to load the factory default settings. Use a pointed object, such as a straightened paper clip or toothpick, to depress the reset to default button. This will cause the Ready LED to blink on and off. The factory default settings are loaded once the Ready LED stops blinking (after about 5 seconds). At this point, you can release the reset to default button.

NPort IA5000A Series LED Indicators (front panel)

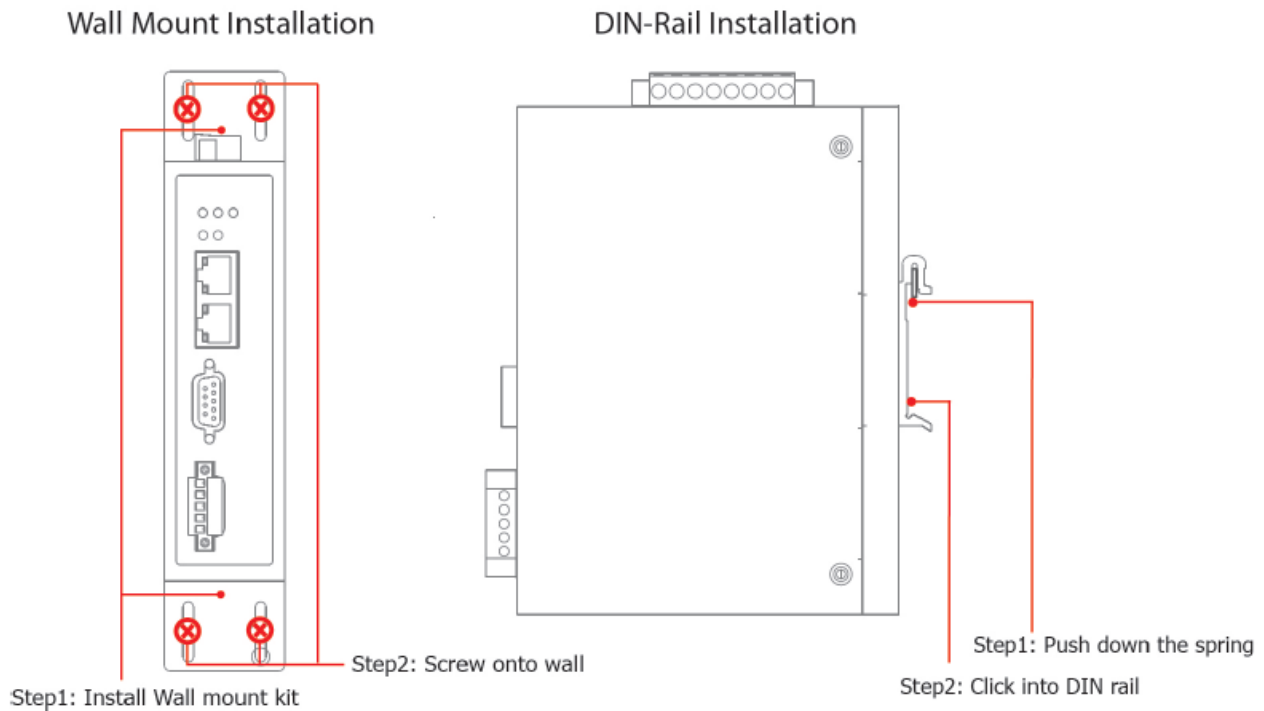| Name	Color	Function
PWR1, PWR 2	Red	Power is being supplied to power input PWR1, PWR2.
Ready	Red	Steady on: Power is on and the NPort IA5000A Series is booting up. Blinking: Indicates an IP conflict, the DHCP or BOOTP server did not respond properly, or a relay output occurred.
	Green	Steady on: Power is on and the NPort IA5000A Series is functioning normally. Blinking: The device server has been located by the Administrator's "Locate" function.
	Off	Power is off, or a power error condition exists.
E1, E2	Orange	10 Mbps Ethernet connecting.
	Green	100 Mbps Ethernet connecting.
	Off	Ethernet cable is disconnected, or has a short.
P1, P2, P3, P4	Orange	Serial port is receiving data.
	Green	Serial port is transmitting data.
	Off	No data is being transmitted or received through the serial port.

Hardware Installation Procedure

- STEP 1: After removing the NPort IA5000A Series from the box, the first thing you should do is connect the power adapter. Connect the 12-48 VDC power line with the NPort IA5000A Series' terminal block, or connect the DIN-Rail power supply with the NPort IA5000A Series' terminal block.
- STEP 2: Connect the NPort IA5000A Series to a network. Use a standard straight-through Ethernet cable to connect to a hub or switch. When setting up or testing the NPort IA5000A Series, you might find it convenient to connect directly to your computer's Ethernet port. In this case, use a crossover Ethernet cable.
- STEP 3: Connect the NPort IA5000A Series' serial port to a serial device.
- STEP 4: The NPort IA5000A Series is designed to be attached to a DIN-rail or mounted on a wall. For DIN-rail mounting, push down the spring and properly attach it to the DIN-rail until it "snaps" into place. For wall mounting, install the wall-mount kit (optional) first, and then screw the device onto the wall.

The following figure illustrates the two mounting options:

Wall Mount Installation — Step1: Install Wall mount kit / Step2: Screw onto wall

DIN-Rail Installation — Step1: Push down the spring / Step2: Click into DIN rail

Grounding the NPort IA5000A Series

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 before connecting the devices.

ATTENTION

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

2. A 4 mm2 conductor must be used when a connection to the external grounding screw is used.

Software Installation Information

For the NPort's configuration, the default IP address of the NPort is: 192.168.127.254. You may log in with the account name admin and password moxa to change any setting to meet your network topology (e.g., IP address) or serial device (e.g., serial parameters).
For software installation, download the relative utilities from Moxa's website
https://www.moxa.com/support/support_home.aspx?isSearchShow=1

- Download the NPort Windows Driver Manager and install it as the driver to run with Real COM mode of the NPort Series.

- Execute NPort Windows Driver Manager; then map the virtual COM ports on your Windows platform.

- You may refer to the DB9 Male pin assignment section to loop back pin 2 and pin 3 for the RS-232 interface to carry out a self-test on the device.

- Use HyperTerminal or a similar program (you can download Moxa's program, called PComm Lite) to test whether the device is good or not.

Pin Assignments and Cable Wiring

RS-232/422/485 (Male DB9) Pinouts

PIN	RS-232	RS-422/ RS-485 (4W)	RS-485 (2W)
1	DCD	TxD-(A)	–
2	RXD	TxD+(B)	–
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–
9	–	–	–
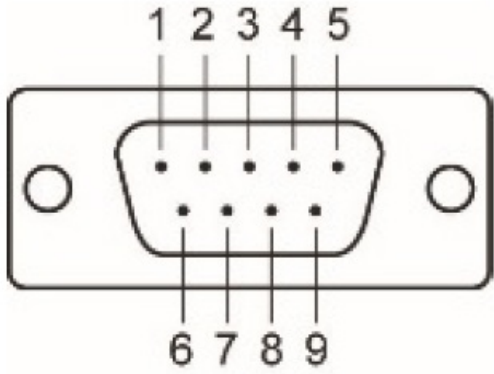
RS-422/2W RS-485/4W RS-485 (Terminal Block) Pinouts

PIN	RS-485 (2W)	RS-422/ RS-485 (4W)
1	–	TxD+(B)
2	–	TxD-(A)
3	Data+(B)	RxD+(B)
4	Data-(A)	RxD-(A)
5	GND	GND

1 2 3 4 5
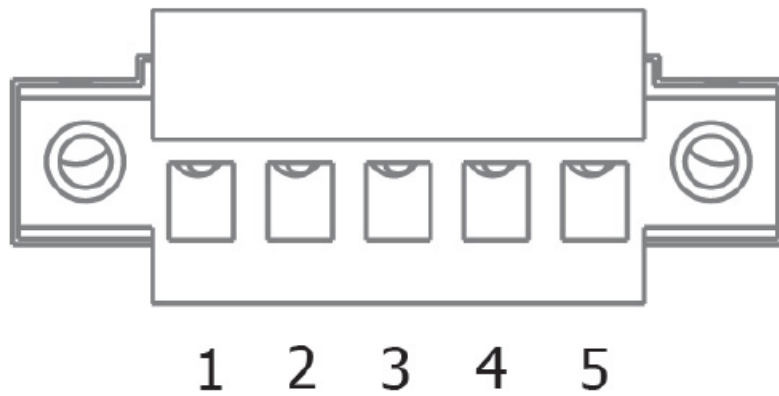
The terminal block must be used with a 28 to 12 AWG (torque value 4.5 lb-in) cable with the devices.
Four cables are available as optional accessories that can be used to connect the NPort IA5000A Series to RS-232 serial devices. For your convenience, we show precise cable wiring diagrams for each of the two cables.

Female DB9 to Male DB9

Male DB9	Female DB9		Male DB9	Female DB9
NPort IA				RS-232 Device
9 pins		Cable Wiring		9 pins
DCD	1 ←		1	DCD
RxD	2 ←		2	TxD
TxD	3 ←		3	RxD
DTR	4 →		4	DSR
GND	5		5	GND
DSR	6 ←		6	DTR
RTS	7 →		7	CTS
CTS	8 ←		8	RTS

Female DB9 to Male DB25

Cable Wiring

Male DB9	Female DB9		Male DB25	Female DB25
NPort IA				RS-232 Device
9 pins			25 pins	
DCD	1 ◄─────────── 8	DCD
RxD	2 ◄─────────── 3	TxD
TxD	3 ◄─────────► 2	RxD
DTR	4 ─────────► 20	DSR
GND	5 ─────────── 7	GND
DSR	6 ◄─────────── 6	DTR
RTS	7 ─────────► 4	CTS
CTS	8 ◄─────────── 5	RTS
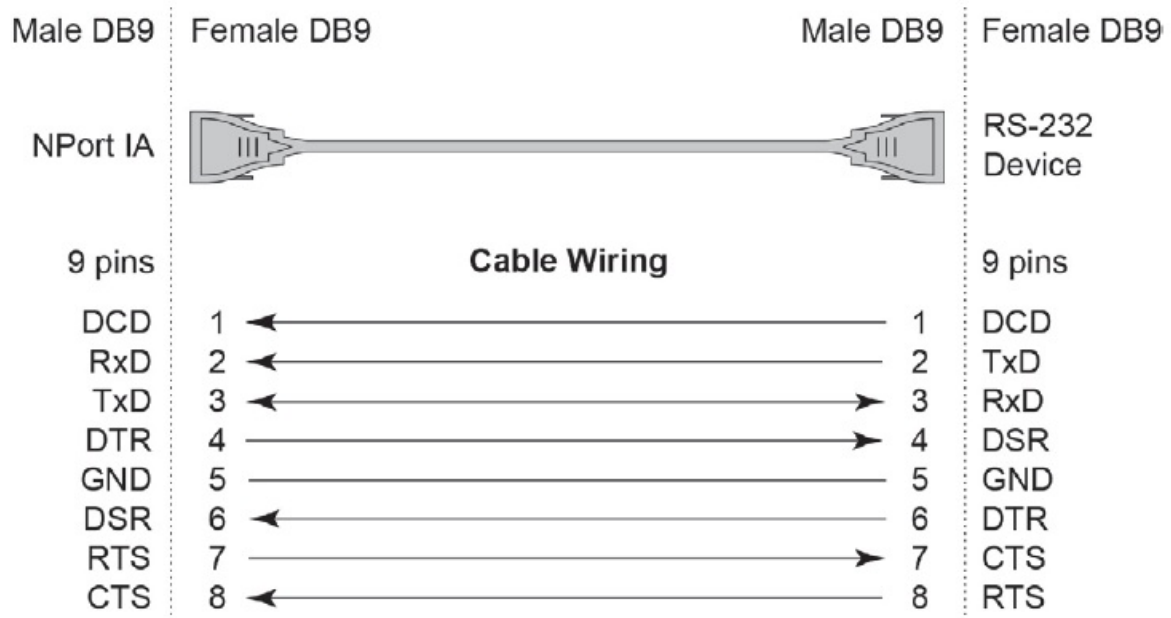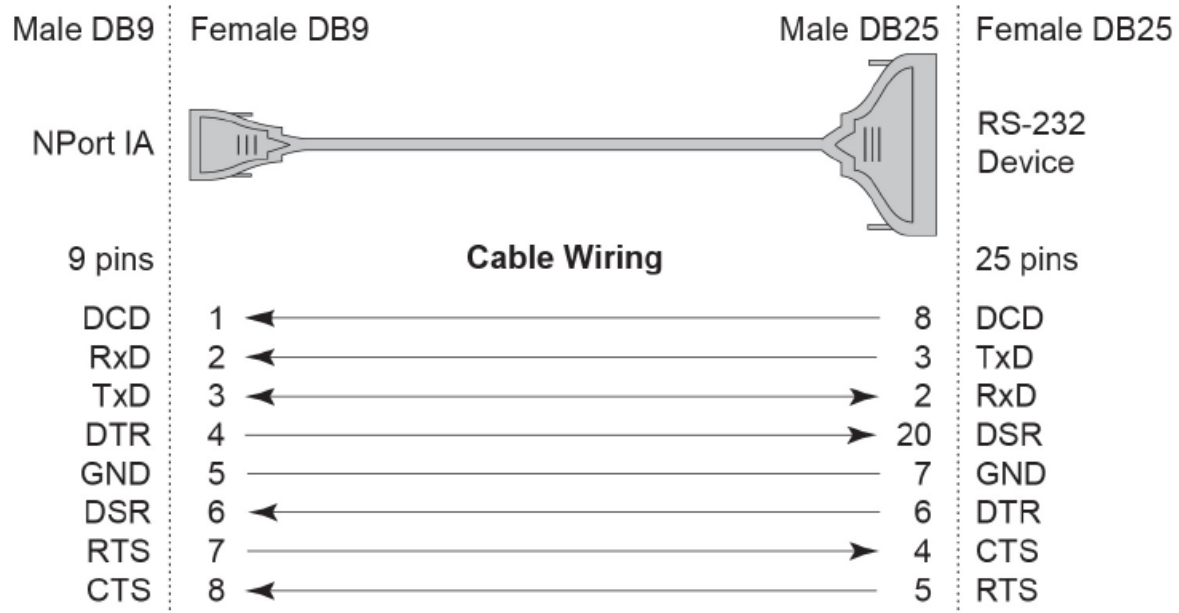
ATEX and IECEx Information

1. Certification number: DEMKO 12 ATEX 1014487X IEC Certification Number: IECEx UL 13.0024X
2. Ambient Temperature Range: -40°C ≤ Tamb ≤ 75°C for models with the "-T" suffix 0°C ≤ Tamb ≤ 60°C for models without the "-T" suffix
3. Certification String: Ex ec nC IIC T3 Gc
4. Standards Covered: IEC 60079-0, Edition 7 IEC 60079-7, Edition 5.1 IEC 60079-15, Edition 5 EN IEC 60079-0: 2018 EN IEC 60079-7: 2015 + A1: 2018 EN IEC 60079-15: 2019
5. The conditions of safe usage:
    1. The equipment must be installed in an enclosure that provides a minimum ingress protection of IP54 by IEC/EN 60079-0.
    2. The equipment must only be used in an area of at least pollution degree 2, as defined in IEC/EN 60664-1.
6. Rated Cable Temp ≥ 91°C.

Pull-high, Pull-low, and Terminator for RS-485

Remove the NPort IA5000A's top cover, and you will find DIP switches to adjust each serial port's pull-high, pull-low, and terminator.
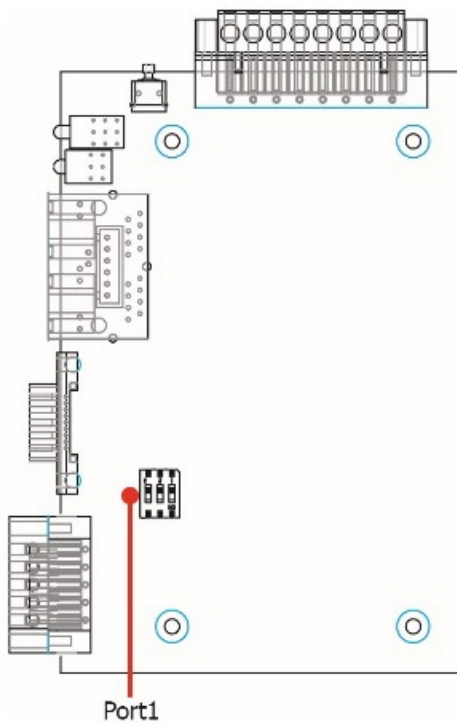
NPort IA5150A Series | NPort IA5250A Series
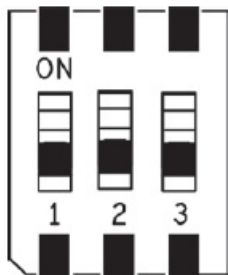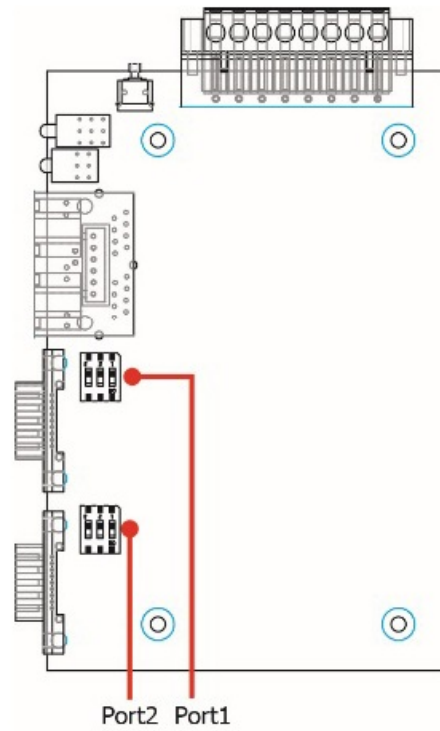
SW	1 Pull-high resistor	2 Pull-low resistor	3 Terminator
ON	1 kΩ	1 kΩ	120 Ω
OFF	150 kΩ*	150 kΩ*	–*

*Default

Model	Power Input
NPort IA5150A Series	
NPort IA5250A Series	12 to 48 VDC, max. 512 mA, Class 2
NPort IA5450A Series	

Relay Output	24 VDC, 1 A, resistance
Maximum Surrounding Air Temperature	75°C

Documents / Resources

NPort IA5000A Series Quick Installation Guide Version 5.3, July 2023 Technical Support Contact Information www.moxa.com/support MOXA © 2023 Moxa Inc. All rights reserved. P/N: 1802053300118	**MOXA NPort IA5000A Series Device Server** [pdf] Installation Guide NPort IA5000A Series Device Server, NPort IA5000A Series, Device Server, Server
NPort IA5000A Series Quick Installation Guide Version 5.3, July 2023 Technical Support Contact Information www.moxa.com/support MOXA © 2023 Moxa Inc. All rights reserved. P/N: 1802053300118	**MOXA NPort IA5000A Series Device Server** [pdf] Installation Guide NPort IA5000A Series Device Server, NPort IA5000A Series, Device Server, Server
NPort IA5000A Series Quick Installation Guide Version 5.3, July 2023 Technical Support Contact Information www.moxa.com/support MOXA © 2023 Moxa Inc. All rights reserved. P/N: 1802053300118	**MOXA NPort IA5000A Series Device Server** [pdf] Installation Guide NPort IA5000A Series Device Server, NPort IA5000A Series, Device Server, Server

References

- **User Manual**