

NPort IA5150/5250 Series Quick Installation Guide

Version 7.0, September 2021

Technical Support Contact Information
www.moxa.com/support

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P/N: 1802051500217



Overview

NPort IA device servers deliver 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, Pair Connection, and Ethernet Modem—ensuring the compatibility of network software, and 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. NPort IA device servers come with a compact and rugged DIN-rail mountable casing.

NOTE This equipment is intended for use in a restricted area location.

Package Checklist

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

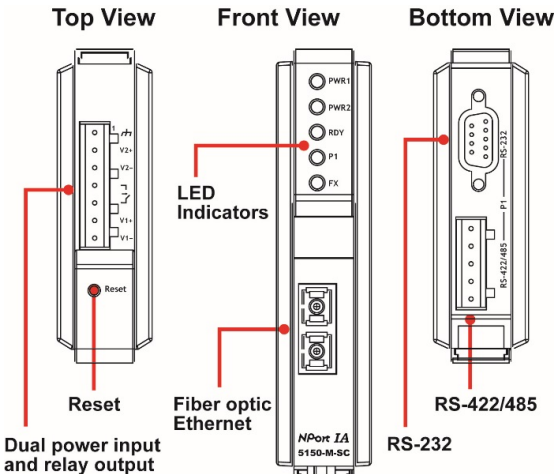
- 1 NPort IA Series device server
- Quick installation guide (printed)
- Warranty card

Optional Accessories

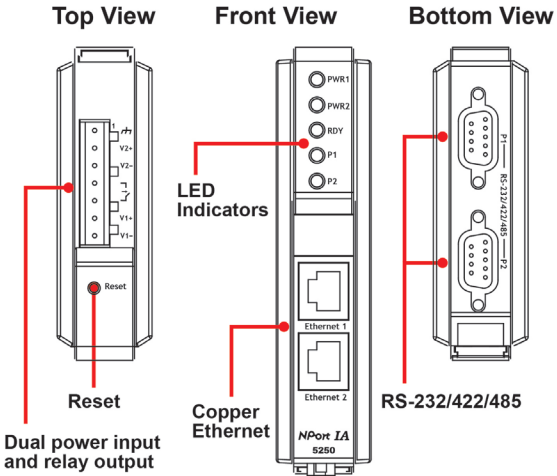
- **DK-35A:** DIN-rail mounting kit (35 mm)
- **Mini DB9F-to-TB Adaptor:** DB9 female to terminal block adapter
- **DR-4524:** 5W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC input
- **DR-75-24:** 75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC input
- **DR-120-24:** 120W/5A DIN-rail 24 VDC power supply with 88 to 132 VAC/176 to 264 VAC input by switch

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

NPort IA5150 Series Appearance



NPort IA5250 Appearance



Reset Button—Press the Reset button for 5 seconds to load factory defaults. Use a pointed object, such as a straightened paper clip or toothpick, to press the reset button. This will cause the Ready LED to blink on and off. The factory defaults will be loaded once the Ready LED stops blinking (after about 5 seconds). At this point, you should release the reset button.

NPort IA LED Indicators (front panel)

Name	Color	Function
PWR1, PWR2	Red	Power is being supplied to power input PWR1, PWR2.
RDY	Red	Steady on: Power is on and the NPort IA 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 IA is functioning normally. Blinking: The device server has been located by the Administrator's Location function.
	Off	Power is off, or a power-error condition exists.
Ethernet	Amber	10 Mbps Ethernet connection.
	Green	100 Mbps Ethernet connection.
	Off	Ethernet cable is disconnected or has a short.
P1, P2	Amber	Serial port is receiving data.
	Green	Serial port is transmitting data.
	Off	No data is being transmitted or received through the serial port.
FX	Amber	Steady on: Ethernet fiber connection, but port is idle.
		Blinking: Fiber port is transmitting or receiving data.

Hardware Installation Procedure

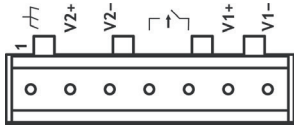
STEP 1: Connect the NPort IA to a network. Use a standard straight-through Ethernet cable to connect to a hub or switch. When setting up or testing the NPort IA, you might find it convenient to connect directly to your computer's Ethernet port. In this case, use a crossover Ethernet cable.

STEP 2: Connect the NPort IA's serial port to a serial device.

STEP 3: The NPort IA is designed to be attached to a DIN rail or mounted on a wall. The two sliders on the NPort IA's rear panel serve a dual purpose. For wall mounting, both sliders should be extended. For DIN-rail mounting, start with one slider pushed in, and the other slider extended. After attaching the NPort IA on the DIN rail, push the extended slider in to lock the device server to the rail. The two placement options are illustrated in the accompanying figures.

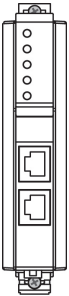
STEP 4: Connect the 12 to 48 VDC power line with the NPort IA's terminal block or connect the DIN-rail power supply with the NPort IA's terminal block.

Power Input and Relay Output Pinouts

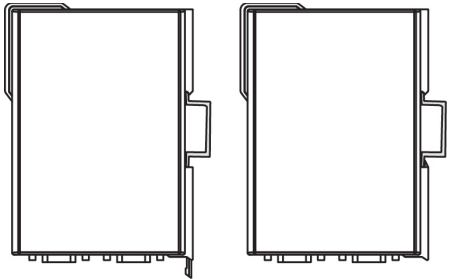


	V2+	V2-			V1+	V1-
Shielded Ground	DC Power Input 1	DC Power Input 1	Relay Output	Relay Output	DC Power Input 2	DC Power Input 2

Wallmount



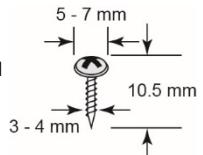
DIN Rail



Push here to lock to the DIN-Rail

Wall or Cabinet Mounting

Mounting the NPort IA5000 Series on to a wall requires two screws. The heads of the screws should be 5 to 7 mm in diameter, the shafts should be 3 to 4 mm in diameter, and the length of the screws should be more than 10.5 mm.



NOTE Wall mounting is certified for use in maritime applications.

Software Installation Information

For the NPort's configuration, the default IP address of the NPort is: LAN: Static; IP = 192.168.127.254; netmask = 255.255.255.0.

NOTE If you have forgotten the NPort's IP address, use the Device Search Utility (DSU) from your PC to locate the NPort. After searching the LAN for NPort units, the DSU will display the IP address of each unit.

You may log in with the password **moxa** to change any setting to meet your network topology (e.g., IP address) or serial device (e.g., serial parameters). For first-time use, click the Wizard in the left navigation panel. The wizard will prompt you to configure the IP address, SSID, and security mode. For other settings, use the factory defaults or modify the settings for your application.

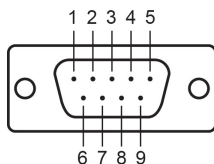
For software installation, download the relative utilities from Moxa's website:

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 Ports 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 may download Moxa's program, called PComm Lite) to test whether the device is working.

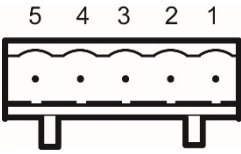
Pin Assignments and Cable Wiring

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	-	-	-

4W/2W RS-485/RS-422 (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

Four cables are available as optional accessories that can be used to connect the NPort IA to RS-232 serial devices. For your convenience, we show precise cable wiring diagrams for each of the two cables.

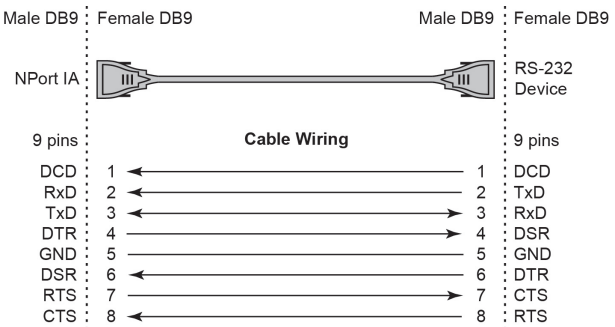
Optical Fiber Interface

		100BaseFX	
		Multi-mode	Single-mode
Fiber Cable Type		OM1	G.652
		50/125 μ m 800 MHz*km	
Typical Distance		4 km	40 km
Wave-length	Typical (nm)	1300	1310
	TX Range (nm)	1260 to 1360	1280 to 1340
	RX Range (nm)	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34
	Link Budget (dB)	12	29
	Dispersion Penalty (dB)	3	1

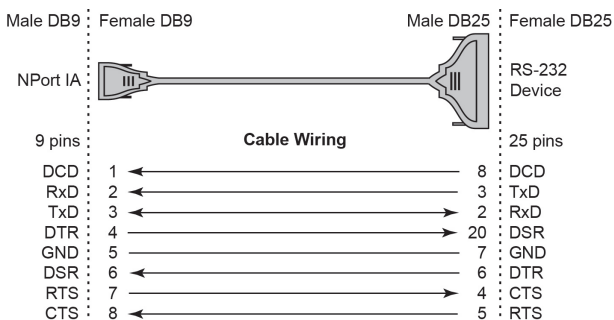
Note: When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power.

Note: Compute the "typical distance" of a specific fiber transceiver as follows: Link budget (dB) > dispersion penalty (dB) + total link loss (dB).

Female DB9 to Male DB9



Female DB9 to Male DB25



Specifications

Power Requirements	
Power Input	12 to 48 VDC
Power Consumption (Input Rating)	<ul style="list-style-type: none"> NPort IA-5150, NPort IA-5150-T, NPort IA-5250, NPort IA-5250-T: 12 to 48 VDC, 435 mA (max.) NPort IA-5250I, NPort IA-5250I -T, NPort IA-5150-M-ST, NPort IA-5150-M-ST-T, MGate NPort IA-5150-M-SC, NPort IA-5150-M-SC-T: 12 to 48 VDC, 510 mA (max.) NPort IA-5150I, NPort IA-5150I-T, NPort IA-5150-S-SC, NPort IA-5150-S-SC-T, NPort IA-5150I-S-SC, NPort IA-5150I-S-SC-T, NPort IA-5150I-M-SC, NPort IA-5150I-M-SC-T: 12 to 48 VDC, 555 mA (max.)
Operating Temperature	0 to 60°C (32 to 140°F), -40 to 75°C (-40 to 167°F) for -T model
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	5 to 95% RH
Magnetic Isolation Protection (serial)	2 kV (for "I" models)
Dimensions	Without ears: 29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in) With ears extended: 29 x 89.2 x 124.5 mm (1.14 x 3.51 x 4.9 in)
Relay Output	1 digital relay output to alarm (normal close): current carrying capacity 1 A @ 30 VDC
Hazardous Location	UL/cUL Class 1 Division 2 Group A/B/C/D, ATEX Zone 2, IECEx

This device complies with Part 15 of the FCC rules.

Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

ATEX and IECEx Information



NPort IA-5150/IA-5250 Series

1. Certificate number: DEMKO 18 ATEX 2168X
2. IECEx number: IECEx UL 18.0149X
3. Certification string: Ex nA IIC T4 Gc
Ambient Range : $0^{\circ}\text{C} \leq T_{\text{amb}} \leq 60^{\circ}\text{C}$ (For suffix without -T)
Ambient Range : $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq 75^{\circ}\text{C}$ (For suffix with -T)
4. Standards covered:
ATEX: EN 60079-0:2012+A11:2013, EN 60079-15:2010
IECEx: IEC 60079-0 Ed.6; IEC 60079-15 Ed.4
5. The conditions of safe usage:
 - The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC/EN 60664-1.
 - The equipment shall be installed in an enclosure that provides a minimum ingress protection of IP4 in accordance with IEC/EN 60079-0.
 - Conductors suitable for Rated Cable Temperature $\geq 100^{\circ}\text{C}$
 - Input conductor with 28-12 AWG (max. 3.3 mm^2) to be used with the devices

NPort IA-5150I/IA-5250I Series

1. ATEX Certificate number: DEMKO 19 ATEX 2232X
2. IECEx number: IECEx UL 19.0058X
3. Certification string: Ex nA IIC T4 Gc
Ambient Range : $0^{\circ}\text{C} \leq T_{\text{amb}} \leq 60^{\circ}\text{C}$ (For suffix without -T)
Ambient Range : $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq 75^{\circ}\text{C}$ (For suffix with -T)
4. Standards covered:
ATEX: EN 60079-0:2012+A11:2013, EN 60079-15:2010
IECEx: IEC 60079-0 Ed.6; IEC 60079-15 Ed.4
5. The conditions of safe usage:
 - The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC/EN 60664-1.
 - The equipment shall be installed in an enclosure that provides a minimum ingress protection of IP 54 in accordance with IEC/EN 60079-0.
 - Conductors suitable for Rated Cable Temperature $\geq 100^{\circ}\text{C}$
 - Input conductor with 28-12 AWG (max. 3.3 mm^2) to be used with the devices

Address of manufacturer: No. 1111, Heping Rd., Bade Dist., Taoyuan City 334004, Taiwan