NPort IAW5150A-6I/O
NPort IAW5250A-6I/O
Quick Installation Guide

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Overview

The NPort IAW5x50A-6I/O series consists of wireless serial device servers with Digital Input/Output (DIO), providing maximum flexibility to integrate serial equipment in the field into wireless Ethernet networks for a variety of industrial data acquisition applications. The DIO on a device can be controlled over TCP/IP, using the Modbus TCP protocol, and it can be configured and secured from a web browser.

Package Checklist

Before installing the NPort IAW5150A-6I/O or NPort IAW5250A-6I/O series wireless device server, verify that the package contains the following items:

- 1 NPort IAW5150A-6I/O or NPort IAW5250A-6I/O wireless device server with digital I/O
- 1 antenna
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Optional Accessories

- **Mini DB9F-to-TB Adapter:** DB9-female-to-terminal-block adapter for RS-422/485 applications
- **WK-51-01:** Wall-mounting kit
- **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 or 176 to 264 VAC input, selected by a DIP switch

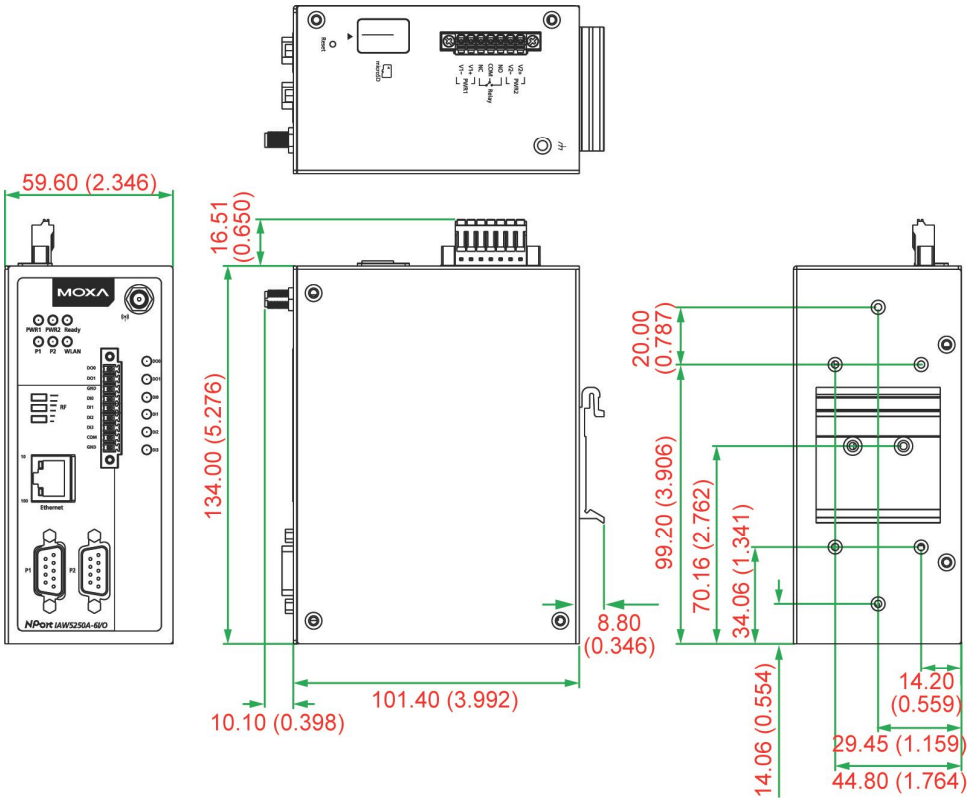
Notify your sales representative if any of the above items are missing or damaged.

Hardware Introduction

As shown in the following figures, the NPort IAW5150A-6I/O has one DB9 port for transmitting serial data, and the NPort IAW5250A-6I/O has two DB9 ports for transmitting serial data. Both models are equipped with four DIs and two DOs for data acquisition applications. The NPort IAW5x50A-6I/O wireless device server series comes with built-in 4 kV serial port surge protection.

NPort IAW5x50A-6I/O

The mechanical design of the NPort IAW5150A-6I/O and the NPort IAW5250A-6I/O is mostly identical; only the number of serial ports differs.



Reset Button—*Press the **Reset** button for five seconds to load factory defaults.*

The reset button is used to load factory defaults. Press the reset button for five seconds using a pointed object, such as a straightened paper clip. Release the reset button when the Ready LED stops blinking.

ATTENTION

This product is intended to be supplied by a Listed Power Unit marked"Class 2" or "LPS" and rated O/P: 12-48Vdc, 0.38-0.1A or 24Vdc, 0.17A minimum. (with Tma 60 ℃)

ATTENTION

Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."

LED Indicators

Name	Color	Function	
PWR 1, PWR 2	Green	Power is being supplied to power input PWR1, PWR2.	
Ready	Red	Steady on:	Power is on, and the NPort is booting up.
		Blinking:	Indicates an IP conflict, or the DHCP or BOOTP server did not respond properly, or a relay output occurred.
			When the above two conditions occur at the same time.
			Check the relay output first. If the Ready LED is still blinking after resolving the relay output, then there is an IP conflict, or the DHCP or BOOTP server did not respond properly.
		Flashing quickly:	MicroSD card failed
	Green	Steady on:	Power is on, and the NPort is functioning normally.
		Blinking:	The device server has been located by Administrator's Location function
	Off	Power is off, or a power error condition exists.	
WLAN	Green	Steady on:	Wireless is enabled
		Blinking:	NPort can't establish WLAN connection with AP (Infrastructure) or station (Ad-Hoc)
	Off	Wireless is not enabled.	
Signal Strength (3 LEDs)	Red	1 Red:	The signal strength is between 0% and 40%
	Green	2 Green:	The signal strength is between 41% and 70%
		3 Green	The signal strength is between 71% and 100%
Ethernet	Orange	10 Mbps Ethernet connection	
	Green	100 Mbps Ethernet connection	
	Off	The Ethernet cable is disconnected or has a short.	
P1, P2 (Serial)	Orange	Serial port is receiving data.	
	Green	Serial port is transmitting data	
	Off	No data is being transmitted or received through the serial port.	
DI	Green	DI status on	
	Off	DI status off	
DO	Green	DO status on	
	Off	DO status off	

Hardware Installation Procedure

STEP 1: After unpacking the unit, connect the power supply to the unit.

STEP 2: Use an Ethernet cable to connect the unit to the network.

STEP 3: Connect your device to the desired port on the unit.

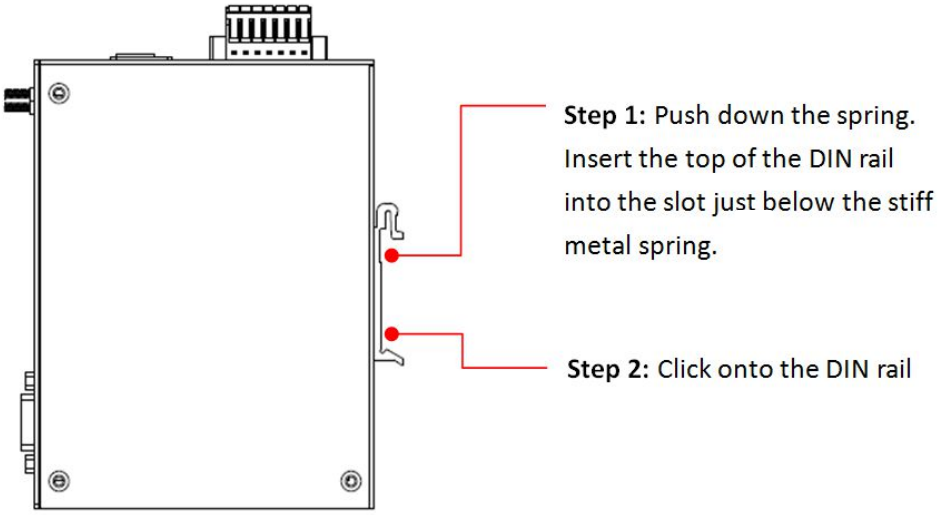
STEP 4: Place or mount the unit. The unit may be placed on a horizontal surface such as a desktop, or mounted on the wall.

Mounting Options

The NPort IAW5x50A-6I/O is designed to be attached to a DIN rail or mounted on a wall.

DIN-Rail Mounting

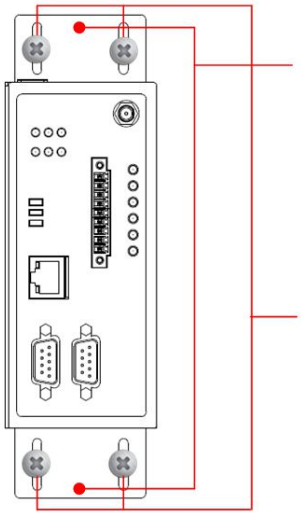
The aluminum DIN-rail attachment plate should be fixed to the back panel of the NPort IAW5x50A-6I/O when you take it out of the box.



To remove the NPort IAW5x50A-6I/O from the DIN rail, reverse Steps 1 and 2.

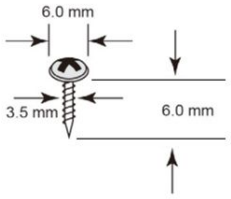
Wall Mounting (optional)

For some applications, it may be more convenient to mount the NPort IAW5x50A-6I/O to a wall, as illustrated below.



Step 1: Remove the aluminum DIN-rail attachment plate from the NPort, and then attach the wall-mounting plates with M3 screws.

Step 2: Mounting the NPort to a wall with wall-mounting plates attached in Step 1. The heads of the screws should be less than 6.0 mm in diameter, and the shafts should be less than 3.5 mm in diameter, as shown in the figure on the right.

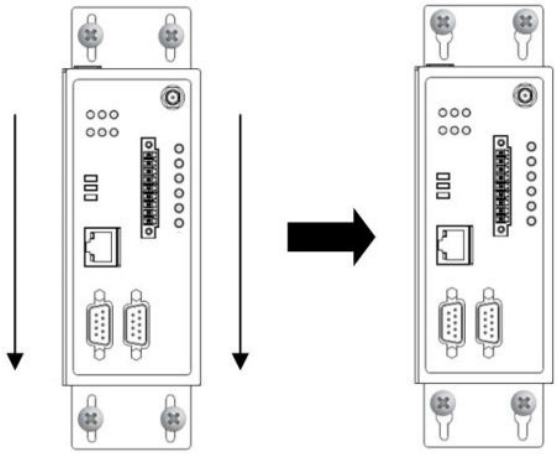


Do not drive the screws in all the way—leave a space of about 2 mm to allow room for sliding the wall-mounting panel between the wall and the screws.

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 they are fixed to the wall.

STEP 3:

Once the screws are fixed into the wall, insert the four screw heads through the large opening of the keyhole-shaped apertures, and then slide the NPort downwards, as indicated to the right. Tighten the screws for added stability.



Termination Resistor and Adjustable Pull-High/Low Resistors

In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals. When using termination resistors, it is important to set the pull-high/low resistors correctly so that the electrical signal is not corrupted. The NPort IAW5x50A-6I/O series uses DIP switches to set the pull-high/low resistor values for each serial

port. The DIP switches are located at the side of wireless device server for easy setting.

To add a 120 Ω termination resistor, set switch 3 on the port's assigned DIP switch to ON; set switch 3 to OFF (the default setting) to disable the termination resistor.

To set the pull-high/low resistors to 150 KΩ, set switches 1 and 2 on the port's assigned DIP switch to OFF. This is the default setting.

To set the pull-high/low resistors to 1 KΩ, set switches 1 and 2 on the port's assigned DIP switch to ON.

Pull-High/Low Resistors for the RS-485 Port

SW1 (Serial 1) **SW2** (Serial 2)	**DIP 1** Pull-high resistor	**DIP 2** Pull-low resistor	**DIP 3** Terminal resistor
ON	1 KΩ	1 KΩ	120 Ω
OFF (Default)	150 KΩ	150 KΩ	N/A

NOTE Do not use the 1 KΩ setting while in RS-232 mode. Doing so will degrade the RS-232 signals and reduce the effective communication distance.

Software Installation Information

Insert the Documentation and software CD into your PC. A window should open with several options displayed:

- Click **[Install COM Driver]** and follow the on-screen instructions to install the COM drivers.
- Click **[Documents]** and select **NPort IAW5x50A-6I/O Series User's Manual** to view the user's manual.
- Click **[Install UTILITY]** and follow the on-screen instructions to install the Device Search Utility. This utility can be used to search for NPort IAW5x50A-6I/O units on the network.

Setting the IP Address

The factory default IP settings are assigned as follows:

LAN: Static; IP = 192.168.126.254; netmask = 255.255.255.0
WLAN: Static; IP = 192.168.127.254; netmask = 255.255.255.0

If the NPort is configured for DHCP but the DHCP server cannot be found, the NPort will use factory default IP settings.

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

NOTE **Ethernet Bridge Disabled (default):** Only one network interface can be active at a time. If the Ethernet link is active, the WLAN will be inactive. If the WLAN is active, the Ethernet link will be inactive.

Ethernet Bridge Enabled: The LAN and WAN will both be active. Go to the web console, find the network settings page, and set **Ethernet Bridge** to **Enabled**.

Open the web console to make the configuration changes as follows:

STEP 1: Open your web browser.

STEP 2: In the address bar, enter 192.168.126.254 (the default IP address).

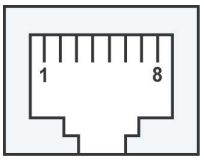
STEP 3: The web console will open, and the current configuration settings are shown.

STEP 4: 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.

Pin Assignments

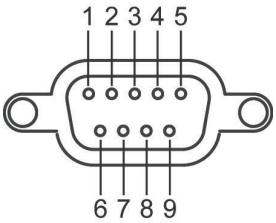
RJ45 (LAN)

Pin	LAN
1	Tx+
2	Tx-
3	Rx+
4	–
5	–
6	Rx-
7	–
8	–

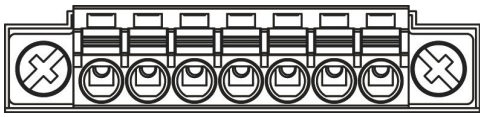


DB9 Male (RS-232/422/485)

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	–	–	–

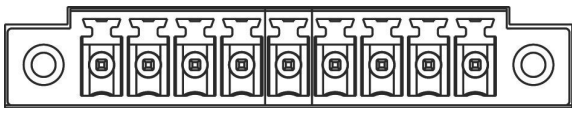


Power Input and Relay Output Pinouts



V2+	V2-				V1+	V1-
DC Power Input 2	DC Power Input 2	N.O.	Common	N.C.	DC Power Input 1	DC Power Input 1

DI/DO Pinouts



DO0	DO1	GND	DI0	DI1	DI2	DI3	COM	GND
Digital Output 0	Digital Output 1	Ground	Digital Input 0	Digital Input 1	Digital Input 2	Digital Input 3	Common	Ground

Specifications

Power Input	12 to 48 VDC
Power Consumption	NPort IAW5150A-6I/O: 300mA @12V NPort IAW5250A-6I/O: 300mA @12V
Operating Temperature	Standard models: 0 to 60°C (32 to 140°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	5 to 95% RH
Dimensions (W x D x H)	NPort IAW5150A-6I/O, NPort IAW5250A-6I/O: 59.6 x 101.4 x 134 mm (2.35 x 4.0 x 5.28 in)
Magnetic Isolation	1.5 kV for Ethernet
Regulatory Approvals	**EMC** CE: EN 61000-6-2/6-4 FCC: FCC Part 17 Subpart B, Class A FCC Part 15 Subpart B, Class A **Safety** UL: UL 60950-1 LVD: EN 60950-1 DSPR: ARIB-STD 33, ARIB-STD 66
Fault Relay Circuit	3-pin circuit with current-carrying capacity of 2 A @ 30 VDC

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Labeling requirements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

This radio transmitter FCCID: SLE-IAW5X50A has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use

with this device.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	KINSUN	6602D03081	Dipole	2.04 dBi for 2.4 GHz 0.38 dBi for 5 GHz

Note: The antenna connector is Reverse SMA type.