

# NPort® W2150/2250 Plus

## 1 and 2-port RS-232/422/485 IEEE 802.11a/b/g wireless device servers



- > Link any serial device to an IEEE 802.11a/b/g network
- > 921.6 Kbps baudrate for RS-232/422/485 transmissions
- > Web-based configuration using built-in Ethernet or WLAN
- > Enhanced remote configuration with HTTPS, SSH
- > Secure data access with WEP, WPA, WPA2
- > Built-in WLAN site survey tool
- > Wireless roaming with user-defined signal strength threshold
- > Off-line port buffering and serial data log
- > Dual power inputs (1 power jack, 1 terminal block)

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.



### Overview

The NPort® W2150 Plus and W2250 Plus are the ideal choice for connecting your serial devices, such as PLCs, meters, and sensors, to a wireless LAN. Your communications software will be able to access the serial devices from anywhere over a wireless LAN. Moreover, the wireless device servers require fewer cables and are ideal for applications that involve difficult wiring situations. In Infrastructure

Mode or Ad-Hoc Mode, the NPort® W2150 Plus and NPort® W2250 Plus can connect to Wi-Fi networks at offices and factories to allow users to move, or "roam," between several APs (Access Points), and offer an excellent solution for devices that are frequently moved from place to place.

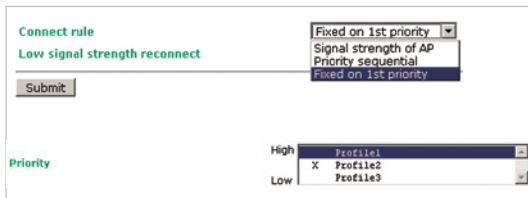
### 802.11a/b/g Wireless Connectivity to Serial Devices

Wireless device servers require fewer cables and are ideal for applications that involve difficult wiring situations. In Infrastructure Mode or Ad-Hoc Mode, the NPort® W2150 Plus and NPort® W2250

Plus can communicate with any host computer through an access point, or with another NPort® W2150 Plus or NPort® W2250 Plus located up to 100 meters away.

### Wireless Roaming Function

Wi-Fi networks at offices and factories allow users to move, or "roam," between several APs (Access Points). The NPort® W2150 Plus and NPort® W2250 Plus include a "Connect Rule" setting to allow wireless roaming.



The "Connect rule" field is only available in Infrastructure Mode and is used to specify the NPort's roaming behavior. When "Signal strength of AP" is selected, if more than one AP is detected, the NPort® will connect to the AP that has the highest signal strength, regardless of priority as set in the Priority field. When "Priority sequential" is selected, the NPort® will always try to connect to APs in order of priority, as set in the Priority field, regardless of signal strength. When "Fixed on 1st priority" is selected, the NPort® is only allowed to connect to the first priority AP, as set in the "Priority" field.

This "Priority" field is only available in Infrastructure Mode, and is used to set the priorities of the three available profiles.

### Off-line Port Buffering and Serial Data Log for Each Port

For mission-critical applications, data from the serial device must not be lost if the wireless connection goes down. The NPort® W2150 Plus and NPort® W2250 Plus are designed to continue operating if the wireless connection is disconnected temporarily. When the wireless connection is retraining, or if the connection fails, the serial data from the serial device will be queued in the 10 MB port buffer built into the

device server. As soon as the wireless connection returns to normal, the data stored in the buffer will be sent to its destination. In addition, a serial data log can be enabled to make troubleshooting easier.

The serial data log buffer for both the NPort® W2150 Plus and NPort® W2250 Plus is 64 KB per port.

13

WLAN & Cellular Solutions > NPort® W2150/2250 Plus

## Built-in WLAN Site Survey Tool

The NPort® W2150 Plus and NPort® W2250 Plus both have a built-in WLAN site survey tool. Additional software is NOT required to complete the site survey.

The purpose of conducting a WLAN site survey is to determine how many access points are required, and where the access points should be placed. For most implementations, the number and placement of access points is designed to guarantee a minimum data rate. With wireless systems, it is often necessary to perform a WLAN site survey before installing the access points in order to understand how radio waves behave within the facility.

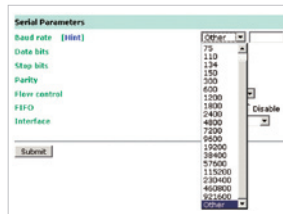


## Secure Remote Management and Configuration with SSH/SSL

Unauthorized access is one of the biggest headaches for system managers. In addition to IP filtering and password protection, the NPort® W2150 Plus and NPort® W2250 Plus also support SSH and SSL to provide protection from hackers. To transmit control messages

securely, open the web console using a web browser that supports https (Internet Explorer, for example). You may also open the serial or Telnet console, such as PuTTY, using a terminal emulator that supports SSH.

## Select “Any Baudrate” between 50 bps and 921.6 Kbps



Most device servers only support a fixed number of serial baudrates. However, some applications require special baudrates, such as 250 Kbps or 500 Kbps. With the NPort® W2150 Plus and NPort® W2250 Plus, you can enter any baudrate between 50 and 921.6 Kbps.

If your device's baudrate is not a standard baudrate, select “other” from the drop-down list and then enter the baudrate.

## Specifications

### WLAN Interface

**Standards:** 802.11a/b/g

**Radio Frequency Type:** DSSS/OFDM

#### Security:

- WEP: 64-bit/128-bit data encryption
- WPA, WPA2, 802.11i: Enterprise mode and Pre-Share Key (PSK) mode
- Encryption: 128-bit TKIP/AES-CCMP EAP-TLS, PEAP/GTC, PEAP/MD5, PEAP/MSCHAPV2, EAP-TTLS/PAP, EAP-TTLS/CHAP, EAP-TTLS/MSCHAP, EAP-TTLS/MSCHAPV2, EAP-TTLS/EAP-MSCHAPV2, EAP-TTLS/EAP-GTC, EAP-TTLS/EAP-MD5, LEAP

#### Transmission Rates:

- 802.11a: 54 Mbps
- 802.11b: 11 Mbps
- 802.11g: 54 Mbps (max.) with auto fallback (54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps)

**Transmission Distance:** Up to 100 meters (in open areas)

#### TX Transmit Power:

- 802.11a: 14 dBm (typical)
- 802.11b: 17 dBm (typical)
- 802.11g: 15 dBm (typical)

**Rx Sensitivity:** -80 dBm

**Antenna Connector:** Reverse SMA

**Network Modes:** Infrastructure, Ad-Hoc

### LAN Interface

**Ethernet:** 10/100 Mbps, RJ45 connector, Auto MDI/MDIX

**Magnetic Isolation Protection:** 1.5 KV built-in

### Serial Interface

#### Number of Ports:

- NPort® W2150 Plus: 1
- NPort® W2250 Plus: 2

**Serial Standards:** RS-232/422/485 (DB9 male connector)

#### Off-line Port Buffering:

- NPort® W2150 Plus: 20 MB
- NPort® W2250 Plus: 10 MB

### Serial Communication Parameters

**Data Bits:** 5, 6, 7, 8

**Stop Bits:** 1, 1.5, 2

**Parity:** None, Even, Odd, Space, Mark

**Flow Control:** RTS/CTS, XON/XOFF

**Baudrate:** 50 bps to 921.6 Kbps

**Serial Data Log:** 64 KB

### Serial Signals

**RS-232:** TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

**RS-422:** TxD+, TxD-, RxD+, RxD-, GND

**RS-485-4w:** TxD+, TxD-, RxD+, RxD-, GND

**RS-485-2w:** Data+, Data-, GND

### Software

**Network Protocols:** ICMP, IP, TCP, UDP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, SNTIP, SSH, HTTPS

**Configuration Options:** Web Console, Serial Console, Telnet Console, Windows Utility

**Management:** SNMP MIB-II

**Secure Configuration Options:** HTTPS, SSH

**Utilities:** NPort® Search Utility and NPort® Windows Driver manager

**Windows Real COM Drivers:** Windows 95, 98, ME, NT, 2000, XP x86/x64, 2003 x86/x64, Vista x86/x64, 2008 x86/x64, Embedded CE 5.0/6.0, XP Embedded

**Fixed TTY Drivers:** SCO Unix, SCO OpenServer, UnixWare 7, UnixWare 2.1, SVR 4.2, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i

**Linux Real TTY Drivers:** 2.4.x/2.6.x

## Physical Characteristics

**Housing:** Aluminum sheet metal (1 mm)

**Weight:** 780 g

### Dimensions:

Without ears or antenna: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)

With ears, without antenna: 100 x 111 x 26 mm (3.94 x 4.37 x 1.02 in)

Antenna Length: 109 mm (4.29 in)

## Environmental Limits

### Operating Temperature:

Standard Models: 0 to 55°C (32 to 131°F)

Wide Temp. Models: -40 to 75°C (-40 to 167°F)

**Operating Humidity:** 5 to 95% RH

**Storage Temperature:** -40 to 85°C (-4 to 185°F)

## Power Requirements

**Input Voltage:** 12 to 48 VDC

**Power Consumption:** 560 mA @ 12 V, 294 mA @ 24 V, 162 mA @ 48 V

## Regulatory Approvals

**Safty:** UL (UL60950-1), TUV (EN60950-1)

**Radio:** CE (ETSI EN 301 893, ETSI EN 300 328), ARIB RCR STD-33, ARIB STD-66

**EMC:** CE (EN55022 and EN55024 Class A, ETSI EN 301 489-17, ETSI EN 301 489-1)

**EMI:** FCC Part 15 (Subpart B Class A, Subpart C, Subpart E), VCCI

## Reliability

### MTBF (mean time between failures):

NPort® W2150 Plus: 352547 hrs

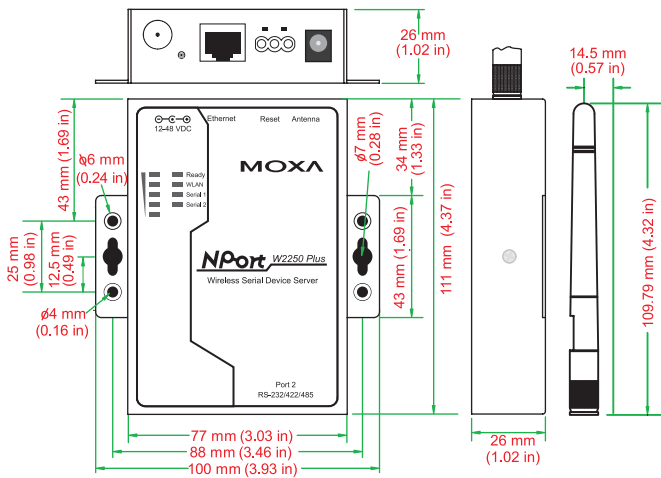
NPort® W2250 Plus: 352034 hrs

## Warranty

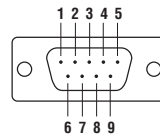
**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Dimensions



## Pin Assignment, DB9 Male



| PIN | RS-232 | RS-422/485-4W | 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   | -      | -             | -         |

## Ordering Information

### Available Models

- NPort® W2150 Plus-US:** 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, US band, US plug, 0 to 55°C operating temperature
- NPort® W2150 Plus-EU:** 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, Euro plug, 0 to 55°C operating temperature
- NPort® W2150 Plus-CN:** 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, US plug, CCC, 0 to 55°C operating temperature
- NPort® W2150 Plus-UK:** 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, UK plug, 0 to 55°C operating temperature
- NPort® W2150 Plus-SAA:** 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, Australia plug, 0 to 55°C operating temperature
- NPort® W2150 Plus-JP:** 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Japan band, Japan plug, 0 to 55°C operating temperature
- NPort® W2250 Plus-US:** 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, US band, US plug, 0 to 55°C operating temperature
- NPort® W2250 Plus-EU:** 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, Euro plug, 0 to 55°C operating temperature
- NPort® W2250 Plus-CN:** 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, US plug, CCC
- NPort® W2250 Plus-UK:** 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, UK plug, 0 to 55°C operating temperature
- NPort® W2250 Plus-SAA:** 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Euro band, Australian plug, 0 to 55°C operating temperature
- NPort® W2250 Plus-JP:** 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN, antenna, Japan band, Japan plug, 0 to 55°C operating temperature
- NPort® W2150 Plus-T:** 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN (includes US, Euro, Japan band), -40 to 75°C operating temperature
- NPort® W2250 Plus-T:** 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN (includes US, Euro, Japan band), -40 to 75°C operating temperature

## Optional Accessories (can be purchased separately)

**Serial Cables and Adaptors:** See page A-6 for details

**DK-35A:** 35 mm DIN-Rail Mounting Kit

## Package Checklist

- NPort® W2150 Plus or NPort® W2250 Plus wireless device server
- Power adaptor
- Antenna
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

13