

# NPort® Z2150/Z3150 Series

1-port RS-232/422/485 to ZigBee converter or ZigBee-to-Ethernet gateway



NPort Z3150

NPort Z2150

- > IEEE 802.15.4/ZigBee compliant
- > Network topologies: Mesh/Star/Cluster tree
- > 128-bit AES hardware encryption
- > Enhanced surge protection for serial and power
- > Dual DC power inputs (NPort Z3150 only)
- > Easy-to-use configuration utility



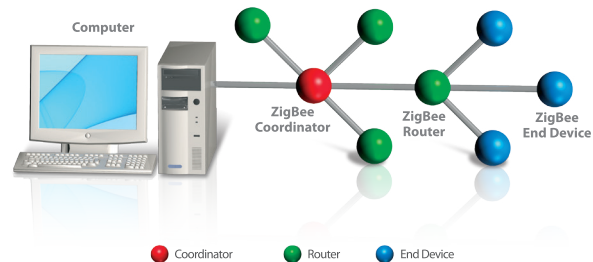
## Overview

The NPort Z2150 and NPort Z3150 are IEEE 802.15.4/ZigBee compliant, providing a reliable wireless solution for serial-to-ZigBee networks requiring minimal wiring presence.

The NPort Z2150 can be configured as a ZigBee coordinator (ZC), a ZigBee router (ZR), or a ZigBee end device (ZED). Any serial device can be connected to the NPort Z2150 and exchange data via PAN. A user-friendly utility is provided to configure the device type and network settings in simple steps.

The NPort Z3150 was designed specifically to perform as a ZigBee Coordinator (ZC), providing nodes with an Ethernet interface to the ZigBee PAN. Internet connection and network services are also provided via the ZigBee PAN. Remote users can monitor any ZigBee device in the PAN through the NPort Z3150.

The following figure shows a typical topology of a ZigBee network. The NPort Z3150 is the ZigBee coordinator (ZC) connected to numerous ZigBee routers (ZR) and the routers are connected to end devices (ZED).



## Surge-Protected Serial and Power Lines

Surge, which is typically caused by high voltages that result from switching and lightning transients, is a common threat to all electrical devices. Moxa's leading-edge surge immunity solution, which is applied to the NPort Z2150/Z3150's serial and Ethernet lines, is tested

and proven compliant with IEC 61000-4-5. This surge protection provides a robust solution that can protect electrical devices from voltage spikes and withstand electrically noisy environmental conditions.

## Specifications

### ZigBee Interface

- RF Standard:** 802.15.4/ZigBee compliant
- Frequency Band:** 2.4 GHz
- RF Data Rate:** 250 kbps
- Rx sensitivity:** -96 dBm
- Tx Power:** 4.5 dBm (Max)
- Transmission Distance:** Up to 100 m (open space)
- Antenna:** 2 dBi
- RF Channel:** 16 channels
- Device Type:** Coordinator, Router (NPort Z2150 only), End Device (NPort Z2150 only)
- Network Topology:** Star, Mesh, Cluster tree
- Security:** 128-bit AES encryption algorithms
- Ethernet Interface (NPort Z3150 only)**
- Number of Ports:** 1
- Speed:** 10/100 Mbps, auto MDI/MDIX
- Connector:** RJ45
- Magnetic Isolation Protection:** 1.5 kV built-in

### Hardware

- DIP Switch:** Console/Operation Mode
- SW1:** Pull high/low resistor, Termination for RS-422/485.
- Reset Button:** Reset to default
- Serial Interface**
- Number of Ports:** 1
- Serial Standards:** RS-232/422/485
- Connector:** DB9 male
- Serial Line Protection:** 1 kV surge protection
- RS-485 Data Direction Control:** ADDC (Automatic Data Direction Control)
- Serial Communication Parameters**
- Data Bits:**
- NPort Z2150: 8
- NPort Z3150: 5, 6, 7, 8
- Stop Bits:** 1, 2

**Parity:**

NPort Z2150: None, Even, Odd  
 NPort Z3150: None, Even, Odd, Mark, Space

**Flow Control:**

NPort Z2150: RTS/CTS  
 NPort Z3150: RTS/CTS, XON/XOFF

**Baudrate:**

NPort 2150: 50 bps to 230.4 kbps  
 NPort 3150: 50 bps to 921.6 kbps

**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**

**Windows Real COM Drivers:** Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64), Windows Embedded CE 5.0/6.0, Windows XP Embedded

**Configuration:**

NPort Z2150: ZigBee Configuration Utility  
 NPort Z3150: Web Console

**Firmware Upgrade:**

NPort Z2150: ZigBee Configuration Utility  
 NPort Z3150: Windows Utility, Web Console

**Physical Characteristics**

**Housing:** Aluminum

**Weight:**

NPort Z2150: 340 g (0.75 lb)  
 NPort Z3150: 780 g (1.72 lb)

**Dimensions:**

NPort Z2150:  
 Without ears: 52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)  
 With ears: 75.2 x 80 x 22 mm (2.96 x 3.15 x 0.87 in)  
 NPort Z3150:  
 Without ears: 77 x 111 x 26 mm (3.33 x 4.37 x 1.02 in)  
 With ears: 100 x 111 x 26 mm (3.94 x 4.37 x 1.02 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)

**Storage Temperature:** -40 to 75°C (-40 to 167°F)

**Ambient Relative Humidity:** 5 to 95% RH

**Power Requirements**

**Input Voltage:** 12 to 48 VDC

**Input Current:**

NPort Z2150: 45 mA @ 12 V  
 NPort Z3150: 120 mA @ 12 V

Connector: Power Jack with Screw, Terminal block (NPort Z3150 only)

**Standards and Certifications**

**Safety:** UL 60950-1

**EMC:** EN 55032/24

**EMI:** CISPR 32, FCC Part 15B Class A

**EMS:**

IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV  
 IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m  
 IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV  
 IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV  
 IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m  
 IEC 61000-4-8 PFMF  
 IEC 61000-4-11 DIPs

**Radio:** CE (ETSI EN 301 893, ETSI EN 300 328, ETSI EN 301 489-1-17, ETSI EN 301 489-1)

**Reliability**

**Automatic Reboot Trigger:** Built-in WDT (watchdog timer)

**MTBF** (mean time between failures)

**Time:**

NPort Z2150: 2,542,774 hrs  
 NPort Z3150: 1,109,589 hrs

**Standard:** Telcordia (Bellcore) Standard TR/SR

**Warranty**

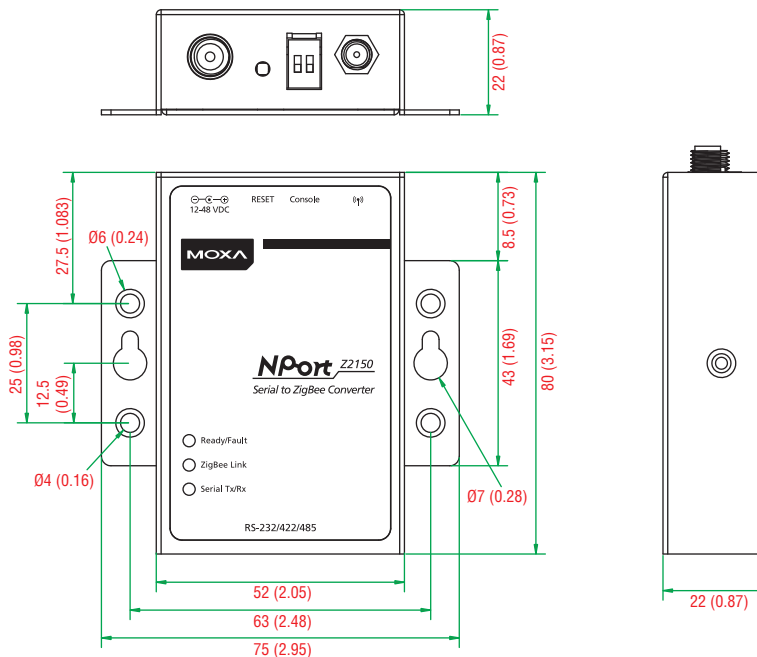
**Warranty Period:** 5 years

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

**Dimensions**

Unit: mm (inch)

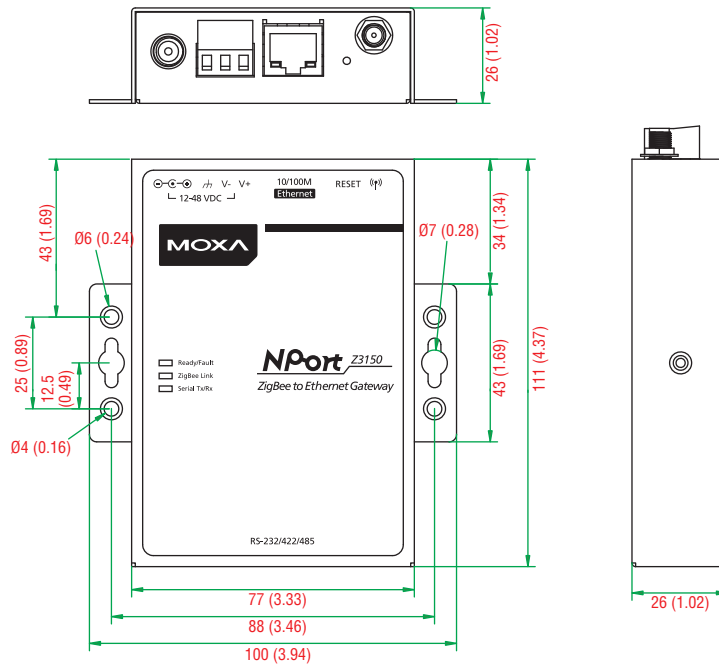
**NPort® Z2150**



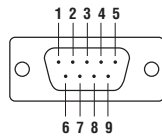
## Dimensions

Unit: mm (inch)

### NPort® Z3150



## Pin Assignment



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	-	-

## Ordering Information

### Available Models

**NPort Z2150:** 1-port RS-232/422/485 serial-to-ZigBee converter with 802.15.4, 0 to 55°C operating temperature

**NPort Z3150:** 1-port ZigBee-to-Ethernet gateway, 0 to 55°C operating temperature

**NPort Z2150-T:** 1-port RS-232/422/485 serial-to-ZigBee converter with 802.15.4, -40 to 75°C operating temperature

**NPort Z3150-T:** 1-port ZigBee-to-Ethernet gateway, -40 to 75°C operating temperature

### Optional Accessories (can be purchased separately)

**DK35A:** DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws

**CBL-PJ21NOPEN-BK-30:** Locking barrel plug to bare-wires cable

**Mini DB9F-to-TB:** DB9 female to terminal block adapter for RS-422/485 applications

**DB9F-to-TB Adapter:** DB9 female to terminal block adapter for RS-422/485 applications

**Note:** One power adapter suitable for your region is included in the product package. Additional power adapters can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

### Package Checklist

- 1 NPort Z2150 or NPort Z3150
- 100 to 240 VAC power adapter (excluding T models)
- 1 2.4/5 GHz antenna: ANT-WDB-ARM-02
- Quick installation guide (printed)
- Documentation and software CD
- Warranty card

**Note:** The package includes one power adapter suitable for your region.

# Power Accessory Selection Guide

Barrel Plug Type		Locking Barrel Plug				
O/P		12 VDC 0.5 A, 100 to 240 VAC (Switch-Mode)				
Plug Type		US/JP	EU	AU	UK	CN
Appearance						
Model Name		PWR-12050-WPUSJP-S1	PWR-12050-WPEU-S1	PWR-12050-WPAU-S1	PWR-12050-WPUK-S1	PWR-12050-WPCN-S1
1 Port	NPort 5110	-	-	-	-	-
	NPort 5130	-	-	-	-	-
	NPort 5150	-	-	-	-	-
	NPort 5110A	✓	✓	✓	✓	✓
	NPort 5130A	✓	✓	✓	✓	✓
	NPort 5150A	✓	✓	✓	✓	✓
	DE-211	-	-	-	-	-
	DE-311	-	-	-	-	-
	NPort P5150A	✓	✓	✓	✓	✓
	NPort W2150A	✓	✓	✓	✓	✓
NPort Z2150/Z3150	✓	✓	✓	✓	✓	
2 Ports	NPort 5210	-	-	-	-	-
	NPort 5230	-	-	-	-	-
	NPort 5232	-	-	-	-	-
	NPort 5232I	-	-	-	-	-
	NPort 5210A	✓	✓	✓	✓	✓
	NPort 5230A	✓	✓	✓	✓	✓
	NPort 5250A	✓	✓	✓	✓	✓
	NPort W2250A	✓	✓	✓	✓	✓

Barrel Plug Type		Non-Locking Barrel Plug				
O/P		12 VDC 0.5 A, 100 to 240 VAC (Switch-Mode)				
Plug Type		US/JP	EU	AU	UK	CN
Appearance						
Model Name		PWR-12050-WPUSJP-S2	PWR-12050-WPEU-S2	PWR-12050-WPAU-S2	PWR-12050-WPUK-S2	PWR-12050-WPCN-S2
1 Port	NPort 5110	✓	✓	✓	✓	✓
	NPort 5130	✓	✓	✓	✓	✓
	NPort 5150	✓	✓	✓	✓	✓
	NPort 5110A	-	-	-	-	-
	NPort 5130A	-	-	-	-	-
	NPort 5150A	-	-	-	-	-
	DE-211	✓	✓	✓	✓	✓
	DE-311	✓	✓	✓	✓	✓
	NPort P5150A	-	-	-	-	-
	NPort W2150A	-	-	-	-	-
NPort Z2150/Z3150	-	-	-	-	-	
2 Ports	NPort 5210	✓	✓	✓	✓	✓
	NPort 5230	✓	✓	✓	✓	✓
	NPort 5232	✓	✓	✓	✓	✓
	NPort 5232I	✓	✓	✓	✓	✓
	NPort 5210A	-	-	-	-	-
	NPort 5230A	-	-	-	-	-
	NPort 5250A	-	-	-	-	-
	NPort W2250A	-	-	-	-	-

# Power Accessory Selection Guide

Barrel Plug Type		Non-Locking Barrel Plug				
O/P		12 VDC 1.25/1.5 A, 100 to 240 VAC				
Plug Type		US/JP	EU	AU	UK	CN
Appearance						
Model Name		PWR-12125-WPUSJP-S1	PWR-12125-WPEU-S1	PWR-12125-WPAU-S1	PWR-12125-WPUK-S1	PWR-12125-WPCN-S1
4 Ports	NPort 5410	✓	✓	✓	✓	✓
	NPort 5430	✓	✓	✓	✓	✓
	NPort 5430I	✓	✓	✓	✓	✓
	NPort 5450	✓	✓	✓	✓	✓
	NPort 5450I	✓	✓	✓	✓	✓
8 Ports	NPort 5610-8	-	-	-	-	-
	NPort 5630-8	-	-	-	-	-
	NPort 5650-8	-	-	-	-	-
	NPort 5650-8-M-SC	-	-	-	-	-
	NPort 5650-8-S-SC	-	-	-	-	-
	NPort 5610-8-DT	-	-	-	-	-
	NPort 5610-8-DT-J	-	-	-	-	-
	NPort 5650-8-DT	-	-	-	-	-
	NPort 5650-8-DT-J	-	-	-	-	-
	NPort 5650I-8-DT	-	-	-	-	-
NPort 5610-8-DTL	-	-	-	-	-	
NPort 5650-8-DTL	-	-	-	-	-	
NPort 5650I-8-DTL	-	-	-	-	-	
16 Ports	NPort 5610-16	-	-	-	-	-
	NPort 5630-16	-	-	-	-	-
	NPort 5650-16	-	-	-	-	-

Barrel Plug Type		Locking Barrel Plug						
O/P		12 VDC 2 A, 100 to 240 VAC (desktop type)	10A/250V Power Cord, 183 cm					
Plug Type		Requires 1 power cord (US/JP/EU/AU/UK/CN)	US	JP	EU	AU	UK	CN
Appearance								
Model Name		PWR-12200-DT-S1	PWC-C13US-3B-183	PWC-C13JP-3B-183	PWC-C13EU-3B-183	PWC-C13AU-3B-183	PWC-C13UK-3B-183	PWC-C13CN-3B-183
4 Ports	NPort 5410	-	-	-	-	-	-	-
	NPort 5430	-	-	-	-	-	-	-
	NPort 5430I	-	-	-	-	-	-	-
	NPort 5450	-	-	-	-	-	-	-
	NPort 5450I	-	-	-	-	-	-	-
8 Ports	NPort 5610-8	-	✓	✓	✓	✓	✓	✓
	NPort 5630-8	-	✓	✓	✓	✓	✓	✓
	NPort 5650-8	-	✓	✓	✓	✓	✓	✓
	NPort 5650-8-M-SC	-	✓	✓	✓	✓	✓	✓
	NPort 5650-8-S-SC	-	✓	✓	✓	✓	✓	✓
	NPort 5610-8-DT	✓	✓	✓	✓	✓	✓	✓
	NPort 5610-8-DT-J	✓	✓	✓	✓	✓	✓	✓
	NPort 5650-8-DT	✓	✓	✓	✓	✓	✓	✓
	NPort 5650-8-DT-J	✓	✓	✓	✓	✓	✓	✓
	NPort 5650I-8-DT	✓	✓	✓	✓	✓	✓	✓
NPort 5610-8-DTL	✓	✓	✓	✓	✓	✓	✓	
NPort 5650-8-DTL	✓	✓	✓	✓	✓	✓	✓	
NPort 5650I-8-DTL	✓	✓	✓	✓	✓	✓	✓	
16 Ports	NPort 5610-16	-	✓	✓	✓	✓	✓	✓
	NPort 5630-16	-	✓	✓	✓	✓	✓	✓
	NPort 5650-16	-	✓	✓	✓	✓	✓	✓