

# NPort® IA5000 Series

## 1 and 2-port serial device servers for industrial automation

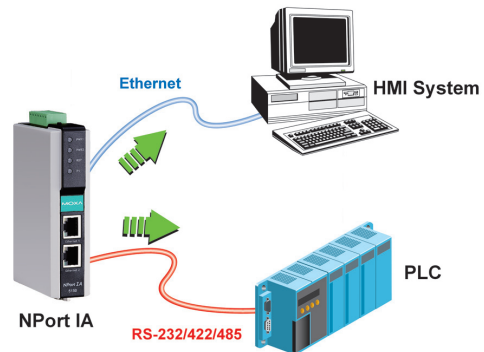


- > Socket modes: TCP server/TCP client/UDP
- > Patented ADDC® (automatic data direction control) for 2-wire and 4-wire RS-485
- > Cascading Ethernet ports for easy wiring (applies only to RJ45 connectors)
- > Redundant DC power inputs
- > Warning by relay output and e-mail
- > 10/100BaseTX (RJ45) or 100BaseFX (single mode or multi-mode with SC connector)
- > IP30-rated housing



### Overview

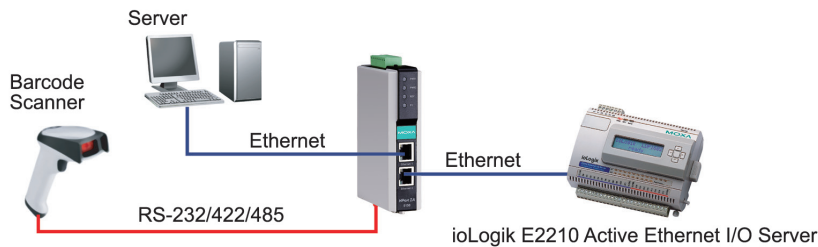
NPort® IA device servers provide easy and reliable serial-to-Ethernet connectivity for industrial automation applications. The device servers can connect any serial device to an Ethernet network, and to ensure compatibility with network software, they support a variety of port operation modes, including TCP Server, TCP Client, and UDP. The rock-solid reliability of the NPort® IA device servers makes them an ideal choice for establishing network access to RS-232/422/485 serial devices such as PLCs, sensors, meters, motors, drives, barcode readers, and operator displays. All models are housed in a compact, rugged housing that is DIN-rail mountable.



### Cascading Ethernet Ports Make Wiring Easy (10/100BaseTX models only)

The NPort® IA5150 and IA5250 device servers each have two Ethernet ports that can be used as Ethernet switch ports. One port connects directly to the network or server, and the other port can be connected

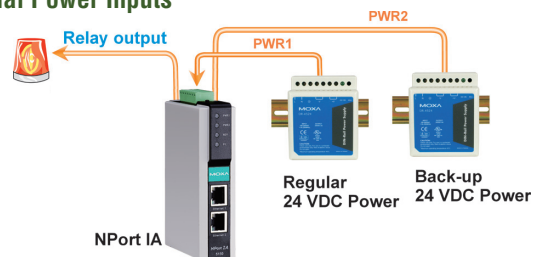
to another either NPort® IA device server or another Ethernet device. The dual Ethernet ports help reduce wiring costs by eliminating the need to connect each device to a separate Ethernet switch.



### Redundant Power Inputs

The NPort® IA5000 device servers have two power inputs that can be connected simultaneously to live DC power sources. If one power source fails, the other source takes over automatically. Redundant power inputs help assure that your device server will operate nonstop.

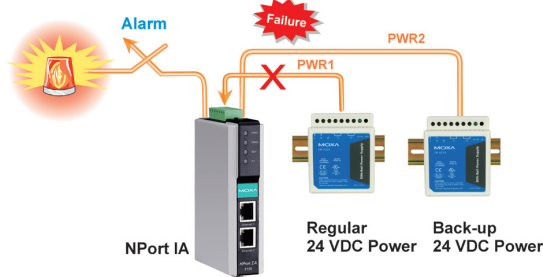
### Dual Power Inputs



## Relay Output Warning and E-mail Alerts

The built-in relay output can be used to alert administrators of problems with the Ethernet links or power inputs, or when there is a change in the DCD or DSR serial signals. The web console indicates

### Power Failure Alarm



which Ethernet link or power input has failed, or which serial signal has changed. An e-mail warning can also be issued when an exception is detected. These functions are valuable tools that enable maintenance engineers to react promptly to emergency situations.



## Optical Fiber for Ethernet Communication

The NPort® IA5000 series includes 100BaseFX fiber models that support transmission distances up to 5 km for multi-mode models, and up to 40 km for single-mode models. Optical fiber is well-suited for industrial applications because it is immune to electromagnetic

noise and interference. For environments that experience high ground loop voltages, fiber provides the best isolation protection, and because there is no danger of sparking, optical fiber is safer than copper wire to use in hazardous environments.

## Industrial-Grade Certification

To ensure safe and reliable operation in industrial environments, the NPort® IA5000 device servers have obtained various industrial certifications, including an IP30 rating for mechanical protection,

UL 508 safety certification for industrial control equipment, and explosion-safe certifications for hazardous locations. Certifications include UL/cUL Class 1 Division 2 Groups A, B, C, D, ATEX Class 1 Zone 2, and IECEx Zone 2.



## Specifications

### Ethernet Interface (NPort IA5150/5150I/5250)

**Number of Ports:** 2

**Speed:** 10/100 Mbps, auto MDI/MDIX

**Connector:** 8-pin RJ45

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

### Optical Fiber Interface (-M-SC and -S-SC models)

		100BaseFX		
		Multi-Mode		Single-Mode
Fiber Cable Type		OM1	50/125 μm 800 MHz*km	G.652
Typical Distance		4 km	5 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).

### Serial Interface

**Number of Ports:**

NPort IA5150: 1

NPort IA5250: 2

**Serial Standards:** RS-232/422/485

**Connector:**

NPort IA5150: DB9 male for RS-232, terminal block for RS-422/485

NPort IA5250: DB9 male for RS-232/422/485

### Serial Line Protection:

2 kV isolation protection (NPort IA5150I, NPort 5150I-M-SC, NPort 5150I-S-SC, NPort IA5250I)

**RS-485 Data Direction Control:** ADDC® (Automatic Data Direction Control)

### 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 and DTR/DSR (RS-232 only), XON/XOFF

**Baudrate:** 110 bps to 230.4 Kbps

### Serial Signals

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

**RS-422:** Tx+, Tx-, Rx+, Rx-, GND

**RS-485-4w:** Tx+, Tx-, Rx+, Rx-, GND

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

### Software

**Network Protocols:** ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, Rtelnet, DNS, SNMP V1, HTTP, SMTP, SNTIP, ARP

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

**Windows Real COM Drivers:** Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 x86/x64, 2012 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:** Linux 2.4.x, 2.6.x, 3.x

### Physical Characteristics

**Housing:** Plastic, IP30 protection

**Weight:**

NPort IA5150: 360 g (0.79 lb)

NPort IA5250: 380 g (0.84 lb)

**Dimensions:** 29 x 89.2 x 118.5 mm (0.82 x 3.51 x 4.57 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% (non-condensing)

### Power Requirements

**Input Voltage:** 12 to 48 VDC

**Input Current:**

NPort IA5150: 238 mA @ 12 VDC

NPort IA5150I: 257 mA @ 12 VDC

NPort IA5250: 238 mA @ 12 VDC

NPort IA5250I: 300 mA @ 12 VDC

NPort IA5150-S-SC: 328 mA @ 12 VDC

NPort IA5150I-S-SC: 333 mA @ 12 VDC

NPort IA5150-M-SC: 315 mA @ 12 VDC

NPort IA5150I-M-SC: 339 mA @ 12 VDC

### Standards and Certifications

**Safety:** UL 508, UL 60950-1

**Hazardous Location:** UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2, IECEx Zone 2

**EMI:** CISPR 22, FCC Part 15B Class A

**EMS:**

IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m

IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV

IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV

IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m

IEC 61000-4-8 PFMF

**Freefall:** IEC 60068-2-32

**Vibration:** IEC 60068-2-6

**Marine:** DNV

**Shock:** IEC 60068-2-27

### Reliability

**Alert Tools:** Built-in buzzer and RTC (real-time clock)

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

**Water and Dust Proof:** IP30

**MTBF** (mean time between failures)

**Time:**

NPort IA5150 Series: 183,747 hrs

NPort IA5150I Series: 195,614 hrs

NPort IA5250 Series: 194,765 hrs

NPort IA5250I Series: 341,417 hrs

**Standard:**

NPort IA5150 Series/NPort IA5150I Series/NPort IA5250 Series:

MIL-HDBK-217F

NPort IA5250I Series: Telcordia (Bellcore) Standard TR/SR

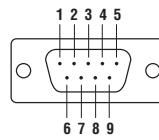
### Warranty

**Warranty Period:** 5 years

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

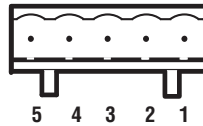
### Pin Assignment

**RS-232/422/485 DB9 male port**



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	-	-

**RS-422/485 Terminal Block Wiring**

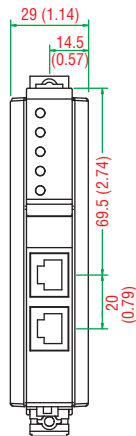


PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD+(B)	-
2	TxD-(A)	-
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND

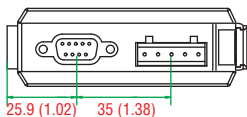
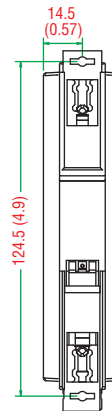
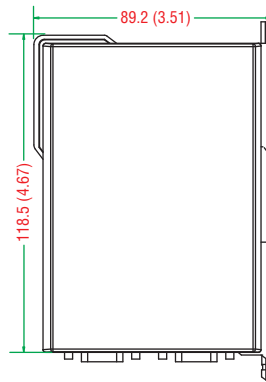
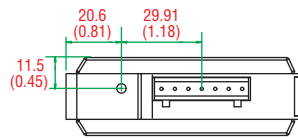
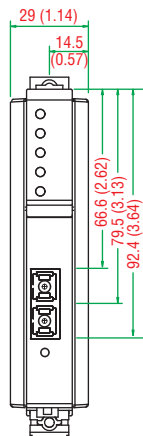
### Dimensions

Unit: mm (inch)

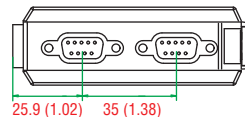
**NPort IA5150**  
**NPort IA5150I**  
**NPort IA5250**  
**NPort IA5250I**



**NPort IA5150-M-SC**  
**NPort IA5150-S-SC**  
**NPort IA5150I-M-SC**  
**NPort IA5150I-S-SC**



**NPort IA5150**  
**NPort IA5150I**  
**NPort IA5150-M-SC**  
**NPort IA5150-S-SC**  
**NPort IA5150I-S-SC**  
**NPort IA5150I-M-SC**



**NPort IA5250**  
**NPort IA5250I**

## Ordering Information

### Available Models

**NPort IA5150:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 0 to 55°C operating temperature

**NPort IA5150I:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, 0 to 55°C operating temperature

**NPort IA5150-M-SC:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 0 to 55°C operating temperature

**NPort IA5150I-M-SC:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, 0 to 55°C operating temperature

**NPort IA5150-S-SC:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 0 to 55°C operating temperature

**NPort IA5150I-S-SC:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, 0 to 55°C operating temperature

**NPort IA5250:** 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, 0 to 55°C operating temperature

**NPort IA5250I:** 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, 2 kV isolation protection, 0 to 55°C operating temperature

**NPort IA5150-T:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, -40 to 75°C operating temperature

**NPort IA5150I-T:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, -40 to 75°C operating temperature

**NPort IA5150-M-SC-T:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, -40 to 75°C operating temperature

**NPort IA5150I-M-SC-T:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, -40 to 75°C operating temperature

**NPort IA5150-S-SC-T:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, -40 to 75°C operating temperature

**NPort IA5150I-S-SC-T:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, -40 to 75°C operating temperature

**NPort IA5250-T:** 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, -40 to 75°C operating temperature

**NPort IA5250I-T:** 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, 2 kV isolation protection, -40 to 75°C operating temperature

### IECEX Models

**NPort IA5150-IEEX:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, IECEX, 0 to 55°C operating temperature

**NPort IA5150I-IEEX:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, IECEX, 0 to 55°C operating temperature

**NPort IA5150-M-SC-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, IECEX, 0 to 55°C operating temperature

**NPort IA5150I-M-SC-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, IECEX, 0 to 55°C operating temperature

**NPort IA5150-S-SC-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, IECEX, 0 to 55°C operating temperature

**NPort IA5150I-S-SC-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, IECEX, 0 to 55°C operating temperature

**NPort IA5250-IEEX:** 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, IECEX, 0 to 55°C operating temperature

**NPort IA5150-T-IEEX:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, IECEX, -40 to 75°C operating temperature

**NPort IA5150I-T-IEEX:** 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, IECEX, -40 to 75°C operating temperature

**NPort IA5150-M-SC-T-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, IECEX, -40 to 75°C operating temperature

**NPort IA5150I-M-SC-T-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, IECEX, -40 to 75°C, IECEX operating temperature

**NPort IA5150-S-SC-T-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, IECEX, -40 to 75°C operating temperature

**NPort IA5150I-S-SC-T-IEEX:** 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, IECEX, -40 to 75°C operating temperature

**NPort IA5250-T-IEEX:** 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, IECEX, -40 to 75°C operating temperature





### Optional Accessories (can be purchased separately)

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

### Package Checklist






- 1 NPort IA5000 series device server
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card








# 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-USJP-S1	PWR-12150-EU-S2	PWR-12150-AU-S2	PWR-12150-UK-S2	PWR-12125-CN-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		Must accompany with one power cord	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	-	✓	✓	✓	✓	✓	✓