NPort IA5000 Series

1 and 2-port serial device servers for industrial automation

Features and Benefits

- Socket modes: TCP server, TCP client, UDP
- 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
- Warnings and alerts by relay output and email
- 10/100BaseTX (RJ45) or 100BaseFX (single mode or multi-mode with SC connector)
- IP30-rated housing

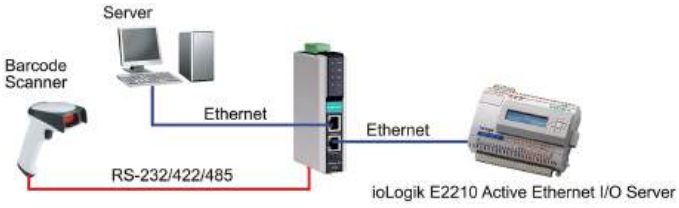
Certifications

Introduction

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.

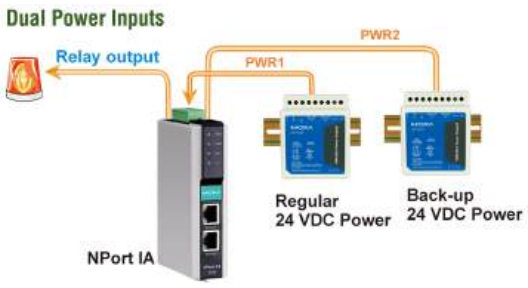
Cascading Ethernet Ports Make Wiring Easy (10/100BaseTX models)

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 either another NPort® IA device server or an 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.



Relay Output Warning and Email 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 which Ethernet link or power input has failed, or which serial signal has changed. An email 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, as well as ATEX Class 1 Zone 2, and IECEx Zone 2.

Specifications

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	2 (1 IP, Ethernet cascade)
Magnetic Isolation Protection	1.5 kV (built-in)
100BaseFX Ports (multi-mode SC connector)	NPort IA-5150/5150I-M-SC models: 1 NPort IA-5150-M-ST models: 1
100BaseFX Ports (single-mode SC connector)	NPort IA-5150/5150I-S-SC models: 1

Optical Fiber

		100BaseFX		
		Multi-Mode		Single-Mode
Fiber Cable Type		OM1	50/125 µm 800 MHz x km	G.652
Typical Distance		4 km	5 km	40 km
Wavelength	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).

Ethernet Software Features

Configuration Options	Web Console (HTTP) Windows Utility Telnet Console Serial Console
Management	DHCP Client IPv4 SMTP SNMPv1 Telnet ARP BOOTP DNS HTTP TCP/IP UDP ICMP Rtelnet
Windows Real COM Drivers	Windows 11, 10, 8.1, 8, 7, Vista, XP, ME, 98 and 95 Windows Server 2022, 2019, 2016, 2012 R2, 2012, 2008 R2, 2008, 2003, 2000 and NT Windows Embedded CE 5.0 and 6.0, Windows XP Embedded
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, and 2.4.x
Fixed TTY Drivers	macOS versions: 14, 13, 12, 11, and 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X
Arm®-based Platform Support	Windows 11 Linux Kernel 6.x, 5.x, and 4.x macOS 14, 13, 12, and 11
Virtual Machine	VMWare ESXi (Windows 11/10) VMware Fusion (Windows on macOS 14, 13, 12, 11, and 10.1x) Parallels Desktop (Windows on macOS 14, 13, 12, 11, and 10.1x)
Android API	Android 3.1.x and later
Time Management	SNTP
MIB	RFC1213, RFC1317

Security Functions

Authentication	Local database (password only)

Serial Interface

Connector	NPort IA-5150/5150I models: DB9 male for RS-232 and terminal block for RS-422/485 NPort IA-5250/5250I models: DB9 male for RS-232/422/485
No. of Ports	NPort IA-5150/5150I models: 1 NPort IA-5250/5250I models: 2
Serial Standards	RS-232 RS-422 RS-485
Baudrate	Supports standard baudrates (unit=bps): 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230400
Data Bits	5, 6, 7, 8
Parity	None, Even, Odd, Space, Mark
Stop Bits	1, 1.5, 2
Flow Control	RTS/CTS (RS-232 only) DTR/DSR (RS-232 only)

	XON/XOFF
Terminator for RS-485	120 ohms
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms
Isolation	I models: 2 kV
RS-485 Data Direction Control	ADDC (automatic data direction control)

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

Power Parameters

Input Voltage	12 to 48 VDC
Input Current	NPort IA-5150/IA-5150-T/IA-5250/IA-5250-T: 435 mA @ 12 VDC NPort IA-5150I/IA-5150I-T/IA-5150-S-SC/IA-5150-S-SC-T/IA-5150I-M-SC/IA-5150I-M-SC-T/IA-5150I-S-SC/IA-5150I-S-SC-T: 555 mA @ 12 VDC NPort IA-5250I/IA-5250I-T/IA-5150-M-SC/IA-5150-M-SC-T/IA-5150-M-ST/IA-5150-M-ST-T: 510 mA @ 12 VDC
No. of Power Inputs	2
Power Connector	Terminal block

Relays

Contact Current Rating	Resistive load: 1 A @ 30 VDC

Physical Characteristics

Housing	Plastic
IP Rating	IP30
Dimensions	29 x 89.2 x 118.5 mm (0.82 x 3.51 x 4.57 in)
Weight	NPort IA-5150/5150I: 360 g (0.79 lb) NPort IA-5250/5250I: 380 g (0.84 lb)
Installation	DIN-rail mounting

Environmental Limits

Operating Temperature	Standard models: 0 to 60°C (32 to 140°F) Wide Temp. models: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 167°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 55032/35
EMI	CISPR 32, 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: 2 kV

	IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11
Safety	IEC 60950-1 EN 60950-1 EN 62368-1 UL 508
Maritime	DNV
Hazardous Locations	ATEX Class I Division 2 IECEx
Freefall	IEC 60068-2-32
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6 IEC 60068-2-64

Declaration

Green Product	RoHS, CRoHS, WEEE

MTBF

Time	NPort IA-5150/IA-5150I models: 1,349,710 hrs NPort IA-5150-M-SC/M-ST/S-SC models: 1,175,887 hrs NPort IA-5150I-M-SC models 768,343 hrs NPort IA-5150I-S-SC models: 763,707 hrs NPort IA-5250/IA-5250I models: 1,236,384 hrs
Standards	Telcordia (Bellcore) Standard TR/SR

Warranty

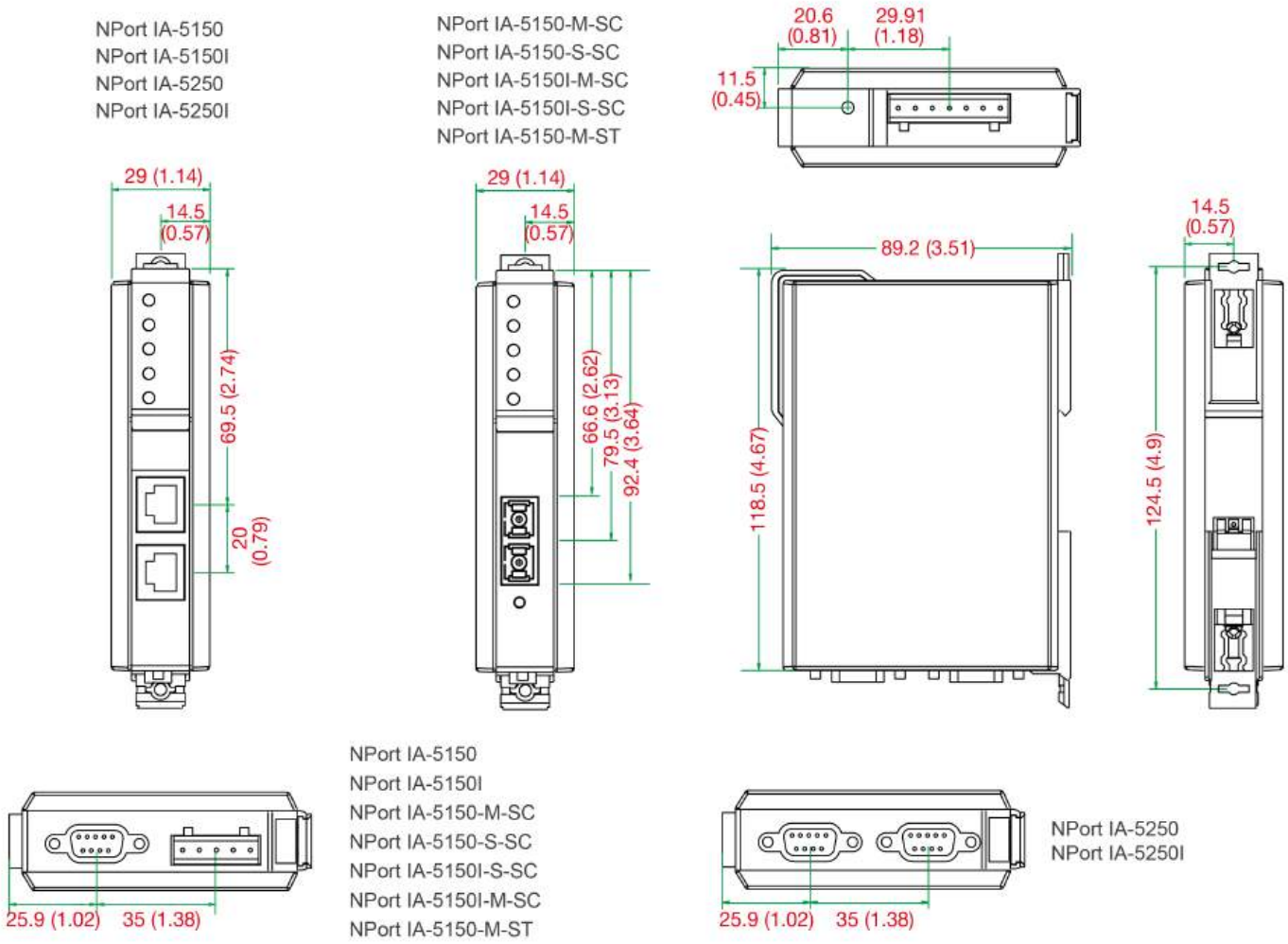
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x NPort IA-5000 Series device server
Documentation	1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)



Ordering Information

Model Name	No. of Ethernet Ports	Ethernet Port Connector	Operating Temp.	No. of Serial Ports	Serial Isolation	Certification: Hazardous Locations
NPort IA-5150	2	RJ45	0 to 55°C	1	–	ATEX, C1D2, IECEx
NPort IA-5150-T	2	RJ45	-40 to 75°C	1	–	ATEX, C1D2, IECEx
NPort IA-5150I	2	RJ45	0 to 55°C	1	2 kV	ATEX, C1D2, IECEx
NPort IA-5150I-T	2	RJ45	-40 to 75°C	1	2 kV	ATEX, C1D2, IECEx
NPort IA-5150-M-SC	1	Multi-Mode SC	0 to 55°C	1	–	ATEX, C1D2, IECEx
NPort IA-5150-M-SC-T	1	Multi-Mode SC	-40 to 75°C	1	–	ATEX, C1D2, IECEx
NPort IA-5150I-M-SC	1	Multi-Mode SC	0 to 55°C	1	2 kV	ATEX, C1D2, IECEx
NPort IA-5150I-M-SC-T	1	Multi-Mode SC	-40 to 75°C	1	2 kV	ATEX, C1D2, IECEx
NPort IA-5150-S-SC	1	Single-mode SC	0 to 55°C	1	–	ATEX, C1D2, IECEx
NPort IA-5150-S-SC-T	1	Single-mode SC	-40 to 75°C	1	–	ATEX, C1D2, IECEx
NPort IA-5150I-S-SC	1	Single-mode SC	0 to 55°C	1	2 kV	ATEX, C1D2, IECEx
NPort IA-5150I-S-SC-T	1	Single-mode SC	-40 to 75°C	1	2 kV	ATEX, C1D2, IECEx
NPort IA-5150-M-ST	1	Multi-Mode ST	0 to 55°C	1	–	ATEX, C1D2, IECEx

Model Name	No. of Ethernet Ports	Ethernet Port Connector	Operating Temp.	No. of Serial Ports	Serial Isolation	Certification: Hazardous Locations
NPort IA-5150-M-ST-T	1	Multi-Mode ST	-40 to 75°C	1	–	ATEX, C1D2, IECEx
NPort IA-5250	2	RJ45	0 to 55°C	2	–	ATEX, C1D2, IECEx
NPort IA-5250-T	2	RJ45	-40 to 75°C	2	–	ATEX, C1D2, IECEx
NPort IA-5250I	2	RJ45	0 to 55°C	2	2 kV	ATEX, C1D2, IECEx
NPort IA-5250I-T	2	RJ45	-40 to 75°C	2	2 kV	ATEX, C1D2, IECEx

Accessories (sold separately)

Cables

CBL-F9M9-150	DB9 female to DB9 male serial cable, 1.5 m
CBL-F9M9-20	DB9 female to DB9 male serial cable, 20 cm
CBL-RJ458P-100	8-pin RJ45 CAT5 Ethernet cable, 1 m
CBL-RJ45SF9-150	8-pin RJ45 to DB9 female serial cable with shielding, 1.5m

Connectors

ADP-RJ458P-DB9F	DB9 female to RJ45 connector
Mini DB9F-to-TB	DB9 female to terminal block connector