NPort® IA5000 Series

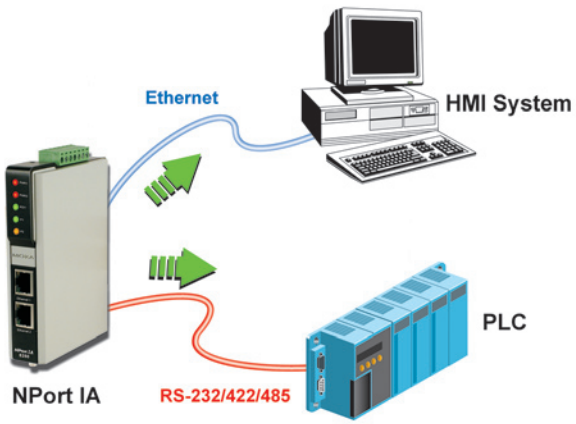
1 and 2-port serial device servers for industrial automation

- Versatile socket operation modes, including 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

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

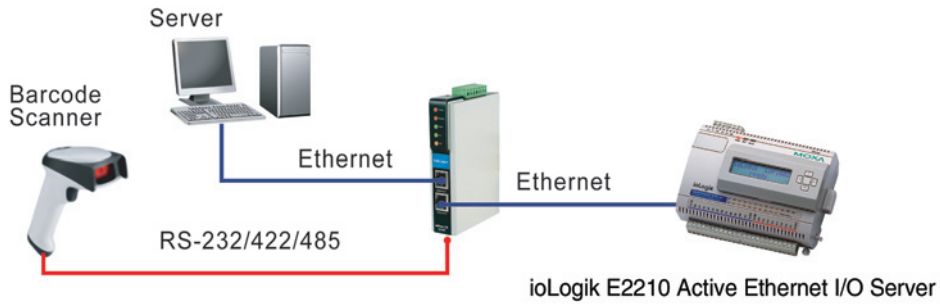
Overview

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)

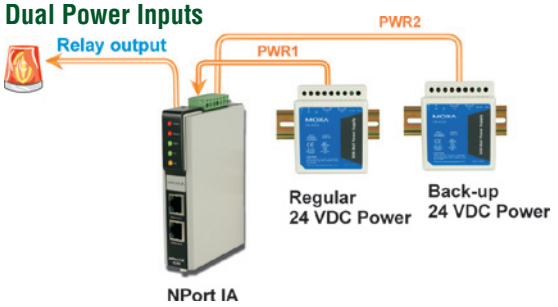
The NPort® IA5150 and IA5250 device servers each have two Ethernet ports that can be used as Ethernet switch ports. One port connects directly to the network or server, and the other port can be connected to another NPort® IA device server or another Ethernet device. The dual Ethernet ports help reduce 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 non-stop operation of your device server.

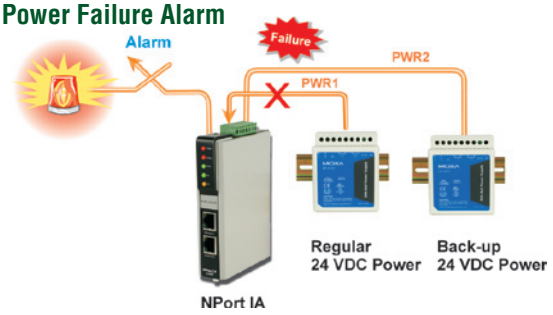
Dual Power Inputs



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 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.

Power Failure Alarm



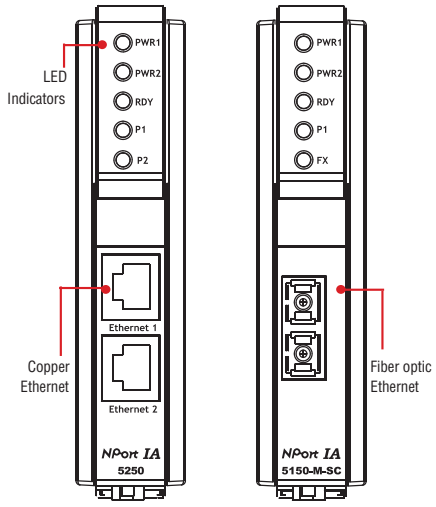
Optical Fiber for Ethernet Communication

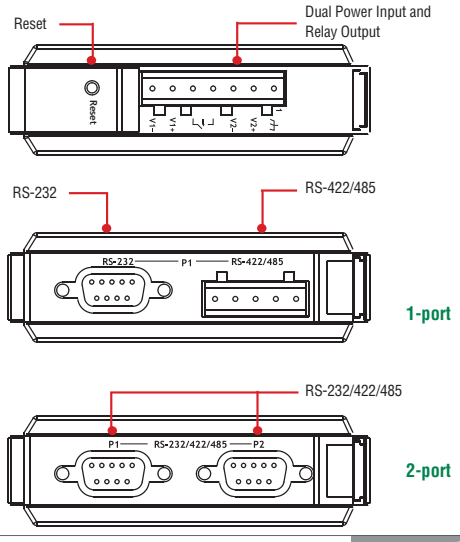
The NPort® IA5000 series includes 100BaseFX fiber models that support transmission distances up to 2 km for multi-mode models, and up to 40 km for single-mode models. Optical fiber is well-suited for industrial applications because it is immune to electromagnetic noise and interference. For environments 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, UL508 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, and ATEX Class 1 Zone 2.

Appearance





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)

Fiber Port: 100 BaseFX, SC connector

Distance:
Multi mode: 0 to 2 km, 1310 nm (62.5/125 µm, 500 MHz*km)
Single mode: 0 to 40 km, 1310 nm (9/125 µm, 3.5 PS/(nm*km))

Min. TX Output: -20 dBm (Multi mode), -5 dBm (Single mode)

Max. TX Output: -14 dBm (Multi mode), 0 dBm (Single mode)

Sensitivity: -34 to -30 dBm (Multi mode), -36 to -32 dBm (Single mode)

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:
15 KV ESD protection for all signals
2 KV isolation protection (NPort® IA5150I, NPort® 5150I-M-SC, NPort® 5150I-S-SC)

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, IP, TCP, UDP, DHCP, BOOTP, Telnet, Rtelnet, DNS, SNMP V1/V2c, HTTP, SMTP, SNTP

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

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: Linux kernel 2.4.x, 2.6.x

Physical Characteristics

Housing: Plastic, IP30 protection

Weight:
NPort® IA5150: 360 g
NPort® IA5250: 380 g

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)

Operating Humidity: 5 to 95% RH

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

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption:
NPort® IA5150: 360 mA @ 12 V, 195 mA @ 24 V
NPort® IA5150I: 420 mA @ 12 V, 215 mA @ 24 V
NPort® IA5250: 440 mA @ 12 V, 200 mA @ 24 V
NPort® IA5150-S-SC: 470 mA @ 12 V, 210 mA @ 24 V
NPort® IA5150I-S-SC: 490 mA @ 12 V, 250 mA @ 24 V
NPort® IA5150-M-SC: 500 mA @ 12 V, 250 mA @ 24 V
NPort® IA5150I-M-SC: 510 mA @ 12 V, 260 mA @ 24 V

Regulatory Approvals

EMC: CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A

Safety: UL (UL60950-1), UL508, TÜV (EN60950-1)

Hazardous Location: UL/cUL Class 1 Division 2 Groups A, B, C and D

ATEX: Class I, Zone 2

Marine: DNV

EMS:
EN61000-4-2 (ESD), Level 3
EN61000-4-3 (RS), Level 3
EN61000-4-4 (EFT), Level 4
EN61000-4-5 (Surge), Level 3
EN61000-4-6 (CS), Level 3
EN61000-4-8
EN61000-4-11
EN61000-4-12

Shock: IEC60068-2-27

Freefall: IEC60068-2-32

Vibration: IEC60068-2-6

Dust-proof: IP30

Reliability

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

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

MTBF (meantime between failures):
NPort IA5150 Series: 183747 hrs
NPort IA5150I Series: 195614 hrs
NPort IA5250 Series: 194765 hrs

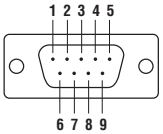
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

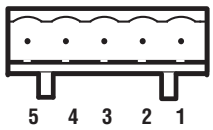
Pin Assignment

RS-232/422/485 DB9 male port



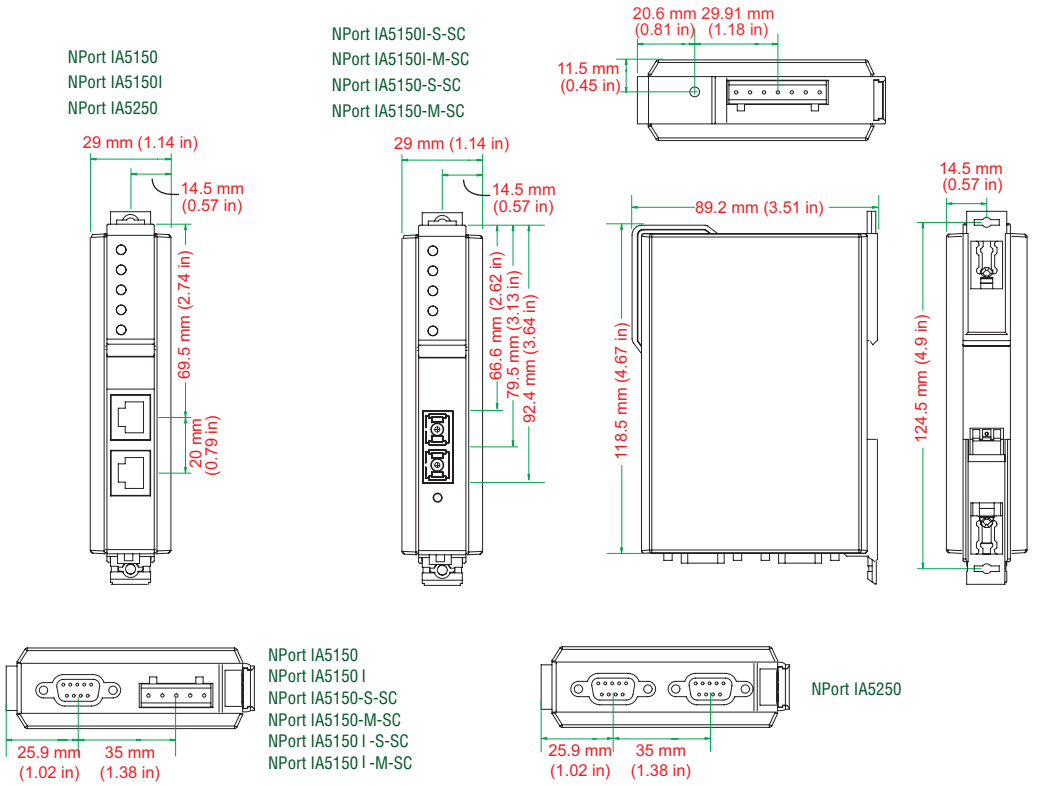
PIN	RS-232	RS-422/RS-485-4w	RS-485-2W
1	DCD	TxD-(A)	–
2	RXD	TxD+(B)	–
3	TXD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

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



Ordering Information

Available Models

NPort® IA5150: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP), 0 to 55°C operating temperature

NPort® IA5150I: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP) and 2 KV optical isolation, 0 to 55°C operating temperature

NPort® IA5150-M-SC: 1-port RS-232/422/485 device server with 1 100BaseF(X) multi-mode fiber port (SC connectors), 0 to 55°C operating temperature

NPort® IA5150I-M-SC: 1-port RS-232/422/485 device server with 1 100BaseF(X) multi-mode fiber port (SC connectors) and 2 KV optical isolation, 0 to 55°C operating temperature

NPort® IA5150-S-SC: 1-port RS-232/422/485 device server with 1 100BaseF(X) single-mode fiber port (SC connectors), 0 to 55°C operating temperature

NPort® IA5150I-S-SC: 1-port RS-232/422/485 device server with 1 100BaseF(X) single-mode fiber port (SC connectors) and 2 KV optical isolation, 0 to 55°C operating temperature

NPort® IA5250: 2-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP), 0 to 55°C operating temperature

NPort® IA5150-T: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP), -40 to 75°C operating temperature

NPort® IA5150I-T: 1-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP) and 2 KV optical isolation, -40 to 75°C operating temperature

NPort® IA5150-M-SC-T: 1-port RS-232/422/485 device server with 1 100BaseF(X) multi-mode fiber port (SC connectors), -40 to 75°C operating temperature

NPort® IA5150I-M-SC-T: 1-port RS-232/422/485 device server with 1 100BaseF(X) multi-mode fiber port (SC connectors) and 2 KV optical isolation, -40 to 75°C operating temperature

NPort® IA5150-S-SC-T: 1-port RS-232/422/485 device server with 1 100BaseF(X) single-mode fiber port (SC connectors), -40 to 75°C operating temperature

NPort® IA5150I-S-SC-T: 1-port RS-232/422/485 device server with 1 100BaseF(X) single-mode fiber port (SC connectors) and 2 KV optical isolation, -40 to 75°C operating temperature

NPort® IA5250-T: 2-port RS-232/422/485 device server with 2 10/100BaseT(X) ports (RJ45 connectors, single IP), -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

Optical Fiber Patch Cord: See page A-14

Terminal Block for RS-422/485 ports: See page A-7

Power Jack to Terminal Block Cable: See page A-7

Package Checklist

- NPort IA series device server
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card