

NPort® IA5000 Series

1 and 2-port serial device servers for industrial automation

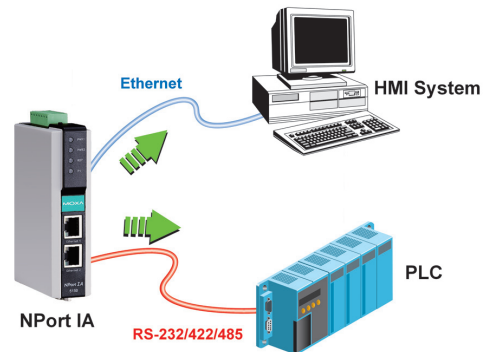


- > Socket modes: TCP server/TCP client/UDP
- > Patented ADDC® (automatic data direction control) for 2-wire and 4-wire RS-485
- > Cascading Ethernet ports for easy wiring (applies only to RJ45 connectors)
- > Redundant DC power inputs
- > Warning by relay output and e-mail
- > 10/100BaseTX (RJ45) or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



Overview

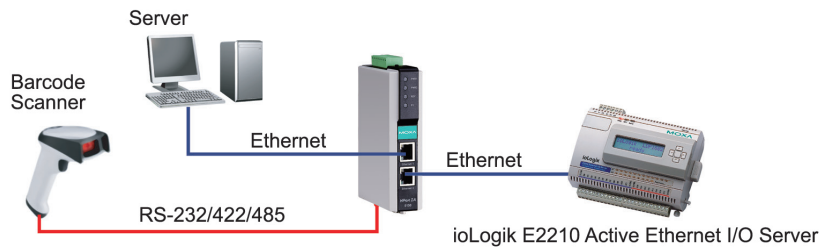
NPort® IA device servers provide easy and reliable serial-to-Ethernet connectivity for industrial automation applications. The device servers can connect any serial device to an Ethernet network, and to ensure compatibility with network software, they support a variety of port operation modes, including 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

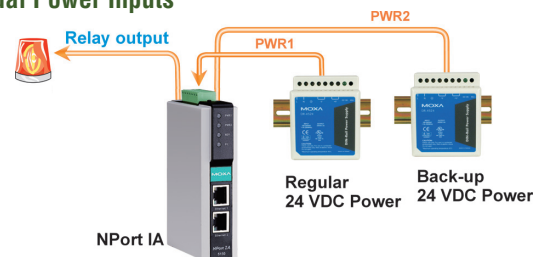
to another NPort® IA device server or another Ethernet device. The dual Ethernet ports help reduce wiring costs by eliminating the need to connect each device to a separate Ethernet switch.



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 non-stop.

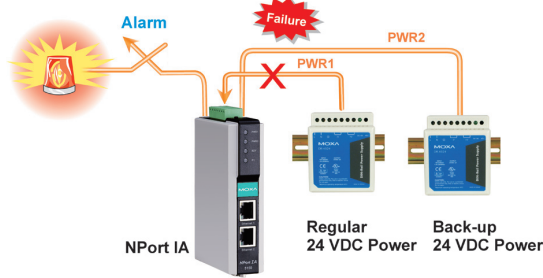
Dual Power Inputs



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, 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, 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
Wavelength	1300 nm	1310 nm
Max. TX	-14 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km ^a 4 km ^b	40 km ^c
Saturation	-6 dBm	-3 dBm

a. 50/125 μm, 800 MHz*km fiber optic cable

b. 62.5/125 μm, 500 MHz*km fiber optic cable

c. 9/125 μm, 3.5 PS/(nm*km) fiber optic cable

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, 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, SNTP

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 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 kernel 2.4.x, 2.6.x, 3.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)

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

Power Consumption:

NPort IA5150: 238 mA @ 12 V

NPort IA5150I: 257 mA @ 12 V

NPort IA5250: 238 mA @ 12 V

NPort IA5250I 300 mA @ 12 V

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

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

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

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

Standards and Certifications

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

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

EMI: EN 55022 Class A, FCC Part 15 Subpart B Class A

EMS:

EN 55024,

EN 61000-4-2 (ESD) Level 3,

EN 61000-4-3 (RS) Level 3,

EN 61000-4-4 (EFT) Level 4,

EN 61000-4-5 (Surge) Level 3,

EN 61000-4-6 (CS) Level 3,

EN 61000-4-8,

EN 61000-4-11

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

Marine: DNV

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):

NPort IA5150 Series: 183,747 hrs

NPort IA5150I Series: 195,614 hrs

NPort IA5250 Series: 194,765 hrs

NPort IA5250I Series: 341,417 hrs

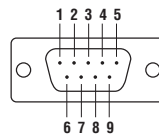
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

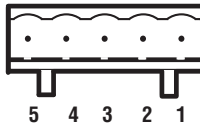
Pin Assignment

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

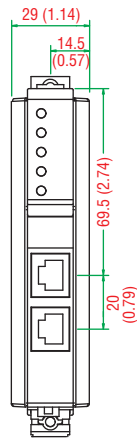


PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD+(B)	-
2	TxD-(A)	-
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND

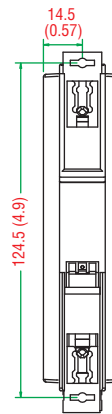
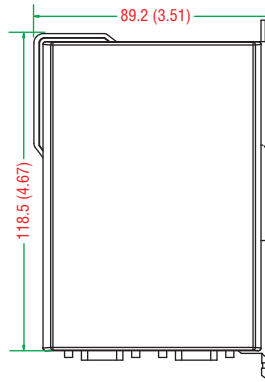
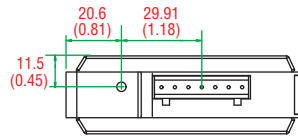
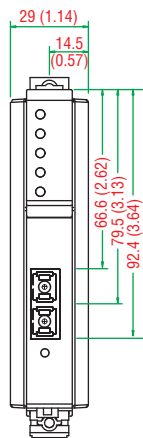
Dimensions

Unit: mm (inch)

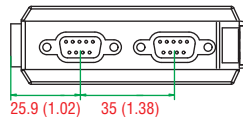
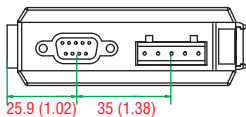
NPort IA5150
NPort IA5150I
NPort IA5250
NPort IA5250I



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-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 100BaseF(X) multi-mode port, SC, 0 to 55°C operating temperature

NPort IA5150I-M-SC: 1 RS-232/422/485 port to 1 100BaseF(X) 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 100BaseF(X) single-mode port, SC, 0 to 55°C operating temperature

NPort IA5150I-S-SC: 1 RS-232/422/485 port to 1 100BaseF(X) 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 100BaseF(X) multi-mode port, SC, -40 to 75°C operating temperature

NPort IA5150I-M-SC-T: 1 RS-232/422/485 port to 1 100BaseF(X) 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 100BaseF(X) single-mode port, SC, -40 to 75°C operating temperature

NPort IA5150I-S-SC-T: 1 RS-232/422/485 port to 1 100BaseF(X) 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 100BaseF(X) multi-mode port, SC, IECEX, 0 to 55°C operating temperature

NPort IA5150I-M-SC-IEEX: 1 RS-232/422/485 port to 1 100BaseF(X) 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 100BaseF(X) single-mode port, SC, IECEX, 0 to 55°C operating temperature

NPort IA5150I-S-SC-IEEX: 1 RS-232/422/485 port to 1 100BaseF(X) 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 100BaseF(X) 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 100BaseF(X) 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 100BaseF(X) 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 100BaseF(X) 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 Adapter: DB9 female to terminal block adapter for RS-422/485 applications

Package Checklist

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