

NPort® 5000AI-M12 Series

EN 50155 1, 2, and 4-port RS-232/422/485 serial device servers



- > Speedy 3-step web-based configuration
- > COM port grouping and UDP multicast applications
- > Real COM/TTY drivers for Windows and Linux
- > Standard TCP/IP interface and versatile TCP and UDP operation modes
- > Compliant with EN 50121-4 and essential sections of EN 50155
- > M12 connector and IP40 metal housing
- > 2 KV isolation for serial signals



Overview

The NPort 5000AI-M12 serial device servers are designed to make serial devices network-ready in an instant, and provides direct access to serial devices from anywhere on the network. Moreover, the NPort 5000AI-M12 is compliant with EN 50121-4 and essential sections of EN 50155, covering operating temperature, power input voltage,

surge, ESD, and vibration, making them suitable for rolling stock and wayside applications where high levels of vibration exist in the operating environment.

3-step Web-based Configuration

The NPort 5000AI-M12's 3-step web-based configuration tool is straightforward and user-friendly. The NPort 5000AI-M12's web console guides users through 3 simple configuration steps that are necessary to activate the serial-to-Ethernet application. With this speedy 3-step web-based configuration, a user only needs to spend

an average of 30 seconds to complete the NPort settings and enable the application, saving a great amount of time and effort.



Easy to Troubleshoot

NPort 5000AI-M12 device servers support SNMP, which can be used to monitor all units over Ethernet. Each unit can be configured to send trap messages automatically to the SNMP manager when user-defined errors are encountered. For users who do not use SNMP manager, an

e-mail alert can be sent instead. Users can define the trigger for the alerts using Moxa's Windows utility, or the web console. For example, alerts can be triggered by a warm start, a cold start, or a password change.

Specifications

Ethernet Interface

Number of Ports: 1
Speed: 10/100 Mbps, auto MDI/MDIX
Connector: M12

Serial Interface

Number of Ports: 1, 2, 4
Serial Standards: RS-232/422/485
Connector: DB9 male
Serial Line Protection: 15 KV ESD protection for all signals
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: 50 bps to 921.6 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, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2, LLDP
Configuration Options: Web Console (with new Quick Setup), Telnet Console, Windows Utility
Windows Real COM Drivers: Windows 98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8 x86/x64, 2012 x64
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, Mac 10.3
Linux Real TTY Drivers: Linux kernel 2.4.x, 2.6.x, 3.x

Physical Characteristics

Housing: Metal, IP40 protection
Weight: 686 g
Dimensions: 80 x 216.6 x 52.9 mm (3.15 x 8.53 x 2.08 in)

Environmental Limits

Operating Temperature:

Standard Models: -25 to 55°C (-13 to 131°F)

Wide Temp. Models: -40 to 75°C (-40 to 167°F) (EN 50155 compliant)

Storage Temperature: -40 to 85°C (-40 to 185°F) (EN 50155 compliant)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC

Note: Compliant with EN 50155 on 24/48 VDC

Power Consumption:

NPort 5150AI-M12: 310mA @12V

NPort 5150AI-M12-CT: 310mA @12V

NPort 5150AI-M12-T: 310mA @12V

NPort 5250AI-M12: 360mA @12V

NPort 5250AI-M12-CT: 360mA @12V

NPort 5250AI-M12-T: 360mA @12V

NPort 5450AI-M12: 440mA @12V

NPort 5450AI-M12-CT: 440mA @12V

NPort 5450AI-M12-T: 440mA @12V

Connector: M12

Standards and Certifications

Safety: UL 60950-1, EN 60950-1

EMC: CE, FCC

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

EMS: EN 55024

Rail Traffic: EN 50155, EN 50121-4

Vibration: IEC 60068-2-6

Reliability

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

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

MTBF (mean time between failures):

NPort 5150AI-M12: 789,341 hrs

NPort 5250AI-M12: 639,622 hrs

NPort 5450AI-M12: 467,777 hrs

Warranty

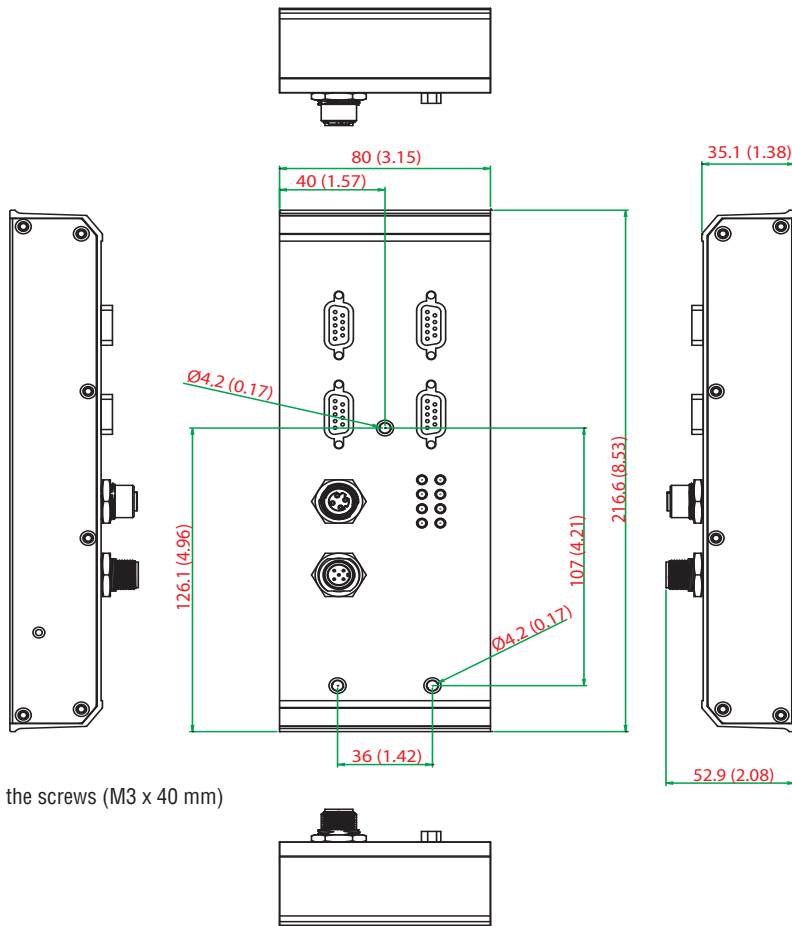
Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

All models of the NPort 5000AI-M12 series (NPort 5150AI-M12, NPort 5250AI-M12, and NPort 5450AI-M12) have the same dimensions.

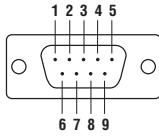
Unit: mm (inch)



Please use the screws (M3 x 40 mm) included.

Pin Assignment

DB9 male connector



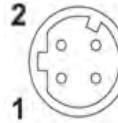
PIN	RS-232	RS-422/485-4w	RS-485-2w
1	DCD	TxD-(A)	-
2	RxD	TxD+(B)	-
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	-	-
7	RTS	-	-
8	CTS	-	-

Power input



PIN	Description
1	Input V+
2	Not assigned
3	Input V-
4	Not assigned
5	Function ground

Ethernet port



PIN	Description
1	TD+
2	RD+
3	TD-
4	RD-

Ordering Information

Available Models

NPort 5150AI-M12: 1-port RS-232/422/485 device server with M12 connector, M12 power input, -25 to 55°C operating temperature

NPort 5150AI-M12-CT: 1-port RS-232/422/485 device server with M12 connector, M12 power input, -25 to 55°C operating temperature, conformal coating

NPort 5150AI-M12-T: 1-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -40 to 75°C operating temperature

NPort 5250AI-M12: 2-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature

NPort 5250AI-M12-CT: 2-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature, conformal coating

NPort 5250AI-M12-T: 2-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -40 to 75°C operating temperature

NPort 5450AI-M12: 4-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature

NPort 5450AI-M12-CT: 4-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature, conformal coating

NPort 5450AI-M12-T: 4-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

MXview: Moxa industrial network management software with 50, 100, 250, 500, 1000, or 2000 nodes

DR-75-48/DR-120-48: 75/120W Din-Rail 48 VDC power supplies

Power Cords, M12 Connectors, Protective Caps: see page 2-22

Package Checklist

- NPort 5000AI-M12 device server
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card