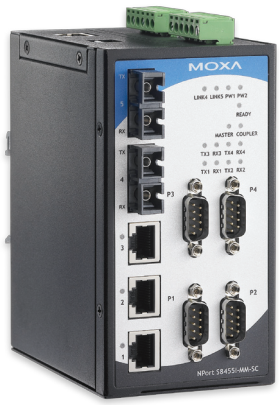
NPort® S8455 Series

Combo switch / serial device servers



- 4-port RS-232/422/ 485 serial device server
  - Serial QoS for configuring serial data transmission priority
  - 2 KV (DC) isolation protection for each serial port
  - Adjustable pull high/low resistor for RS-485 ports
- 5-port managed Ethernet switch built in
  - Two fiber Ethernet ports and three Ethernet ports
  - Ethernet redundancy with Turbo Ring (recovery time < 20 ms) or RSTP/STP (IEEE 802.1w/D) supported
  - QoS, IGMP-snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON supported
  - Surge protection for serial, power, and Ethernet

Overview

The NPort® S8455 series combines an industrial device server with a full-function managed Ethernet switch by integrating 2 fiber ports, 3 Ethernet ports, and 4 RS-232/422/485 serial ports, allowing you to easily install, manage, and maintain the product. Combining a device server and switch in one product allows you to save space in your cabinet, reduce overall power consumption, and reduce costs, since you will not need to purchase a switch and serial device server separately.

Supports the Full Range of NPort® 5000 Series Device Server Functions

The NPort® S8455 series supports the complete array of NPort® 5000 series device server functions. You can network your existing serial devices by connecting up to 4 serial devices through each of the 5 Ethernet ports, with only basic configuration required. In addition, data transmission between the serial and Ethernet interfaces is bi-directional.

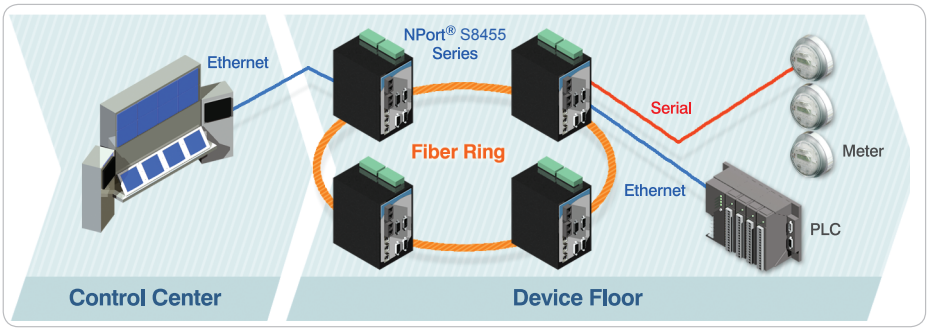
Full-function Managed Ethernet Switch

The NPort® S8455 series has a built-in full-function managed Ethernet switch that supports QoS, IGMP-snooping/GMRP, VLAN, Port Trunking, SNMPv1/v2c/v3, and IEEE 802.1X, allowing you to handle virtually any kind of application. Ethernet redundancy, which is used to increase the reliability and availability of your industrial Ethernet network, is provided by Moxa's own Turbo Ring® technology (recovery time < 20 ms) or RSTP/STP (IEEE 802.1w/D).

Ring Redundancy at the Device Level

Device level communication networks for industrial automation are very critical since they are used to control and monitor device processes. The reliability of these communications depends on ring redundancy at the device level. which is designed to provide fast network fault detection and reconfiguration in order to support the most demanding control applications.

The NPort® S8455 series integrates a full function NPort® device server with an industrial switch to carry serial and Ethernet devices at the same time. In addition, the NPort® S8455 can also achieve ring redundancy with standard STP/RSTP and Moxa's proprietary Turbo Ring or Turbo Ring 2 redundancy protocols. This all-in-one design can be used to optimize and simplify your device network, and enhance reliability.



Rugged Design with Complete Protection

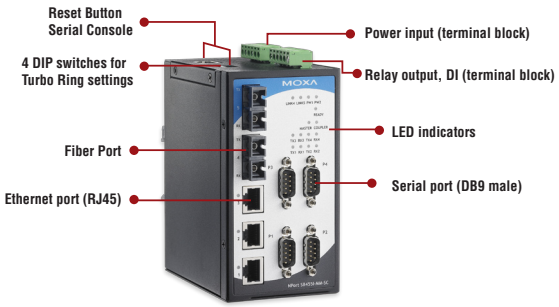
UL508 Safety
The NPort® S8455 series complies with the UL 508 standard, which covers safety requirements for industrial control equipment.

Level 4 ESD
The NPort® S8455 series supports high level, 8/15 KV, ESD protection to prevent damage from static electricity.

Full Surge Protection
The NPort® S8455 series is equipped with surge protection for power, Ethernet interface, and serial interface to protect against voltage spikes.

2 KV Serial Isolation
Each serial port is protected by 2 KV of isolation protection to guard against harmful currents.

Appearance



General Specifications

Port Summary
Serial Ports: 4 RS-232/422/485 ports
Ethernet Switch Ports: 3 RJ45 copper ports, 2 fiber ports
Console Ports: 1 (8-pin RJ45 connector)

Physical Characteristics
Housing: Metal
Weight: 995 g
Dimensions: 73.1 x 134 x 105 mm (2.88 x 5.27 x 4.13 in)

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: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements
Input Voltage: 12 to 48 VDC
Power Consumption: 935 mA @ 12 V, 470 mA @ 24 V

Standards and Certifications
Safety: UL 508, UL 60950-1, EN 60950-1
EMC: CE, FCC
EMI: EN 55022 Class A, FCC Part 15 Subpart B Class A
EMS:
EN 55024,
IEC 61000-4-2 (ESD) Level 4,
IEC 61000-4-4 (EFT) Level 4,
IEC 61000-4-5 (Surge)
Level 1 for serial ports,
Level 2 for LAN ports,
Level 3 for power lines

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

Device Server Specifications

Serial Interface
Number of Ports: 4
Serial Standards: RS-232/422/485
Connector: DB9 male
Serial Line Protection:
• 15 KV ESD protection for all signals
• 2 KV isolation protection
RS-485 Data Direction Control: ADDC® (automatic data direction control)
Pull High/Low Resistor for RS-485: 1 KΩ, 150 KΩ
Terminator for RS-485: 55 Ω, 120 Ω
Console Port: Dedicated RS-232 console port (8-pin RJ45)

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 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
Configuration Options: Web Console, Telnet Console, Serial Console, Windows Search Utility
Windows Real COM Drivers: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7 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
Linux Real TTY Drivers: Linux kernel 2.4.x, 2.6.x
Operation Modes: Real COM, TCP Server, TCP Client, UDP, RFC2217
Management: SNMP MIB-II
IP Routing: Static, RIP-I, RIP-II

Reliability
Alert Tools: Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
MTBF (mean time between failures): 200,951 hrs

Ethernet Switch Specifications

Ethernet Interface

Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100Base FX
IEEE 802.3x for Flow Control
IEEE 802.1D for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
IEEE 802.1Q for VLAN Tagging
IEEE 802.1p for Class of Service
IEEE 802.1x for Authentication
IEEE 802.3ad for Port Trunk with LACP
Network Protocols: ICMP, IP, TCP, UDP, ARP, Telnet, DNS, HTTP, SMTP, SNTP, IGMPv1/v2 device, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNTP, SMTP, RARP, GMRP, LACP, RMON
MIB: MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9
Flow Control: IEEE 802.3x flow control, back pressure flow control interface

Optical Fiber Interface

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:
• Multi-mode: -20 dBm
• Single-mode: - 5 dBm
Max. TX Output:
• Multi-mode: -14 dBm
• Single-mode: 0 dBm
Sensitivity:
• Multi-mode: -34 to -30 dBm
• Single-mode: -36 to -32 dBm

Switch Properties

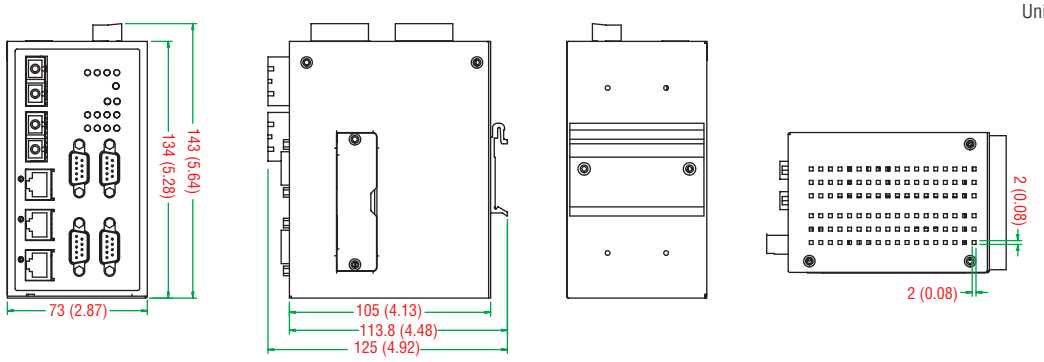
Priority Queues: 4
Max. Number of Available VLANs: 64
VLAN ID Range: VID 1 to 4094
IGMP Groups: 256

Switch Interface

RJ45 Ports: 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
DIP Switches: Turbo Ring, Master, Coupler, Reserve
Alarm Contact: 2 relay outputs with current carrying capacity of 1A @ 24 VDC

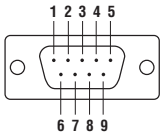
Dimensions

Unit: mm (inch)



Pin Assignment

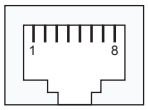
DB9 male connector



Serial Port (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	–	–

8-pin RJ45 connector



Console Port (RJ45)

PIN	RS-232
1	DSR
2	RTS
3	GND
4	TxD
5	RxD
6	DCD
7	CTS
8	RTS

Ethernet Port (RJ45)

PIN	Signal
1	RXD+
2	RXD-
3	TXD+
4	–
5	–
6	TXD-
7	
8	

Ordering Information

Available Models

NPort S8455I-MM-SC: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M multi-mode fiber ports with SC connector, 15 KV ESD, 12-48 VDC, 2 KV isolation protection, 0 to 60°C operating temperature
NPort S8455I-SS-SC: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M single-mode fiber ports with SC connector, 15 KV ESD, 12-48 VDC, 2 KV isolation protection, 0 to 60°C operating temperature
NPort S8455I-MM-SC-T: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M multi-mode fiber ports with SC connector, 15 KV ESD, 12-48 VDC, 2 KV isolation protection, -40 to 75°C operating temperature
NPort S8455I-SS-SC-T: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M single-mode fiber ports with SC connector, 15 KV ESD, 12-48 VDC, 2 KV isolation protection, -40 to 75°C operating temperature

Package Checklist

- NPort S8455 device server
- Two power jack to TB power cables
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

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