

# NPort® S8000 Series

## Combo switch / serial device server



- > **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® S8000 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 all NPort® 5000 Series Device Server Functions

The NPort® S8000 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® S8000 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

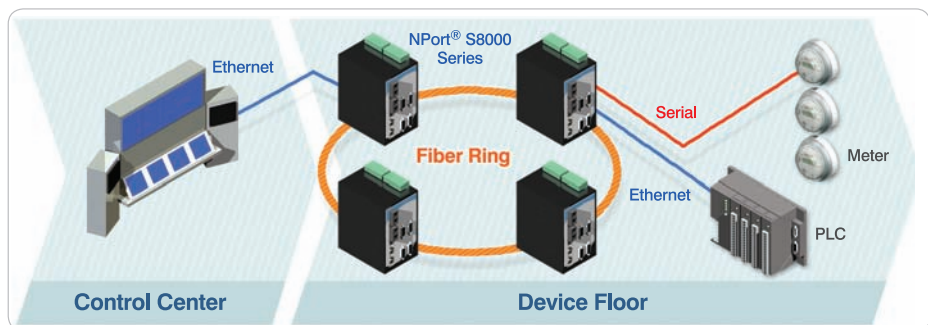
is used to increase the reliability and availability of your industrial Ethernet network, is provided by Moxa's own Turbo Ring® technology (recovery time < 20 ms) or RSTP/STP (IEEE 802.1w/D).

### 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. A significant part of this type of communication 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 S8000 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 S8000 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® S8000 series complies with the UL 508 standard, which covers safety requirements for industrial control equipment.



### 3-way Surge Protection

The NPort® S8000 series is equipped with surge protection for power, Ethernet interface, and serial interface to protect against voltage spikes.



### Level 4 ESD

The NPort® S8000 series supports high level, 8/15 KV, ESD protection to prevent damage from static electricity.



### 2 KV Serial Isolation

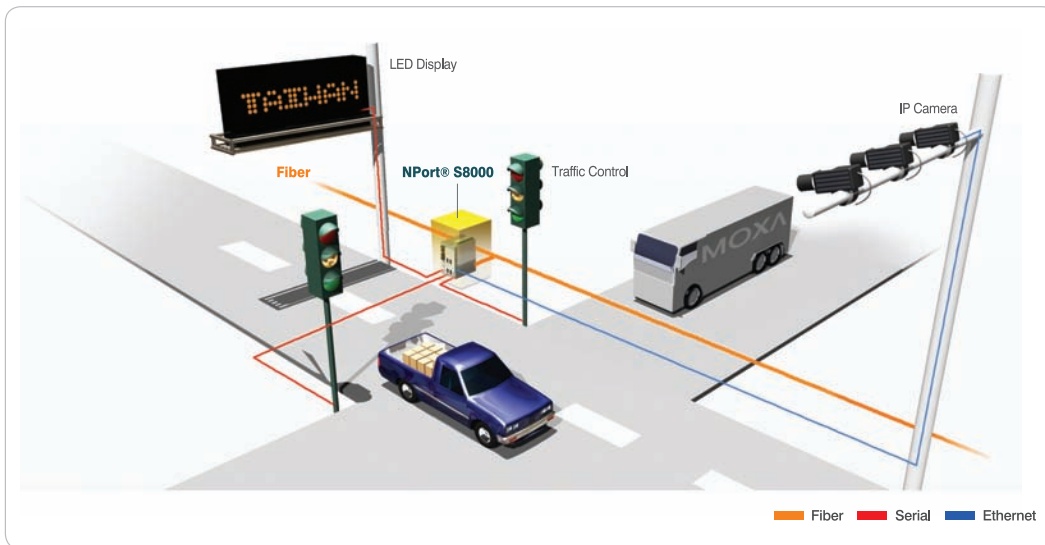
Each serial port is protected by 2 KV of isolation protection to guard against harmful currents.

## Typical Applications

### Roadway Traffic Monitoring and Control

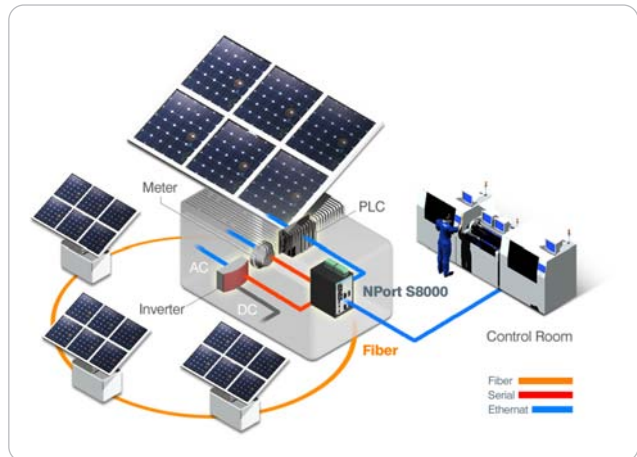
Intelligent transportation systems (ITS) are playing a major role in modern transportation construction, with ITS technology applied to roadway traffic control systems. In general, ITS involves integrating communication, control, and electronics technologies, and is used to monitor and manage traffic flow, reduce congestion, provide alternative routes to travelers, and enhance productivity to save lives, time, and money. Traffic monitoring and control systems are usually

housed in a small cabinet located by the roadside or at an intersection. Such systems usually include a camera for monitoring traffic, a traffic light control system, as well as other devices. The NPort S8000 is the best choice for traffic monitoring and control applications, since the compact size and all-in-one switch/device-server design saves a significant amount of space in a small cabinet.

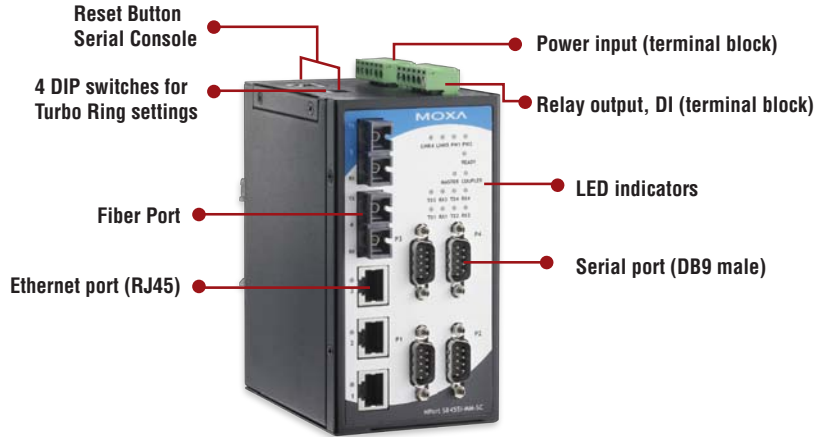


### Solar Power Station

All solar power stations include three major devices—a power inverter, a PLC, and meters. The power inverter converts the energy generated by the plant into the power that is transmitted to end-users. The PLC controls the sun tracking system of the base. These devices are often serial devices, although some may be Ethernet-ready. Now you can connect all of these Ethernet and serial devices to the control center easily and economically with one NPort® S8000. The Ethernet redundancy function and ring structure increase the reliability and availability of the system.



## 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)  
**LED Indicators:** PWR1, PWR2, READY, MASTER, COUPLER, LINK4, LINK5

### 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)  
**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:** 935 mA @ 12 V, 470 mA @ 24 V

### Regulatory Approvals

**EMC:** FCC Class A, CE Class A  
**Safety:** UL-508

### EMS:

IEC 61000-4-2, Level 4 (ESD)  
 IEC 61000-4-4, Level 4 (EFT)  
 IEC 61000-4-5 for serial port, Level 1 (Surge)  
 IEC 61000-4-5 for LAN port, Level 2 (Surge)  
 IEC 61000-4-5 for Power Line, Level 3 (Surge)

### Warranty

**Warranty Period:** 5 years  
**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Device Server Specifications

### Serial Interface

**Number of Ports:** 4  
**Serial Standards:** RS-232/422/485  
**Connectors:** 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, 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  
**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)

## 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, SNMP, IGMpv1/v2 device, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNMP, 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  $\mu$ m, 500 MHz\*km)
- Single-mode: 0 to 40 km, 1310 nm (9/125  $\mu$ m, 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

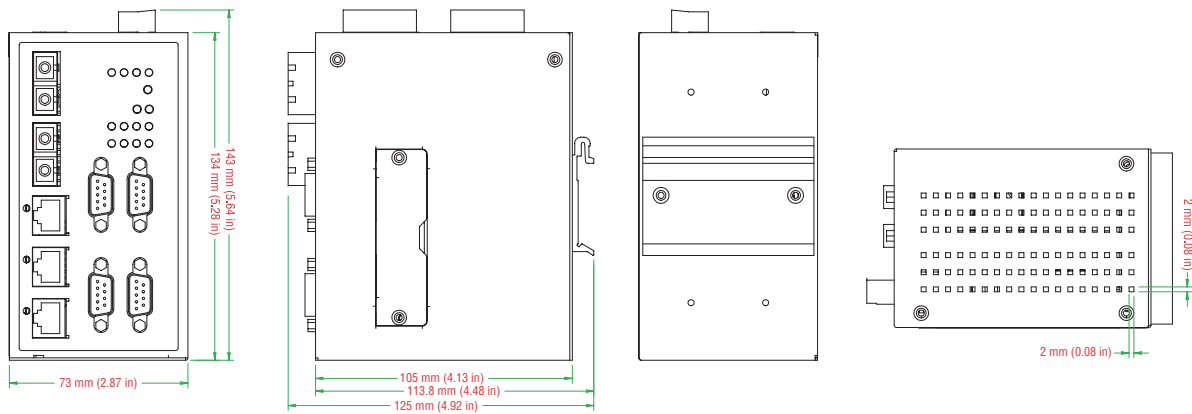
### Switch Interface

**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

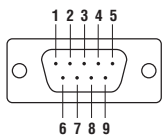
**Alarm Contact:** 2 relay outputs with current carrying capacity of 1A @ 24 VDC

### Dimensions



### Pin Assignment

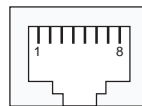
#### DB9 male connector



#### 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, 0 to 60°C

**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, 0 to 60°C

**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, -40 to 75°C

**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, -40 to 75°C

### Package Checklist

- 1 NPort S8000
- Two power jack to TB power cables
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

# Tento produkt můžete zakoupit u společnosti AutoCont IPC a.s.



## AutoCont IPC a.s.

Váš dodavatel průmyslových počítačů, komponent a speciálních průmyslových IT systémů.

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### PRŮMYSLOVÉ POČÍTAČE

*fanless embedded PC, do racku, ...*



### POČÍTAČE S DISPLEJEM

*panelové PC, terminály, do vozidel, ...*



### AUTOMATIZACE A SBĚR DAT

*převodníky, karty, moduly, switche, ...*



### PERIFERIE A KOMPONENTY

*monitory, klávesnice, desky, skříně, ...*



### NOTEBOOKY A TABLETY

*odolné, windows, android, IP65, ...*



### INFORMAČNÍ KIOSKY

*interiérové, venkovní, ...*



### MEDICÍNSKÁ TECHNIKA

*počítače, tablety, LCD, klávesnice, ...*



### SOFTWAREVÁ ŘEŠENÍ

*pro výrobu, zaměstnance, kiosky, ...*



### PŘEJÍT DO E-SHOPU

[eshop.autocont-ipc.cz](http://eshop.autocont-ipc.cz)



### DOPRAVA ZDARMA

Doprava zdarma v ČR a SR při objednávce nad 10 000 Kč bez DPH nebo nad 400 EUR.



### PRODLOUŽENÁ ZÁRUKA

Záruka 2 roky na vyráběné počítače s možností jejího prodloužení až na 5 let.



### ODMĚNA ZA VĚRNOST

Pravidelní zákazníci u nás nakupují za nižší ceny. Výše slevy se odvíjí od realizovaného obrátu.



### SERVIS ON-SITE A IN-TIME

K projektovým dodávkám nabízíme rozšířenou podporu a servis s garancí výměny zařízení do 48 hodin.