

# NPort S9450I 系列

配備網管型乙太網路交換器的 4 埠強固裝置伺服器



## 特色與優點

- 4 埠 RS-232/422/485 串列介面
- 支援多達 5 個網管型乙太網路交換器埠 (部份型號適用光纖連接埠)
- 支援 DNP3 和 Modbus 通訊協定
- 符合 IEC 61850-3、IEEE 1613 (用於變電站)
- 支援 Turbo Ring/Chain 和 RSTP/STP 的乙太網路備援
- 用於 Windows 和 Linux 的 Real COM/TTY 驅動程式
- 支援 IEC 61850 MMS 通訊協定
- 基於 IEC 62443/NERC CIP 的安全功能
- -40°C 至 85°C 寬範圍操作溫度

## 認證



## 簡介

NPort S9450I 系列 4 埠 RS-232/422/485 裝置伺服器內建全功能網管型乙太網路交換器，專為變電站的嚴苛環境條件所設計。裝置伺服器和乙太網路交換器的組合同時支援光纖和線路乙太網路連接埠，使用者很容易就能安裝、管理和維護 NPort S9450I 本身以及連接的串列裝置。

### 嚴苛變電站環境的電磁相容性

NPort S9450I 系列支援大量突波保護，防止變電站和工業自動化應用中出現電源突波和 EMI 等類型的損壞。結合 -40°C 至 85°C 的操作溫度範圍和鍍鋅鋼外殼，NPort S9450I 適用於多種工業環境。

此外，NPort S9450I 的雙電源既提供備援，也提供多樣化的電壓輸入。WV 型號接受 24/48 VDC 電源輸入（範圍從 18 到 72 VDC），HV 型號接受 88 到 300 VDC 和 85 到 264 VAC 的電源輸入。

### 支援 IEC 61850 MMS 的 Power SCADA，便於維護

SCADA 應用目前的趨勢是使用 MMS 通訊協定控制和監控 IT 裝置（交換器、路由器等）和 IED（感測器、傳動器等）。然而，傳統的管理方法是對於 IT 裝置使用 SNMP，而對於 IED 使用 MMS。實際上，SI 甚至可能需要管理使用私有通訊協定的各種傳統裝置。

NPort S9450I 裝置伺服器是全球首款將 MMS 整合到專為電源 SCADA 應用而設計的 IT 型裝置。NPort S9450I 甚至支援使用 MMS 監控 S9450I 與傳統裝置之間的串列通訊。

### 支援 Modbus/DNP3 通訊協定閘道

NPort S9450I 系列為整合各種類型和規模的工業 Modbus/DNP3 網路提供最大的彈性。NPort S9450I 的設計可將 Modbus TCP、ASCII 和 RTU 設備整合到幾乎任何主從式組合中，包括同步串列和乙太網路主控裝置。

NPort S9450I 設備伺服器也支援 DNP3 串列和 DNP3 IP 之間的通訊協定轉換。所有機型均採用強固結構，可使用 DIN-rail 導軌安裝。

### 基於 IEC 62443/NERC CIP 的網路安全功能

NPort S9450I 系列具有基於 IEC 62443/NERC CIP 的安全功能，提供絕佳的網路安全性。保護任務關鍵型網路免於遭受網路攻擊是工業自動化應用的首要任務，網路停機時間延長可能造成巨大損失。

### 設備層級的環網備援

工業自動化的裝置層級通訊網路非常重要，這些網路的作用是控制和監控裝置程序。這些通訊的可靠性取決於裝置層級環網備援。這種備援可進行快速的網路失效偵測和重新配置，支援最嚴苛的控制應用。NPort S9450I 系列將全功能 NPort 裝置伺服器與工業交換器相互整合，同時承載串列和乙太網路裝置。

此外，NPort S9450I 也可透過標準 STP/RSTP 和 Moxa 的私有 Turbo Ring 或 Turbo Chain 2 備援通訊協定進行環網備援。這種一體式設計可優化和簡化裝置網路並提高可靠性。

## 規格

### Input/Output Interface

Alarm Contact Channels	2, Resistive load: 1 A @ 24 VDC
Digital Input Channels	2
Digital Inputs	+13 to +30 V for state 1 -30 to +1 V for state 0 Max. input current: 8 mA

### Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	NPort S9450I: 5 RJ45 ports
100BaseFX Ports (multi-mode SC connector)	NPort S9450I-2M-SC: 3 RJ45 ports, 2 multi-mode SC ports
100BaseFX Ports (multi-mode ST connector)	NPort S9450I-2M-ST: 3 RJ45 ports, 2 multi-mode ST ports
100BaseFX Ports (single-mode SC connector)	NPort S9450I-2S-SC: 3 RJ45 ports, 2 single-mode SC ports
100BaseFX Ports (single-mode ST connector)	NPort S9450I-2S-ST: 3 RJ45 ports, 2 single-mode ST ports

### Magnetic Isolation Protection

1.5 kV (built-in)

### Optical Fiber

		100BaseFX		
		Multi-Mode		Single-Mode
Fiber Cable Type	OM1	50/125 $\mu$ m	G.652	
		800 MHz x km		
Typical Distance		4 km	5 km	40 km
Wavelength	Typical (nm)	1300		1310
	TX Range (nm)	1260 to 1360		1280 to 1340
	RX Range (nm)	1100 to 1600		1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20		0 to -5
	RX Range (dBm)	-3 to -32		-3 to -34
	Link Budget (dB)	12		29
	Dispersion Penalty (dB)	3		1
<p>Note: When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power.</p> <p>Note: Compute the "typical distance" of a specific fiber transceiver as follows: Link budget (dB) &gt; dispersion penalty (dB) + total link loss (dB).</p>				

### Standards

IEEE 802.1D-2004 for Spanning Tree Protocol  
 IEEE 802.1p for Class of Service  
 IEEE 802.1Q for VLAN Tagging  
 IEEE 802.1w for Rapid Spanning Tree Protocol  
 IEEE 802.1X for authentication  
 IEEE 802.3 for 10BaseT  
 IEEE 802.3ad for Port Trunk with LACP  
 IEEE 802.3u for 100BaseT(X) and 100BaseFX

### Switch Properties

IGMP Groups	256
Max. No. of VLANs	64

Priority Queues	4
VLAN ID Range	VID 1 to 4094

### Ethernet Software Features

Configuration Options	Command Line Interface (CLI) through Serial/Telnet/SSH, Web Console (HTTP/HTTPS), Windows Utility
Management	DHCP Client, DHCP Option 82, HTTP, IEC 61850 MMS, IPv4, LLDP, Port Mirror, RARP, RMON, SMTP, SNMPv1/v2c/v3, Syslog, Telnet, TFTP, Web Console
Filter	GMRP, GVRP, IGMP v1/v2
Windows Real COM Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2/2016/2019 (x64), Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux Real TTY Drivers	Kernel versions: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X
Android API	Android 3.1.x and later
Industrial Protocols	Modbus TCP Server (Slave), DNP3 TCP Outstation
Time Management	NTP Server/Client, SNTP
MIB	Bridge MIB, Device Settings MIB, Ethernet-like MIB, MIB-II, P-BRIDGE MIB, Q-BRIDGE MIB, RFC1213, RFC1317, RMON MIB Groups 1, 2, 3, 9, RSTP MIB
Redundancy Protocols	RSTP, Turbo Chain, Turbo Ring v1, Turbo Ring v2
Security	HTTPS/SSL, Local Account Accessibility, TACACS+, RADIUS, SSH

### Serial Interface

Connector	DB9 male
No. of Ports	4
Serial Standards	RS-232, RS-422, RS-485
Operation Modes	Real COM mode, RFC2217 mode, TCP Client mode, TCP Server mode, UDP mode, Modbus mode, DNP3 mode, DNP3 Raw Socket mode, Disabled
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	None, RTS/CTS, XON/XOFF
Isolation	2 kV
Surge	4 kV
RS-485 Data Direction Control	ADDC® (automatic data direction control)
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms
Terminator for RS-485	120 ohms
Console Port	RS-232 (TxD, RxD, GND), 10-pin RJ45 (19200, n, 8, 1)

## 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

## DIP Switch Configuration

Ethernet Interface	Turbo Ring, Master, Coupler, Reserved
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## Modbus TCP

Max. No. of Client Connections	32
Max. No. of Server Connections	16

## DNP3 (Transparent)

Max. No. of Master Connections	16
Max. No. of Outstation Connections	32

## Power Parameters

No. of Power Inputs	2
Power Connector	1 removable 5-contact terminal block(s)
Reverse Polarity Protection	Supported
Input Current	NPort S9450I-WV-T Series: 520 mA @ 24 VDC NPort S9450I-HV-T Series: 80 mA @ 110 VDC
Input Voltage	NPort S9450I-WV-T Series: 24/48 VDC (18 to 72 VDC) NPort S9450I-HV-T Series: 110/220 VAC/VDC (110 to 220 VAC, 110 to 220 VDC)

## Physical Characteristics

Housing	Metal
Dimensions	80 x 160 x 109 mm (3.15 x 6.30 x 4.29 in)
Weight	Product only: 2.54 kg (5.60 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)

## Environmental Limits

Operating Temperature	-40 to 85°C (-40 to 185°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

## Standards and Certifications

EMC	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 6 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11

Environmental Testing	IEC 60068-2-2 IEC 60068-2-14
Power Substation	IEC 61850-3, IEEE 1613
Hazardous Locations	UL/cUL Class I Division 2 Groups A/B/C/D
Safety	EN 61010-2-201, UL 61010-2-201
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6, IEC 60068-2-64

#### Declaration

Green Product	RoHS, CRoHS, WEEE
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#### MTBF

Time	347,436 hrs
Standards	Telcordia SR332

#### Warranty

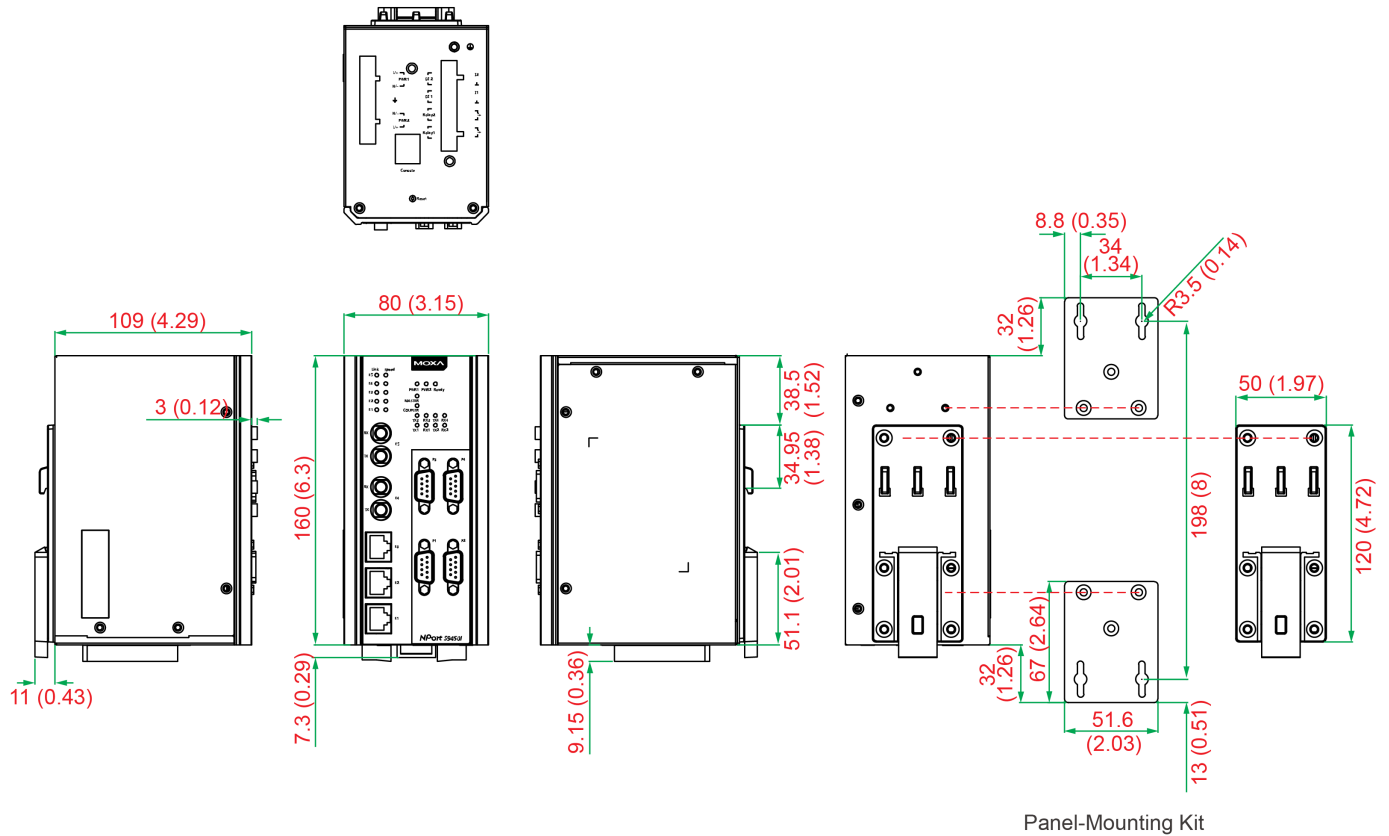
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/tw/warranty">www.moxa.com/tw/warranty</a>

#### Package Contents

Device	1 x NPort S9450I Series device server
Installation Kit	1 x DIN-rail kit
Cable	1 x DB9 female to RJ45 10-pin
Documentation	1 x quick installation guide 1 x warranty card

# 尺寸

單位：公釐（英吋）



Panel-Mounting Kit

# 訂購資訊

Model Name	10/100BaseT(X) Ports, RJ45 Connector	100BaseFX Ports, Multi-Mode SC Connector	100BaseFX Ports, Multi-Mode ST Connector	100BaseFX Ports, Single-Mode SC Connector	100BaseFX Ports, Single-Mode ST Connector	Input Voltage
NPort S9450I-WV-T	5	-	-	-	-	24/48 VDC
NPort S9450I-HV-T	5	-	-	-	-	110/220 VAC/VDC
NPort S9450I-2S-ST-WV-T	3	-	-	-	2	24/48 VDC
NPort S9450I-2S-SC-WV-T	3	-	-	2	-	24/48 VDC
NPort S9450I-2S-ST-HV-T	3	-	-	-	2	110/220 VAC/VDC
NPort S9450I-2S-SC-HV-T	3	-	-	2	-	110/220 VAC/VDC
NPort S9450I-2M-ST-WV-T	3	-	2	-	-	24/48 VDC
NPort S9450I-2M-SC-WV-T	3	2	-	-	-	24/48 VDC
NPort S9450I-2M-ST-HV-T	3	-	2	-	-	110/220 VAC/VDC
NPort S9450I-2M-SC-HV-T	3	2	-	-	-	110/220 VAC/VDC

## 配件 (選購)

### Cables

CBL-F9M9-150	DB9 female to DB9 male serial cable, 1.5 m
CBL-F9M9-20	DB9 female to DB9 male serial cable, 20 cm
CN20070	10-pin RJ45 to DB9 female serial cable

### Connectors

Mini DB9F-to-TB	DB9 female to terminal block connector
ADP-RJ458P-DB9F	DB9 female to RJ45 connector

### Wall-Mounting Kits

WK-51-01	Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws
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