

NPort® 6450 Series

4-port RS-232/422/485 secure terminal servers

NPort 6450-T



- > LCD panel for easy IP address configuration (standard temp. models)
- > Secure operation modes for Real COM, TCP Server, TCP Client, Pair Connection, Terminal, and Reverse Terminal
- > Nonstandard baudrates supported with high precision
- > Port buffers for storing serial data when the Ethernet is offline
- > Supports IPv6
- > Ethernet redundancy (STP/RSTP/Turbo Ring) with network module
- > Generic serial commands supported in Command-by-Command mode
- > ISA99 / IEC 62443-4-2 compliant



Overview

The NPort® 6450 is a 4-port device server that uses the SSL and SSH protocols to transmit encrypted serial data over Ethernet. Up to 4 serial devices of any type can be connected to the NPort® 6450, with

all four devices using the same IP address. The Ethernet port can be configured for a normal or secure TCP/IP connection.

No Data Loss if Ethernet Connection Fails

The NPort® 6450 is a reliable device server that provides users with secure serial-to-Ethernet data transmission and a customer-oriented hardware design. If the Ethernet connection fails, the NPort® 6450 will queue all serial data in its internal 64 KB port buffer. When the Ethernet

connection is re-established, the NPort® 6450 will immediately release all data in the buffer in the order that it was received. Users can increase the port buffer size by installing a SD card.

Specifications

Ethernet Interface

- Number of Ports:** 1
- Speed:** 10/100 Mbps, auto MDI/MDIX
- Connector:** 8-pin RJ45
- Magnetic Isolation:** 1.5 kV built-in

Optical Fiber Interface (with network module)

| | | 100BaseFX | | |
|------------------|-------------------------|--------------|-------------------------|-------------|
| | | Multi-Mode | | Single-Mode |
| Fiber Cable Type | | OM1 | 50/125 μm 800 MHz*km | G. 652 |
| Typical Distance | | 4 km | 5 km | 40 km |
| Wave-length | 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 | |

Note: When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power.
Note: Compute the "typical distance" of a specific fiber transceiver as follows: Link budget (dB) > dispersion penalty (dB) + total link loss (dB).

Serial Interface

- Number of Ports:** 4
- Serial Standards:** RS-232/422/485
- Connector:** DB9 male
- RS-485 Data Direction Control:** ADDC® (Automatic Data Direction Control)

Console Port: Serial port 1 doubles as RS-232 console port

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, DTR/DSR, XON/XOFF
- Baudrate:** 50 bps to 921.6 kbps (supports nonstandard baudrates)
- Pull High/Low Resistor for RS-485:** 1 kΩ, 150 kΩ

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

Memory Expansion Slot

Slot Type: SD slot (supports up to 2 GB)

Software

Network Protocols: ICMP, IPv4/v6, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP, PPPoE, HTTPS

Security Protocols: SSLv3, TLSv1.0/1.1/1.2

Configuration Options: Web Console, Serial Console, Telnet Console, Windows Utility

Windows Real COM Drivers: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64), Windows Embedded CE 5.0/6.0, Windows XP Embedded

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

Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x

Management: SNMP MIB-II

IP Routing: Static, RIP-I, RIP-II

Operation Modes

Standard: Real COM, TCP Server, TCP Client, UDP, Pair Connection, RFC2217, Terminal, Reverse Telnet, Ethernet Modem, Printer, PPP, Disabled

Secure: Secure Real COM, Secure TCP Server, Secure TCP Client, Secure Pair Connection, SSH, Reverse SSH

Applications

Terminal Sessions: 8 sessions per port

Physical Characteristics

Housing: Metal

Weight: 1,020 g (2.25 lb)

Dimensions:

Without ears: 158 x 103 x 35 mm (6.22 x 4.06 x 1.38 in)

With ears: 181 x 103 x 35 mm (7.13 x 4.06 x 1.38 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

Input Current: 730 mA @ 12 VDC

Alarm Contact: Relay output with current-carrying capacity of 1 A @ 24 VDC

Power Line Protection: 1 kV burst (EN 61000-4-4: EFT/B), 1 kV surge (EN 61000-4-5)

Standards and Certifications

Safety: UL 60950-1

EMC: EN 55032/24

EMI: CISPR 32, FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV

IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV

IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m

IEC 61000-4-8 PFMF

IEC 61000-4-11 DIPs

Freefall: IEC-68-2-6, IEC-68-2-34, IEC-68-2-32

Vibration: IEC-68-2-6, IEC-68-2-34

Green Product: RoHS, CRoHS, WEEE

Transportation: NEMA TS2

Reliability

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

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

MTBF (mean time between failures)

Time: 850,905 hrs

Standard: Telcordia (Bellcore) Standard TR/SR

Warranty

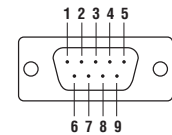
Warranty Period: 5 years

Details: See www.moxa.com/warranty

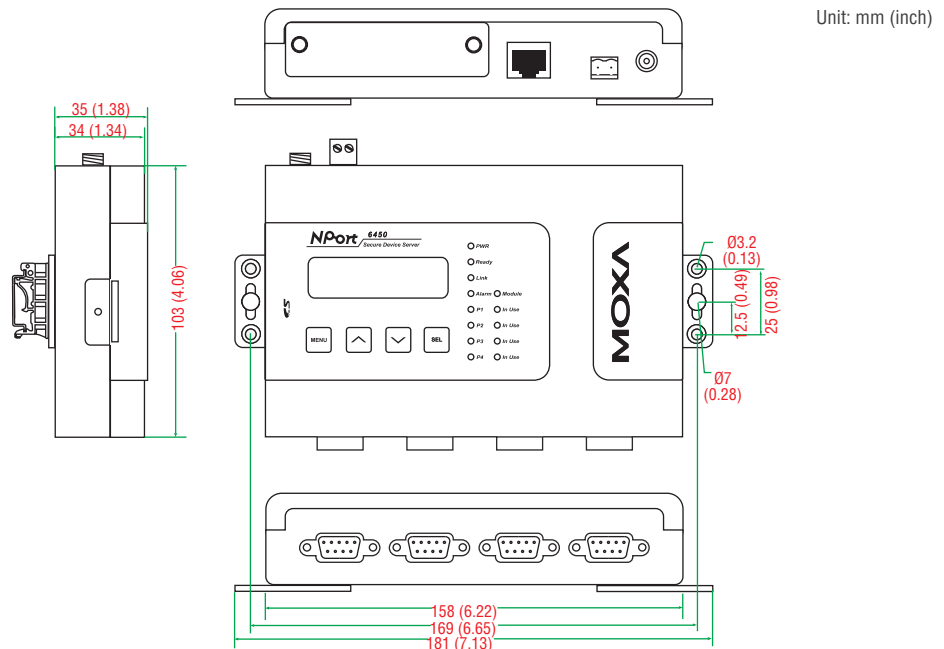
Pin Assignment

| 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 | - | - |

DB9 male connector



Dimensions



Note: The LCD panel and push buttons are only available with standard temperature models.

Ordering Information

Available Models

NPort 6450: 4-port secure device server, RS-232/422/485 to Ethernet

NPort 6450-T: 4-port secure device server, RS-232/422/485 to Ethernet, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting kit, 35 mm, 2 DIN-rail plates with 4 screws

CBL-PJ21NOPEN-BK-30: Locking barrel plug to bare-wires cable







Mini DB9F-to-TB: DB9(F) to terminal block connector

Note: One power adapter suitable for your region is included in the product package. Additional power adapters can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist


- 1 NPort 6450 secure device server
- 100 to 240 VAC power adapter (excluding T models)*
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card


*For non-T models, the package includes one power adapter suitable for your region.

| Expansion Modules | | | Use with the following NPort models | | | | | |
|--------------------------------|---|--|-------------------------------------|------|------|------------------|--------------------|--------------------|
| | | | 6150 | 6250 | 6450 | 6610-8 6650-8 | 6610-16 6650-16 | 6610-32 6650-32 |
| NM-TX01 NM-TX01-T |  | 1 10/100BaseT(X) port | – | – | ✓ | ✓ | ✓ | ✓ |
| NM-TX02 NM-TX02-T |  | 2 10/100BaseT(X) ports | – | – | ✓ | ✓ | ✓ | ✓ |
| NM-FX01-S-SC NM-FX01-S-SC-T |  | 1 100BaseFX port, single-mode, SC connector | – | – | ✓ | ✓ | ✓ | ✓ |
| NM-FX01-M-SC NM-FX01-M-SC-T |  | 1 100BaseFX port, multi-mode, SC connector | – | – | ✓ | ✓ | ✓ | ✓ |
| NM-FX02-S-SC NM-FX02-S-SC-T |  | 2 100BaseFX ports, single-mode, SC connector | – | – | ✓ | ✓ | ✓ | ✓ |
| NM-FX02-M-SC NM-FX02-M-SC-T |  | 2 100BaseFX ports, multi-mode, SC connector | – | – | ✓ | ✓ | ✓ | ✓ |

Note: Expansion modules can be purchased separately.

Power Accessory Selection Guide

| Barrel Plug Type | | Locking Barrel Plug | | Power Cord | | | | |
|------------------|-----------------|--|------------------|-----------------------------|------------------|------------------|------------------|------------------|
| O/P | | 12 VDC, 1.5 A, 100 to 240 VAC | | 10A/250V Power Cord, 183 cm | | | | |
| Plug Type | | CN | US | JP | EU | AU | UK | CN |
| Model Name | | PWR-12150-CN-S2 | PWC-C13US-3B-183 | PWC-C13JP-3B-183 | PWC-C13EU-3B-183 | PWC-C13AU-3B-183 | PWC-C13UK-3B-183 | PWC-C13CN-3B-183 |
| Appearance | |  | | | | | | |
| 1 port | NPort 6150 | ✓ | – | – | – | – | – | – |
| | NPort 6250 | ✓ | – | – | – | – | – | – |
| 2 ports | NPort 6250-M-SC | ✓ | – | – | – | – | – | – |
| | NPort 6250-S-SC | ✓ | – | – | – | – | – | – |
| 4 ports | NPort 6450 | ✓ | – | – | – | – | – | – |
| 8 ports | NPort 6610-8 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | NPort 6650-8 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2610-8 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2610-8-2AC | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650-8 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650-8-2AC | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650I-8 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650I-8-2AC | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 16 ports | NPort 6610-16 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | NPort 6650-16 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2610-16 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2610-16-2AC | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650-16 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650-16-2AC | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650I-16 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | CN2650I-16-2AC | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 32 ports | NPort 6610-32 | – | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| Barrel Plug Type | | Locking barrel plug | | Power Cord | | | | |
|------------------|-----------------|--|-----------------|------------------------------|-----------------|-----------------|-----------------|----|
| O/P | | 12 VDC, 2 A, 100 to 240 VDC (desktop type) | | 2.5A/250V Power Cord, 183 cm | | | | |
| Plug Type | | Must be used with one power cord | | US | JP | EU | AU | UK |
| Model Name | | PWR-12125-DT-S2 | PWC-C7US-2B-183 | PWC-C7JP-2B-183 | PWC-C7EU-2B-183 | PWC-C7AU-2B-183 | PWC-C7UK-2B-183 | |
| Appearance | |  | | | | | | |
| 1 port | NPort 6150 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | NPort 6250 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 ports | NPort 6250-M-SC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | NPort 6250-S-SC | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 ports | NPort 6450 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8 ports | NPort 6610-8 | – | – | – | – | – | – | – |
| | NPort 6650-8 | – | – | – | – | – | – | – |
| 16 ports | NPort 6610-16 | – | – | – | – | – | – | – |
| | NPort 6650-16 | – | – | – | – | – | – | – |
| 32 ports | NPort 6610-32 | – | – | – | – | – | – | – |