NPort 6600-G2 Series

2nd Gen 8/16/32-port RS-232/422/485 secure terminal servers

Features and Benefits

- Data encryption with secure operation modes for Real COM, TCP Server, TCP Client, Pair Connection, Terminal, and Reverse Terminal
- Secure Boot only allows Moxa-authorized firmware to run on devices
- One-click log collection and application analysis for easy troubleshooting
- Easy RS-485 configuration of serial interfaces with software-adjustable pull high/low resistor and terminator
- Supports SSL certificate signing by RSA-4096 / ECC-521
- IEC 62443-4-2 Security Level 2 certified

Certifications

Introduction

The NPort® 6000-G2 Series is a next-generation secure device server designed to provide secure, reliable, and easy-to-manage serial-to-Ethernet connectivity for industrial applications. A management console supports HTTPS with TLS 1.2/1.3, while serial data transmitted over Ethernet can also be protected with TLS encryption to ensure communication security and data integrity. Designed for seamless integration with enterprise IT security infrastructure, the NPort® 6000-G2 supports RADIUS and TACACS+ authentication, SNMP Inform/Trap for centralized event monitoring and alerts, and remote syslog for security auditing. Primary and backup server configurations are supported to enhance service availability and reliability. For easier serial port configuration and troubleshooting, the NPort® 6000-G2 provides software-configurable pull high/low resistors and terminators, along with a one-click application analyzer to help users quickly identify communication issues during on-site maintenance.

IEC 62443-4-2 Security Level 2 Certified

The NPort 6600-G2 Series is IEC 62443-4-2 Security Level 2 certified, making it easier for asset owners and system integrators to integrate IIoT applications by providing a secure platform that has already been tested and validated to protect IIoT data and infrastructure against cyberthreats.

IEC 62443-4-2 Security Level 2 certificate:
https://certificates.iecee.org/#/deliverables/CERT/2018356/view

Secure Data Transmission

For many applications, guaranteeing secure data transmission is an important concern when connecting serial devices to a network. To answer this concern, the NPort® 6600-G2 secure terminal servers support the TLS and SSH protocols, which work by encrypting data before sending it over the network. With the NPort® 6600-G2, you can be rest assured that serial data is transmitted securely over both private and public networks.

One-click Logs and Application Analysis for Easy Troubleshooting

During the deployment stage, system integrators must connect devices and ensure the communication is smooth. They may encounter issues and will require tools to troubleshoot issues. Moxa provides a application analyzer that generates a report at the click of a button to help the system integrator easily identify potential issues and understand how to resolve them.

At the maintenance stage, system errors may require you to call for help. Device vendors might take a long time to troubleshoot issues because they need to collect information and then hold discussions with the technical support team. The NPort 6600-G2 comes with a one-click log collection function, which can provide all the data that a technical support team needs to quickly troubleshoot system issues.

Specifications

Memory	
SD Slot	microSD card Up to 2 TB (high speed, 25 Mbps)

Ethernet Interface	
10/100/1000BaseT(X) Ports (RJ45 connector)	2 ports (up to 4) Auto MDI/MDI-X connection
Magnetic Isolation Protection	1.5 kV (built-in)

Ethernet Software Features

Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), MCC Tool, Serial Console
Management	ARP, DHCP Client, DNS, HTTPS, ICMP, IPv4/IPv6, SMTP, SMTPS, SNMPv1/v2c/v3, SNTP, TCP/IP, UDP, WINS
Windows Real COM Drivers	Windows 11, 10, 8.1, 8, and 7 Windows Server 2022, 2019, 2016, 2012 R2, 2012, and 2008 R2
Linux Real TTY Drivers	Kernel versions 6.x, 5.x, and 4.x
Fixed TTY Drivers	macOS versions: 14, 13, 12, and 11
Arm®-based Platform Support	Windows 11 Linux kernel 6.x, 5.x, and 4.x macOS 14, 13, 12, and 11
Virtual Machine	VMWare ESXi (Windows 11/10/8.1/8/7 & Linux 6.x, 5.x, and 4.x) VMware Fusion (Windows on macOS 14, 13, 12, and 11) Parallels Desktop (Windows on macOS 14, 13, 12, and 11)
Time Management	SNTP Client
MIB	MIB-II RFC1213, RFC1317 Private MIB
Unicast Routing	RIPV1/V2 Static Route

Security Functions

Root of Trust	Secure Boot True Random Number Generator (TRNG) Security Screws
Authentication	Local database RADIUS TACACS+
Security Protocols	HTTPS (TLS 1.2/1.3) SNMPv3 SSHv2
Encryption	HTTPS: ECC-256, ECC-384, ECC-521, RSA-1024, RSA-2048, RSA-3072, RSA-4096, AES-128, AES-256, CHACHA20, SHA-256, SHA-384, HMAC SSH: ECC-256, ECC-384, ECC-521, RSA-2048, AES-128, AES-256, SHA-256, SHA-384, HMAC SNMPv3: AES-128, SHA-256, SHA-384 Secure OP mode: HTTPS: ECC-256, ECC-384, ECC-521, RSA-1024, RSA-2048, RSA-3072, RSA-4096, AES-128, AES-256, CHACHA20, SHA-256, SHA-384, HMAC Config import/export: AES-256, SHA-256, HMAC

Serial Interface

No. of Ports	NPort 6610/6650-8-G2 models: 8 NPort 6610/6650-16-G2 models: 16 NPort 6610/6650-32-G2 models: 32
Connector	8-pin RJ45
Serial Standards	NPort 6610-G2 models: RS-232 NPort 6650-G2 models: RS-232, RS-422, RS-485
Secure Operation Modes	Reverse SSH, Secure Pair Connection, Secure Real COM, Secure TCP Client, Secure TCP Server, SSH, Secure Redundant COM, Secure Reverse Real COM

Standard Operation Modes	Disabled, Pair Connection, SLIP, PPP, Real COM, Reverse Terminal, RFC2217, TCP Client, TCP Server, Terminal, UDP, Redundant COM, Reverse Real COM
Bitrate	50 bps to 921.6 kbps (supports non-standard baudrates)
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Flow Control	None, RTS/CTS, DTR/DSR, RTS Toggle, XON/XOFF
Parity	None, Even, Odd, Space, Mark
RS-485 Data Direction Control	Automatic Data Direction Control (ADDC)
Terminator for RS-485	120 ohms (software–configurable)
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms (software–configurable)

Serial Signals

RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND

Power Parameters

Input Current	NPort 6610-G2/6650-G2 models: 320 mA (max.) NPort 6650I-G2 models: 330 mA (max.) NPort 6650-48V-G2 models: 340 mA (max.)
Input Voltage	AC models: 100 to 240 VAC, 50 to 60 Hz DC models: ±48 VDC (20 to 72 VDC, -20 to -72 VDC)

Reliability

Automatic Reboot Trigger	Built-in WDT
Alert Tools	Built-in buzzer and RTC (real-time clock)

Physical Characteristics

Housing	Metal
Weight (including package)	NPort 6610/6650-8/-16-G2: 3.95 kg (8.71 lb) NPort 6610/6650-32-G2: 4.04 kg (8.91 lb) NPort 6610/6650-16-2AC-G2: 4.28 kg (9.44 lb) NPort 6610/6650-32-2AC-G2: 4.36 kg (9.61 lb) NPort 6650I-8-G2: 3.95 kg (8.71 lb) NPort 6650I-16-G2: 4.20 kg (9.26 lb) NPort 6650I-8-2AC-G2: 4.11 kg (9.06 lb) NPort 6650I-16-2AC-G2: 4.36 kg (9.61 lb) NPort 6650-8/16-48V-G2: 3.77 kg (8.31 lb) NPort 6650-32-48V-G2: 3.85 kg (8.49 lb)
Weight	NPort 6610/6650-8/-16-G2: 2.45 kg (5.40 lb) NPort 6610/6650-32-G2: 2.54 kg (5.60 lb) NPort 6610/6650-8/-16-2AC-G2: 2.72 kg (6.00 lb) NPort 6610/6650-32-2AC-G2: 2.80 kg (6.17 lb) NPort 6650I-8-G2: 2.45 kg (5.40 lb) NPort 6650I-16-G2: 2.70 kg (5.95 lb) NPort 6650I-8-2AC-G2: 2.55 kg (5.62 lb) NPort 6650I-16-2AC-G2: 2.80 kg (6.17 lb) NPort 6650-8/16-48V-G2: 2.54 kg (4.41 lb) NPort 6650-32-48V-G2: 2.62 kg (5.78 lb)

Dimensions (without mounting kit)	440 x 200 x 43.65 mm (17.32 x 7.87 x 1.72 in)
Installation	Desktop, Rack mounting (RK-43-01, included in the box)

Environmental Limits

Operating Temperature	Standard models: -10 to 60°C (14 to 140°F) Wide temp. models: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 75°C (-40 to 167°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 55032/35
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 (AC), 0.5 kV (DC); Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV (AC), 0.5 kV (DC) IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF IEC 61000-4-11: (excluding DC models)
Cybersecurity	IEC 62443-4-2 Security Level 2
Safety	IEC 62368-1, UL 62368-1, EN 62368-1
Vibration	IEC 60068-2-6
Traffic Control	NEMA TS2
Package Drop Test	ISTA 1A

Declaration

Green Product	RoHS, CRoHS, WEEE

MTBF

Time	NPort 6610-8-G2: 29,613 hrs NPort 6610-16-G2: 29,517 hrs NPort 6610-32-G2: 29,045 hrs NPort 6650-8-G2: 29,515 hrs NPort 6650-16-G2: 29,321 hrs NPort 6650-32-G2: 29,045 hrs NPort 6650-8-G2-T: 1,860,004 hrs NPort 6650-16-G2-T: 1,314,137 hrs NPort 6650-32-G2-T: 921,748 hrs NPort 6610-8-2AC-G2: 29,612 hrs NPort 6610-16-2AC-G2: 29,515 hrs NPort 6610-32-2AC-G2: 29,429 hrs NPort 6650-8-2AC-G2: 29,514 hrs NPort 6650-16-2AC-G2: 29,321 hrs NPort 6650-32-2AC-G2: 29,045 hrs NPort 6650-8-2AC-G2-T: 1,857,027 hrs NPort 6650-16-2AC-G2-T: 1,312,651 hrs NPort 6650-32-2AC-G2-T: 921,017 hrs NPort 6650I-8-G2: 29,446 hrs NPort 6650I-16-G2: 29,185 hrs NPort 6650I-8-G2-T: 1,620,368 hrs NPort 6650I-16-G2-T: 1,086,881 hrs NPort 6650I-8-2AC-G2: 29,445 hrs NPort 6650I-16-2AC-G2: 29,184 hrs NPort 6650I-8-2AC-G2-T: 1,618,109 hrs NPort 6650I-16-2AC-G2-T: 1,085,864 hrs NPort 6650-8-48V-G2: 29,514 hrs NPort 6650-16-48V-G2: 29,321 hrs NPort 6650-32-48V-G2: 29,045 hrs
Standards	Telcordia Standard SR-332 Telcordia SR-332 Standard Issue 4

Warranty

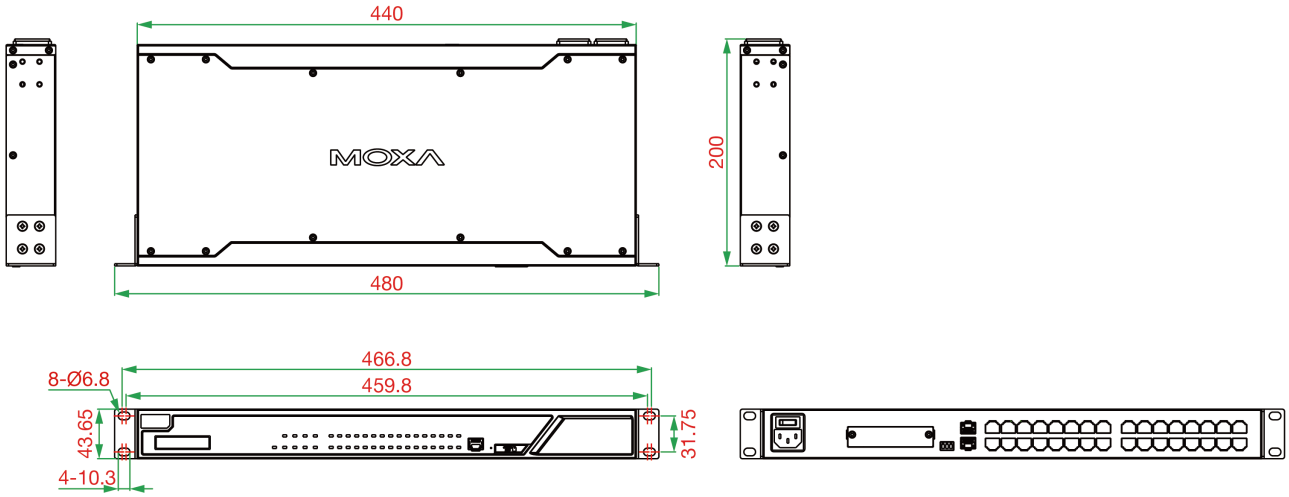
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x NPort 6600-G2 Series terminal server
Power Supply	2AC models: 2 x power cables, suitable for your region All other models (excluding DC models): 1 x power cable, suitable for your region
Installation Kit	1 x rack-mounting kit (RK-43-01)
Documentation	1 x quick installation guide

Dimensions

Unit: mm



Ordering Information

Model Name	Ethernet Ports	No. of Serial Ports	Serial Standards	Isolation	No. of Power Cables Included	Operating Temp.
NPort 6610-8-G2	2 x 10/100/1000M RJ45	8	RS-232	–	1	-10 to 60°C
NPort 6610-16-G2	2 x 10/100/1000M RJ45	16	RS-232	–	1	-10 to 60°C
NPort 6610-32-G2	2 x 10/100/1000M RJ45	32	RS-232	–	1	-10 to 60°C
NPort 6610-8-2AC-G2	2 x 10/100/1000M RJ45	8	RS-232	–	2	-10 to 60°C
NPort 6610-16-2AC-G2	2 x 10/100/1000M RJ45	16	RS-232	–	2	-10 to 60°C
NPort 6610-32-2AC-G2	2 x 10/100/1000M RJ45	32	RS-232	–	2	-10 to 60°C
NPort 6650-8-G2	2 x 10/100/1000M RJ45	8	RS-232/422/485	–	1	-10 to 60°C
NPort 6650-16-G2	2 x 10/100/1000M RJ45	16	RS-232/422/485	–	1	-10 to 60°C
NPort 6650-32-G2	2 x 10/100/1000M RJ45	32	RS-232/422/485	–	1	-10 to 60°C
NPort 6650-8-2AC-G2	2 x 10/100/1000M RJ45	8	RS-232/422/485	–	2	-10 to 60°C
NPort 6650-16-2AC-G2	2 x 10/100/1000M RJ45	16	RS-232/422/485	–	2	-10 to 60°C
NPort 6650-32-2AC-G2	2 x 10/100/1000M RJ45	32	RS-232/422/485	–	2	-10 to 60°C
NPort 6650-8-G2-T	2 x 10/100/1000M RJ45	8	RS-232/422/485	–	1	-40 to 75°C
NPort 6650-16-G2-T	2 x 10/100/1000M RJ45	16	RS-232/422/485	–	1	-40 to 75°C
NPort 6650-32-G2-T	2 x 10/100/1000M RJ45	32	RS-232/422/485	–	1	-40 to 75°C
NPort 6650-8-2AC-G2-T	2 x 10/100/1000M RJ45	8	RS-232/422/485	–	2	-40 to 75°C
NPort 6650-16-2AC-G2-T	2 x 10/100/1000M RJ45	16	RS-232/422/485	–	2	-40 to 75°C
NPort 6650-32-2AC-G2-T	2 x 10/100/1000M RJ45	32	RS-232/422/485	–	2	-40 to 75°C
NPort 6650I-8-G2	2 x 10/100/1000M RJ45	8	RS-232/422/485	2 kV	1	-10 to 60°C
NPort 6650I-16-G2	2 x 10/100/1000M RJ45	16	RS-232/422/485	2 kV	1	-10 to 60°C
NPort 6650I-8-2AC-G2	2 x 10/100/1000M RJ45	8	RS-232/422/485	2 kV	2	-10 to 60°C
NPort 6650I-16-2AC-G2	2 x 10/100/1000M RJ45	16	RS-232/422/485	2 kV	2	-10 to 60°C
NPort 6650I-8-G2-T	2 x 10/100/1000M RJ45	8	RS-232/422/485	2 kV	1	-40 to 75°C
NPort 6650I-16-G2-T	2 x 10/100/1000M RJ45	16	RS-232/422/485	2 kV	1	-40 to 75°C

Model Name	Ethernet Ports	No. of Serial Ports	Serial Standards	Isolation	No. of Power Cables Included	Operating Temp.
NPort 6650I-8-2AC-G2-T	2 x 10/100/1000M RJ45	8	RS-232/422/485	2 kV	2	-40 to 75°C
NPort 6650I-16-2AC-G2-T	2 x 10/100/1000M RJ45	16	RS-232/422/485	2 kV	2	-40 to 75°C
NPort 6650-8-48V-G2	2 x 10/100/1000M RJ45	8	RS-232/422/485	–	1	-10 to 60°C
NPort 6650-16-48V-G2	2 x 10/100/1000M RJ45	16	RS-232/422/485	–	1	-10 to 60°C
NPort 6650-32-48V-G2	2 x 10/100/1000M RJ45	32	RS-232/422/485	–	1	-10 to 60°C
NM-TX02-G2	2 x 10/100/1000M RJ45	–	–	–	–	-10 to 60°C
NM-TX02-G2-T	2 x 10/100/1000M RJ45	–	–	–	–	-40 to 75°C
NM-FX02-M-SC-G2	2 x 100M multi-mode SC	–	–	–	–	-10 to 60°C
NM-FX02-M-SC-G2-T	2 x 100M multi-mode SC	–	–	–	–	-40 to 75°C
NM-FX02-S-SC-G2	2 x 100M single-mode SC	–	–	–	–	-10 to 60°C
NM-FX02-S-SC-G2-T	2 x 100M single-mode SC	–	–	–	–	-40 to 75°C
NM-SFP02-G2-T	2 x 1000BaseSFP	–	–	–	–	-40 to 75°C

Accessories (sold separately)

Expansion Modules

NM-TX02-G2	2nd Gen 2 10/100BaseT(x) port connector, -10 to 60°C operating temperature
NM-TX02-G2-T	2nd Gen 2 10/100BaseT(x) port connector, -40 to 75°C operating temperature
NM-FX02-M-SC-G2	2nd Gen 2 100BaseFX port multi-mode SC connector, -10 to 60°C operating temperature
NM-FX02-M-SC-G2-T	2nd Gen 2 100BaseFX port multi-mode SC connector, -40 to 75°C operating temperature
NM-FX02-S-SC-G2	2nd Gen 2 100BaseFX port single-mode SC connector, -10 to 60°C operating temperature
NM-FX02-S-SC-G2-T	2nd Gen 2 100BaseFX port single-mode SC connector, -40 to 75°C operating temperature
NM-SFP02-G2-T	2nd Gen 2 1000BaseSFP port connector, -40 to 75°C operating temperature

SFP Modules

SFP-1GLHLC	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature
SFP-1GLHXLC	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature
SFP-1GLXLC	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature
SFP-1GZXLC	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature
SFP-1GSXLC	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature
SFP-1GLHLC-T	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature
SFP-1GLHXLC-T	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature

Cables

CBL-RJ458P-Cisco-BK-180	8-pin RJ45 to 8-pin RJ45 serial cable, 1.8 m, for Cisco console port
CBL-RJ45F25-150	8-pin RJ45 to DB25 female serial cable, 1.5 m
CBL-RJ45F9-150	8-pin RJ45 to DB9 female serial cable, 1.5m
CBL-RJ45M25-150	8-pin RJ45 to DB25 male serial cable, 1.5m

CBL-RJ45M9-150	8-pin RJ45 to DB9 male serial cable, 1.5m
CBL-RJ45SF25-150	8-pin RJ45 to DB25 female serial cable with shielding, 1.5m
CBL-RJ45SF9-150	8-pin RJ45 to DB9 female serial cable with shielding, 1.5m
CBL-RJ45SM25-150	8-pin RJ45 to DB25 male serial cable with shielding, 1.5m
CBL-RJ45SM9-150	8-pin RJ45 to DB9 male serial cable with shielding, 1.5m

Connectors

LB-DB9F-G-01	Serial loopback DB9 adaptor
LB-RJ458P-G-01	Serial loopback 8-pin RJ45 adapter

Power Cords

PWC-C13AU-3B-183	Power cord with AU plug, 1.83 m
PWC-C13CN-3B-183	Power cord with three-prong CN plug, 1.83 m
PWC-C13EU-3B-183	Power cord with EU/KR plug, 1.83 m
PWC-C13JP-3B-183	Power cord with JP plug plug, 7A/125V, 1.83 m
PWC-C13UK-3B-183	Power cord with UK plug, 1.83 m
PWC-C13US-3B-183	Power cord with US plug, 1.83 m
PWC-C15EU-3B-183	Power cord with EU plug, 1.83 m, -40 to 75°C operating temperature
PWC-C15JP-3B-183	Power cord with JP plug, 1.83 m, -40 to 75°C operating temperature
PWC-C15US-3B-183	Power cord with US plug, 1.83 m, -40 to 75°C operating temperature

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