Terminal Servers

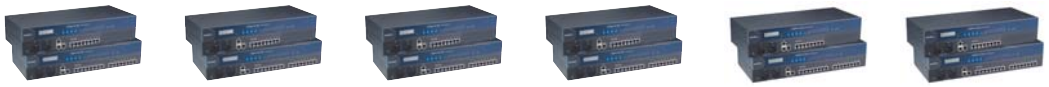
NPort® 6000 Terminal Servers

	NPort® 6150	NPort® 6250	NPort® 6250-M-SC	NPort® 6250-S-SC	NPort® 6450	NPort® 6610-8	NPort® 6610-8-48V	NPort® 6610-16	NPort® 6610-16-48V
LAN Interface									
10/100BaseT(X) Ports	1 port (8-pin RJ45 connector)								
Magnetic Isolation Protection	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV
100BaseFX Ports	---	---	1 (multi-mode)	1 (single-mode)	---	---	---	---	---
Expansion Modules									
10/100BaseT(X) (RJ45)	---	---	---	---	√	√	√	√	√
Multi-mode Fiber (SC)	---	---	---	---	√	√	√	√	√
Single-mode Fiber (SC)	---	---	---	---	√	√	√	√	√
GSM/GPRS	---	---	---	---	√	√	√	√	√
Modem	---	---	---	---	√	√	√	√	√
Serial Interface									
RS-232 Ports	---	---	---	---	---	8	8	16	16
RS-232/422/485 Ports	1	2	2	2	4	---	---	---	---
Connectors	DB9 male	DB9 male	DB9 male	DB9 male	DB9 male	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45
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 non-standard baudrates)								
15 KV ESD Protection	√	√	√	√	√	√	√	√	√
2 KV isolation protection	---	---	---	---	---	---	---	---	---
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port	√	√	√	√	√	√	√	√	√
Advanced Features									
LCD Panel with 4 push buttons	---	---	---	---	√	√	√	√	√
Serial Data Log	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB
Offline Port Buffering	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB
SD Slot	---	√	√	√	√	√	√	√	√
Software									
Network Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, DDNS, HTTP, SMTP, HTTPS, SSL, SSH, PPPoE, RFC2217, IPv6, IPv4, Turbo Ring, Turbo Ring 2								
Security Protocols	DES, 3DES, AES, SSH, SSL, HTTPS, RADIUS, PAP, CHAP, TACACS+								
Configuration Options	Web Console, Telnet Console, Serial Console, Windows Search Utility								
Driver Support	Windows Driver Manager (for 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), Linux Real TTY driver (for 2.4.x, 2.6.x), Fixed TTY driver (for 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)								
Management	SNMP MIB-II								
IP Routing	Static, RIP-I, RIP-II								
Standard Operation Modes	Real COM, TCP Server, TCP Client, UDP, Pair Connection, RFC2217, Terminal, Reverse Telnet, Ethernet Modem, Printer, PPP, Disabled								
Secure Operation Modes	Secure Real COM, Secure TCP Server, Secure TCP Client, Secure Pair Connection, SSH, Reverse SSH								
Terminal Sessions	8 sessions per port								
Physical Characteristics									
Housing	Metal	Metal	Metal	Metal	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)
Weight	700 g	730 g	730 g	730 g	1020 g	3460 g	3460 g	3580 g	3580 g
Dimensions (mm)	67 x 100.4 x 28	77 x 111 x 28	77 x 111 x 28	77 x 111 x 28	158 x 103 x 35	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44
Environmental Limits									
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C
Power Requirements									
Input Voltage	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	100 to 240 VAC	±48 VDC	100 to 240 VAC	±48 VDC
Power Consumption	285 mA @ 12 V 150 mA @ 24 V	333 mA @ 12 V 173 mA @ 24 V	428 mA @ 12 V 219 mA @ 24 V	376 mA @ 12 V 193 mA @ 24 V	730 mA @ 12 V 330 mA @ 24 V	285 mA @ 100 V 190 mA @ 240 V	293 mA @ 48 V	285 mA @ 100 V 190 mA @ 240 V	293 mA @ 48 V
Regulatory Approvals									
EMC	CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A								
Safety	UL (UL60950-1), TÜV (EN60950-1)								
EMS	EN61000-4-2 (ESD), Level 3 EN61000-4-4 (EFT), Level 2 EN61000-4-5 (Surge), Level 2					EN61000-4-2 (ESD), Level 3 EN61000-4-4 (EFT), Level 2 EN61000-4-5 (Surge), Level 3			
Reliability									
Buzzer, RTC, WDT	√	√	√	√	√	√	√	√	√
MTBF	231709 hrs	226128 hrs	225762 hrs	225762 hrs	120354 hrs	135891 hrs	135891 hrs	102373 hrs	102373 hrs
Warranty	5 years (see www.moxa.com/warranty)								

NPort® 6000 Terminal Servers

	NPort® 6610-32	NPort® 6610-32-48V	NPort® 6650-8	NPort® 6650-8-48V	NPort® 6650-16	NPort® 6650-16-48V	NPort® 6650-32	NPort® 6650-32-48V
LAN Interface								
10/100BaseT(X) Ports	1 port (8-pin RJ45 connector)							
Magnetic Isolation Protection	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV
100BaseFX Ports	---	---	---	---	---	---	---	---
Expansion Modules								
10/100BaseT(X) (RJ45)	√	√	√	√	√	√	√	√
Multi-mode Fiber (SC)	√	√	√	√	√	√	√	√
Single-mode Fiber (SC)	√	√	√	√	√	√	√	√
GSM/GPRS	√	√	√	√	√	√	√	√
Modem	√	√	√	√	√	√	√	√
Serial Interface								
RS-232 Ports	32	32	---	---	---	---	---	---
RS-232/422/485 Ports	---	---	8	8	16	16	32	32
Connectors	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45
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 non-standard baudrates)							
15 KV ESD Protection	√	√	√	√	√	√	√	√
2 KV isolation protection	---	---	---	---	---	---	---	---
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port	√	√	√	√	√	√	√	√
Advanced Features								
LCD Panel with 4 push buttons	√	√	√	√	√	√	√	√
Serial Data Log	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB
Offline Port Buffering	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB	64 KB
SD Slot	√	√	√	√	√	√	√	√
Software								
Network Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, DDNS, HTTP, SMTP, HTTPS, SSL, SSH, PPPoE, RFC2217, IPv6, IPv4, Turbo Ring, Turbo Ring 2							
Security Protocols	DES, 3DES, AES, SSH, SSL, HTTPS, RADIUS, PAP, CHAP, TACACS+							
Configuration Options	Web Console, Telnet Console, Serial Console, Windows Search Utility							
Driver Support	Windows Driver Manager (for 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), Linux Real TTY driver (for 2.4.x, 2.6.x), Fixed TTY driver (for 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)							
Management	SNMP MIB-II							
IP Routing	Static, RIP-I, RIP-II							
Standard Operation Modes	Real COM, TCP Server, TCP Client, UDP, Pair Connection, RFC2217, Terminal, Reverse Telnet, Ethernet Modem, Printer, PPP, Disabled							
Secure Operation Modes	Secure Real COM, Secure TCP Server, Secure TCP Client, Secure Pair Connection, SSH, Reverse SSH							
Terminal Sessions	8 sessions per port							
Physical Characteristics								
Housing	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)
Weight	3600 g	3600 g	3460 g	3460 g	3580 g	3580 g	3600 g	3600 g
Dimensions (mm)	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44	440 x 195 x 44
Environmental Limits								
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C
Power Requirements								
Input Voltage	100 to 240 VAC	±48 VDC	100 to 240 VAC	±48 VDC	100 to 240 VAC	±48 VDC	100 to 240 VAC	±48 VDC
Power Consumption	285 mA @ 100 V 190 mA @ 240 V	293 mA @ 48 V	285 mA @ 100 V 190 mA @ 240 V	293 mA @ 48 V	285 mA @ 100 V 190 mA @ 240 V	293 mA @ 48 V	285 mA @ 100 V 190 mA @ 240 V	293 mA @ 48 V
Regulatory Approvals								
EMC	CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A							
Safety	UL (UL60950-1), TÜV (EN60950-1)							
EMS	EN61000-4-2 (ESD), Level 3 EN61000-4-4 (EFT), Level 2 EN61000-4-5 (Surge), Level 2							
Reliability								
Buzzer, RTC, WDT	√	√	√	√	√	√	√	√
MTBF	68707 hrs	68707 hrs	135370 hrs	135370 hrs	101783 hrs	101783 hrs	68177 hrs	68177 hrs
Warranty	5 years (see www.moxa.com/warranty)							

CN2600 Terminal Servers



	CN2610-8	CN2610-16	CN2610-8-2AC	CN2610-16-2AC	CN2650-8	CN2650-16
LAN Interface						
10/100BaseT(X) Ports	2 ports (8-pin RJ45 connector)					
Magnetic Isolation Protection	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV
Serial Interface						
RS-232 Ports	8	16	8	16	---	---
RS-232/422/485 Ports	---	---	---	---	8	16
Connectors	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45	8-pin RJ45
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					
15 KV ESD Protection	√	√	√	√	√	√
2 KV isolation protection	---	---	---	---	---	---
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port	√	√	√	√	√	√
Advanced Features						
LCD Panel with 4 push buttons	√	√	√	√	√	√
Serial Data Log	128 KB	128 KB	128 KB	128 KB	128 KB	128 KB
Offline Port Buffering	128 KB	128 KB	128 KB	128 KB	128 KB	128 KB
Software						
Network Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP, PPPoE, DDNS					
Security Protocols	RADIUS, https, SSH, PAP, CHAP					
Configuration Options	Web Console, Telnet Console, Serial Console, Windows Search Utility					
Driver Support	Windows Driver Manager (for 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), Linux Real TTY driver (for 2.4.x, 2.6.x), Fixed TTY driver (for 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)					
Management	SNMP MIB-II					
IP Routing	Static, RIP-I, RIP-II					
Standard Operation Modes	Real COM, TCP Server, TCP Client, UDP, RFC2217, Terminal, Reverse Telnet, PPP, DRDAS, Redundant COM, Disabled					
Terminal Sessions	8 sessions per port					
Physical Characteristics						
Housing	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)
Weight	3525 g	3560 g	3760 g	3980 g	3740 g	3790 g
Dimensions (mm)	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45
Environmental Limits						
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C
Power Requirements						
Number of Inputs	1	1	2	2	1	1
Input Voltage	100 to 240 VAC, 47 to 63 Hz					
Power Consumption	235 mA @ 100 VAC, 145 mA @ 240 V					
Regulatory Approvals						
EMC	CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A					
Safety	UL (UL60950), TÜV (EN60950)					
EMS	EN61000-4-2 (ESD), Level 3 EN61000-4-4 (EFT), Level 4 EN61000-4-5 (Surge), Level 2					
Reliability						
Buzzer, RTC, WDT	√	√	√	√	√	√
MTBF	99302 hrs					
Warranty	5 years (see www.moxa.com/warranty)					

CN2600 Terminal Servers

	CN2650-8-2AC	CN2650-16-2AC	CN2650I-8	CN2650I-16	CN2650I-8-2AC	CN2650I-16-2AC
LAN Interface						
10/100BaseT(X) Ports	2 ports (8-pin RJ45 connector)					
Magnetic Isolation Protection	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV	1.5 KV
Serial Interface						
RS-232 Ports	---	---	---	---	---	---
RS-232/422/485 Ports	8	16	8	16	8	16
Connectors	8-pin RJ45	8-pin RJ45	DB9 male	DB9 male	DB9 male	DB9 male
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					
15 KV ESD Protection	√	√	√	√	√	√
2 KV isolation protection	---	---	√	√	√	√
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port	√	√	√	√	√	√
Advanced Features						
LCD Panel with 4 push buttons	√	√	√	√	√	√
Serial Data Log	128 KB	128 KB	128 KB	128 KB	128 KB	128 KB
Offline Port Buffering	128 KB	128 KB	128 KB	128 KB	128 KB	128 KB
Software						
Network Protocols	ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP, PPPoE, DDNS					
Security Protocols	RADIUS, https, SSH, PAP, CHAP					
Configuration Options	Web Console, Telnet Console, Serial Console, Windows Search Utility					
Driver Support	Windows Driver Manager (for 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), Linux Real TTY driver (for 2.4.x, 2.6.x), Fixed TTY driver (for 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)					
Management	SNMP MIB-II					
IP Routing	Static, RIP-I, RIP-II					
Standard Operation Modes	Real COM, TCP Server, TCP Client, UDP, RFC2217, Terminal, Reverse Telnet, PPP, DRDAS, Redundant COM, Disabled					
Terminal Sessions	8 sessions per port					
Physical Characteristics						
Housing	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)	Metal (IP30)
Weight	3900 g	3980 g	3666 g	3776 g	3932 g	4022 g
Dimensions (mm)	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45	440 x 198 x 45
Environmental Limits						
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C
Power Requirements						
Number of Inputs	2	2	1	1	2	2
Input Voltage	100 to 240 VAC, 47 to 63 Hz					
Power Consumption	235 mA @ 100 VAC, 145 mA @ 240 VAC					
Regulatory Approvals						
EMC	CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A					
Safety	UL (UL60950), TÜV (EN60950)					
EMS	EN61000-4-2 (ESD), Level 3 EN61000-4-4 (EFT), Level 4 EN61000-4-5 (Surge), Level 2					
Reliability						
Buzzer, RTC, WDT	√	√	√	√	√	√
MTBF	99302 hrs					
Warranty	5 years (see www.moxa.com/warranty)					

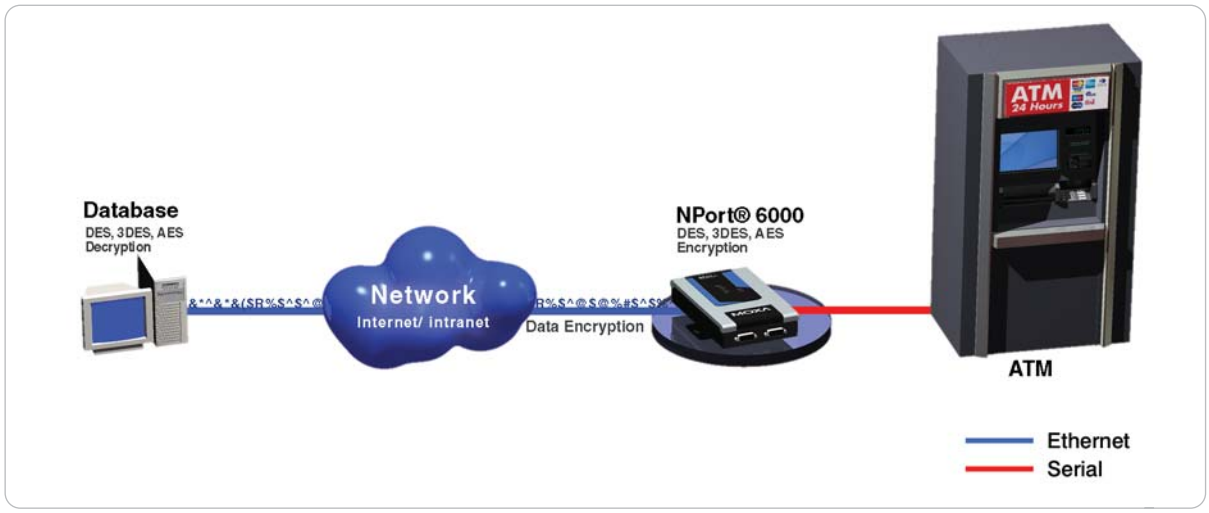
Secure Terminal Servers

NPort® 6000 secure terminal servers provide serial-to-Ethernet connectivity that is both reliable and secure. They can be used to connect any serial device to an Ethernet network using a variety of operation modes—Real COM, TCP Server, TCP Client, UDP, RFC2217, Pair Connection, Ethernet Modem, Terminal, Reverse Terminal, Printer, and Dial in/out. For applications that require data security, such as banking, telecom, access control, and remote site management, secure modes are also available—Secure TCP Server, Secure TCP Client, Secure Pair-Connection, Secure Real COM, and Secure Terminal modes.

Safe Data Communication

Secure Data Communication with SSL

Network security is a critical issue for certain applications, and is especially important when data is transmitted over the Internet where it is vulnerable to interception by third parties. The NPort® 6000 secure terminal servers use SSL to implement secure data transmission for Secure TCP Server, Secure TCP Client, Secure Pair Connection, and Secure Real COM modes. The NPort®'s drivers follow the SSL standard and automatically negotiate the encryption key, and to prevent hacker attacks, the NPort® will automatically switch from DES/3DES to AES encryption.



Secure Remote Management and Configuration with SSH and SSL

Unauthorized access is a major concern for system managers, and the NPort® 6000 secure terminal servers help control access by supporting IP filtering and password protection. Extra protection from hackers is also provided by SSH and SSL. Secure configuration of the NPort® 6000 is provided by opening the web console with a web browser that supports https (e.g., Internet Explorer), or by opening the Telnet console using a terminal emulator that supports SSH (e.g., PuTTY).

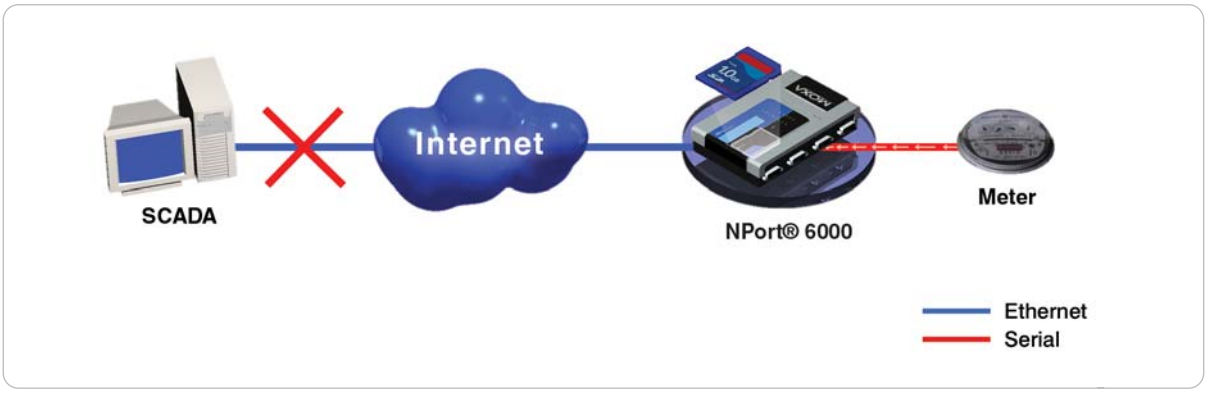
Powerful Hardware Encryption Engine

A powerful hardware encryption engine that supports the complete DES/3DES/AES encryption algorithms is built into the NPort® 6000. For DES and 3DES encryption, the NPort® 6000 supports ECB, CBC, CFB, and OFB modes. For AES encryption, the NPort® 6000 supports ECB, CBC, CFB, OFB, and CTR modes with a 128-bit, 192-bit, or 256-bit key.

Reliable Data Communication

Port Buffering that Preserves Data if the Ethernet Fails

For mission-critical applications, data collected from a serial device must be safeguarded in case the Ethernet network gets disconnected. The NPort® 6000 provides exceptionally reliable data transmission by saving serial data to an internal 64 KB port buffer if the Ethernet connection fails. When the Ethernet network is reconnected, data in the buffer is automatically released and sent to the appropriate destination. For the NPort® 6250, 6450, and 6650, this buffer can be expanded by installing an SD card.



Ethernet Port Expansion (NPort® 6450/6600 only)

Although more and more devices are now Ethernet-ready, many legacy devices only provide a serial interface. The main purpose of a device server is to connect serial devices to an Ethernet network, allowing engineers to integrate all devices into an Ethernet environment. A problem can arise if both Ethernet-ready and legacy serial devices need to be connected from the same location. The NPort® 6000 can use the Ethernet expansion module to add additional Ethernet ports, effectively allowing operation as a combination Ethernet switch/device server. By using the NPort® 6000's Ethernet expansion modules, users no longer need to invest in a more expensive switch or hub to connect every device. Modules are available for different Ethernet media, including copper Ethernet, multi-mode fiber, and single-mode fiber. Ethernet expansion modules can also be used to create a cascading topology in which device servers are connected to each other in a daisy chain arrangement.

Interchangeable modules for Ethernet expansion

1 RJ45 Ethernet Port

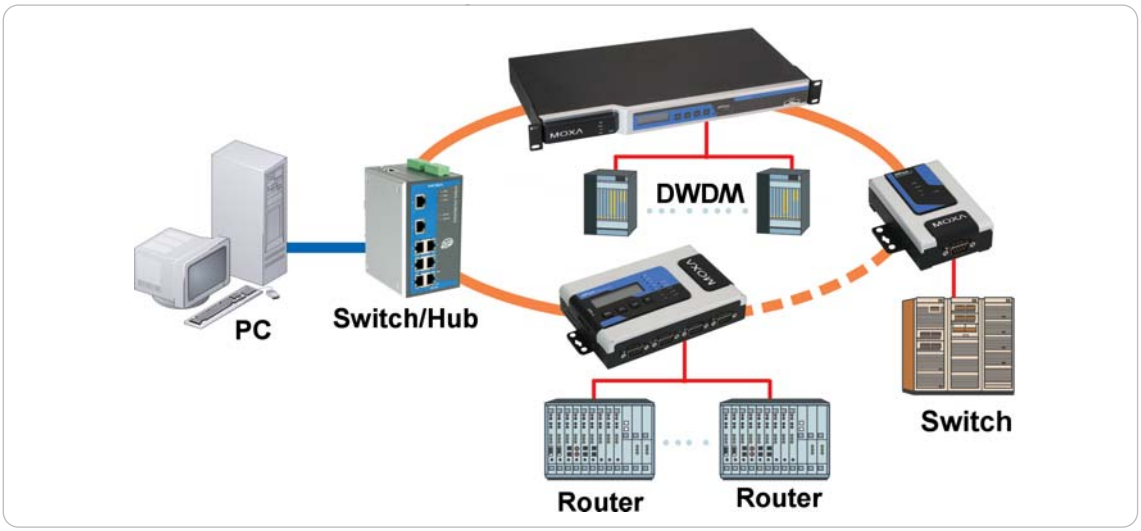
1 fiber Ethernet port (single or multi mode)

2 fiber Ethernet ports (single or multi mode)

2 RJ45 Ethernet Port

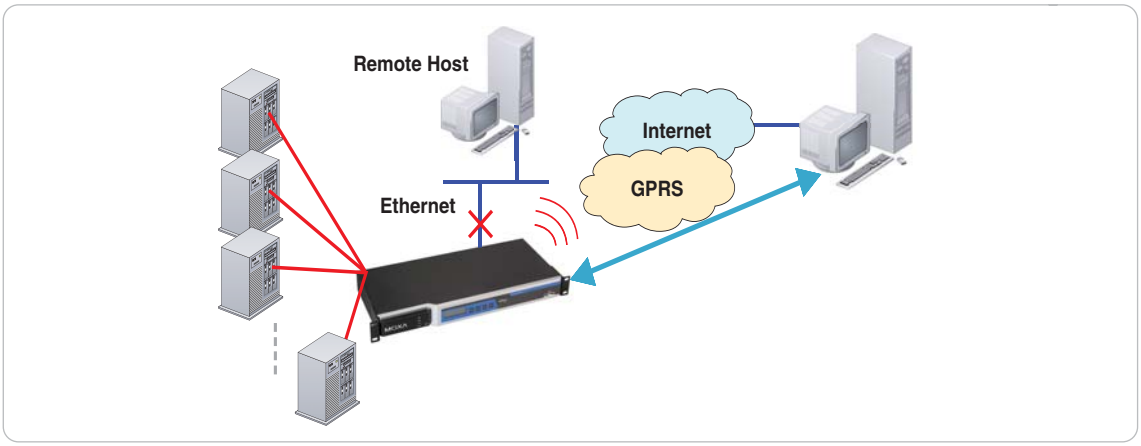
Ethernet Ring Topology with Fast Recovery

NPort® 6000 secure terminal servers support the Turbo Ring protocol for cascade topologies. With Turbo Ring, if any segment of the daisy-chain ring is disconnected, the network will recover in less than 300 ms.



Redundant Ethernet (NPort® 6450/6600 only)

The NM-GPRS/GSM and NM-Modem network modules can be used to provide NPort® 6000 secure terminal servers with an automatic backup capability. When the backup function is enabled, the NPort® 6000 will check the remote host connection on the Ethernet side after powering on. Once a connection failure has occurred, data from the serial device will be sent out through the GSM/GPRS and PSTN network. When the remote host on the Ethernet side returns to normal status, data will again be sent through the Ethernet connection. The NPort® 6000 backup function makes data transmission safer and more reliable.



Flexible and Easy to Use Design

Supports ADSL Dial-up and DDNS

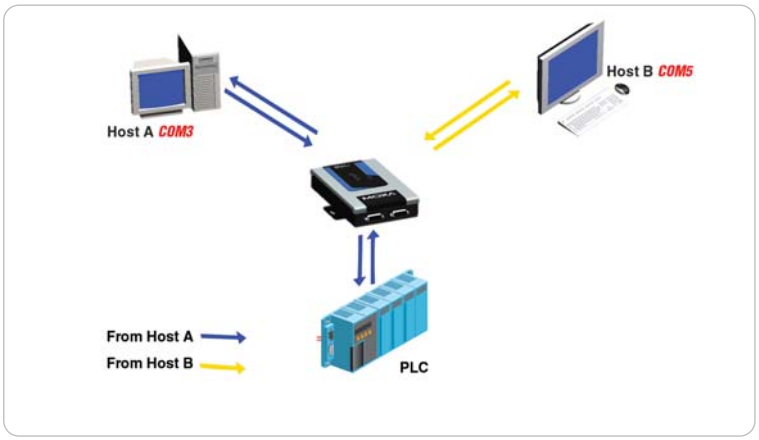
When serial devices are connected to an NPort® 6000 secure terminal server, any networked computer can be used to control the devices over an Ethernet network, intranet, or the Internet. Connections can be established using different operation modes, such as Real COM/TTY, TCP Server, and TCP Client. The NPort® 6000 also supports PPPoE for ADSL connections, and DDNS can be used to help locate NPort® 6000 secure terminal servers on the network. In addition, fiber optic models are available to extend the Ethernet connection distance.

Select Non-standard Baudrates between 50 bps and 921.6 Kbps

Engineers who use serial devices know that most device servers only support “standard” baudrates. However, some applications require special baudrates, such as 250 Kbps or 500 Kbps. One of the advantages of the NPort® 6000 device servers is that you can select any baudrate between 50 bps and 921.6 Kbps, allowing the NPort® 6000 to be used with serial devices that require special baudrates (the actual baudrate will be within 3% of the selected value; see the user’s manual for details).

"Command by Command" Mode

For applications that require multiple hosts to communicate with one serial device, it is often necessary to require the NPort® to issue one command at a time. What this means is that after the NPort® issues a command, it waits for the next request before issuing another command. In other words, the NPort® issues a command, waits for a request, issues a command, waits for a request, and so on. The "command by command" mode is designed specifically for this kind of multi-host application. With command by command mode, after issuing each command, the NPort® 6000 waits for a response before sending out the next command.

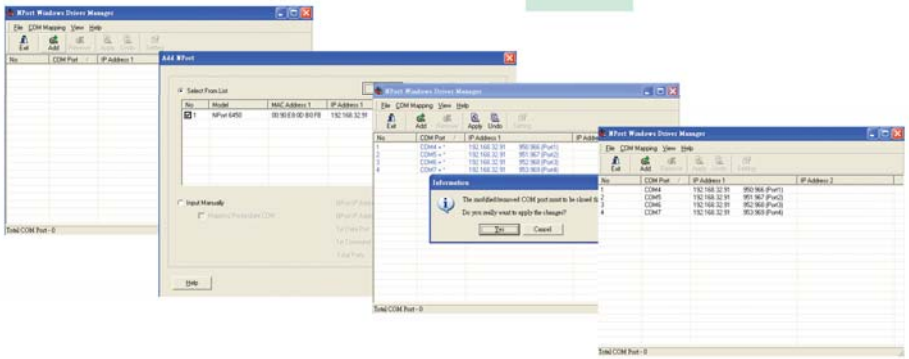


Two Powerful Utilities

The NPort® Search Utility and NPort® Windows Driver Manager make it easy for users to build a new system. After connecting the NPort® 6000 to your computer, or to a local network, use the NPort® Search Utility to search and load web console settings. After that, the NPort® Windows Driver Manager can be used to and map NPort® 6000 serial ports to Windows COM ports.

NPort® Search Utility

NPort® Windows Driver Manager



NPort® 6150

1-port RS-232/422/485 secure terminal server

- Simple solution for connecting serial devices to a network
- Secure operation modes for Real COM, TCP Server, TCP Client, Pair Connection, Terminal, and Reverse Terminal
- Non-standard baudrates supported with high precision
- Automatic RS-485 data direction control with Moxa's patented ADDC®
- Enhanced remote configuration with HTTPS and SSH
- Port buffers for storing serial data when the Ethernet is off-line
- Supports IPv6

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The NPort® 6150 is a 1-port device server that uses the SSL and SSH protocols to transmit encrypted serial data over Ethernet. The NPort® 6150's 3-in-1 serial port supports RS-232, RS-422, and RS-485, with the interface selected from an easy-to-access configuration menu.

Secure Data Transmission

For many applications, guaranteeing secure data transmission is an important concern when connecting serial devices to a network. In answer to this concern, the NPort® 6150 supports the SSL and SSH protocols, which work by encrypting data before sending it over the network. With the NPort® 6150, users can rest assured that serial data is transmitted securely over both private and public networks.

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

Serial Interface

Number of Ports: 1
Serial Standards: RS-232/422/485
Connector: DB9 male
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Serial Line Protection: 15 KV ESD protection for all signals
Console Port: Serial port 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 non-standard 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

Software

Network Protocols: ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP, PPPoE, DDNS
Security Protocols: DES, 3DES, AES, SSH, SSL, HTTPS, RADIUS, PAP, CHAP, TACACS+
Configuration Options: Web Console, Serial Console, Telnet 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: 2.4.x, 2.6.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

Terminal Sessions: 8 sessions per port

Physical Characteristics

Housing: Metal

Weight: 700 g

Dimensions:
Without ears: 67 x 100.4 x 28 mm (2.64 x 3.95 x 1.1 in)
With ears: 90 x 100.4 x 28 mm (3.54 x 3.95 x 1.1 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption: 285 mA @ 12 V, 150 mA @ 24 V

Power Line Protection: 1 KV burst (EN61000-4-4: EFT/B), 0.5 KV surge (EN61000-4-5)

Regulatory Approvals

EMC: CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A

Safety: UL (UL60950-1), TÜV (EN60950-1)

EN61000-4-2 (ESD): Level 3

EN61000-4-4 (EFT): Level 2

EN61000-4-5 (Surge): Level 2

Reliability

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

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

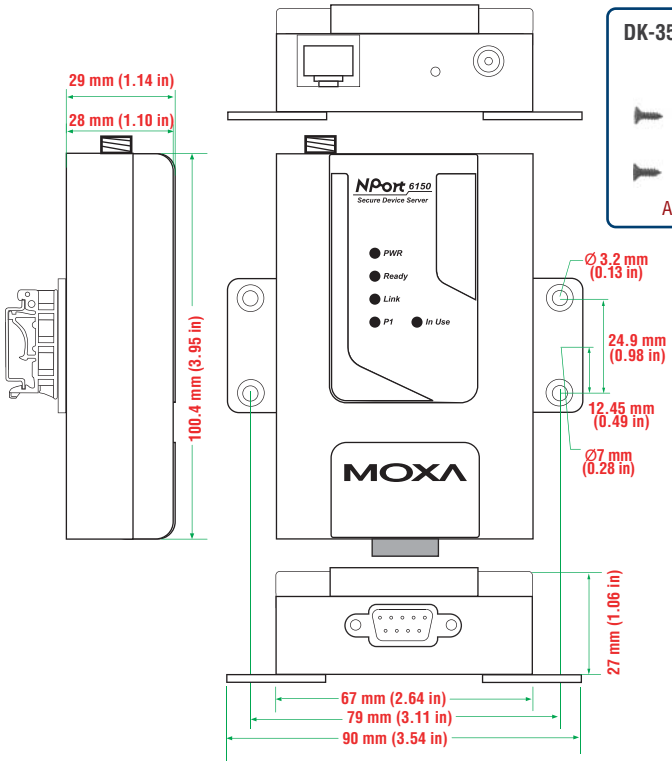
MTBF (meantime between failures): 231709 hrs

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

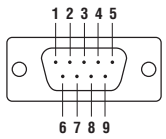


DK-35A DIN-Rail Kit

Available Accessory

Pin Assignment

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	–	–

Ordering Information

Available Models

NPort 6150: 1-port RS-232/422/485 secure device server

Optional Accessories (can be purchased separately)

DK-35A: Mounting Kit for 35-mm DIN-Rail

NP21101: DB25 male to DB9 female RS-232 cable, 30 cm

Package Checklist

- NPort® 6150 device server
- Power Adaptor
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

NPort® 6250 Series

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

- Simple solution for connecting serial devices to a network
- Secure operation modes for Real COM, TCP Server, TCP Client, Pair Connection, Terminal, and Reverse Terminal
- Non-standard baudrates supported with high precision
- Choice of network medium: 10/100BaseTX or 100BaseFX
- Enhanced remote configuration with HTTPS and SSH
- Port buffers for storing serial data when the Ethernet is off-line
- Supports IPv6

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The 2-port NPort® 6250 device servers use the SSL and SSH protocols to transmit encrypted serial data over Ethernet. Models are available for connecting to a 10/100BaseTX copper Ethernet or 100BaseTX fiber network. Both single-mode and multi-mode fiber are supported.

No Data Loss if Ethernet Connection Fails

The NPort® 6250 device servers help guarantee reliability by providing users with secure serial-to-Ethernet data transmission and a customer-oriented hardware design. If the Ethernet connection fails, the NPort® 6250 will queue all serial data in its internal 64 KB port buffer. When the Ethernet connection is re-established, the NPort® 6250 will immediately release all data in the buffer in the order that it was received. Users can increase the port buffer size by installing an 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 (NPort 6250-S-SC/6250-M-SC)

Fiber Port: 100BaseFX, SC connector
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

Serial Interface

Number of Ports: 2
Serial Standards: RS-232/422/485
Connector: DB9 male
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Serial Line Protection: 15 KV ESD protection for all signals
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 non-standard 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 socket (supports up to 1 GB)

Software

Network Protocols: ICMP, IP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP, PPPoE, DDNS
Security Protocols: DES, 3DES, AES, SSH, SSL, HTTPS, RADIUS, PAP, CHAP, TACACS+
Configuration Options: Web Console, Serial Console, Telnet 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: 2.4.x, 2.6.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

Terminal Sessions: 8 sessions per port

Physical Characteristics

Housing: Metal

Weight: 730 g

Dimensions:
Without ears: 77 x 111 x 28 mm (3.30 x 4.37 x 1.1 in)
With ears: 89 x 111 x 28 mm (3.50 x 4.37 x 1.1 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption:
NPort 6250: 333 mA @ 12 V, 173 mA @ 24 V
NPort 6250-M-SC: 428 mA @ 12 V, 219 mA @ 24 V
NPort 6250-S-SC: 376 mA @ 12 V, 193 mA @ 24 V

Power Line Protection: 1 KV burst (EN61000-4-4: EFT/B), 0.5 KV surge (EN61000-4-5)

Regulatory Approvals

EMC: CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A

Safety: UL (UL60950-1), TÜV (EN60950-1)

EN61000-4-2 (ESD): Level 3

EN61000-4-4 (EFT): Level 2

EN61000-4-5 (Surge): Level 2

Reliability

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

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

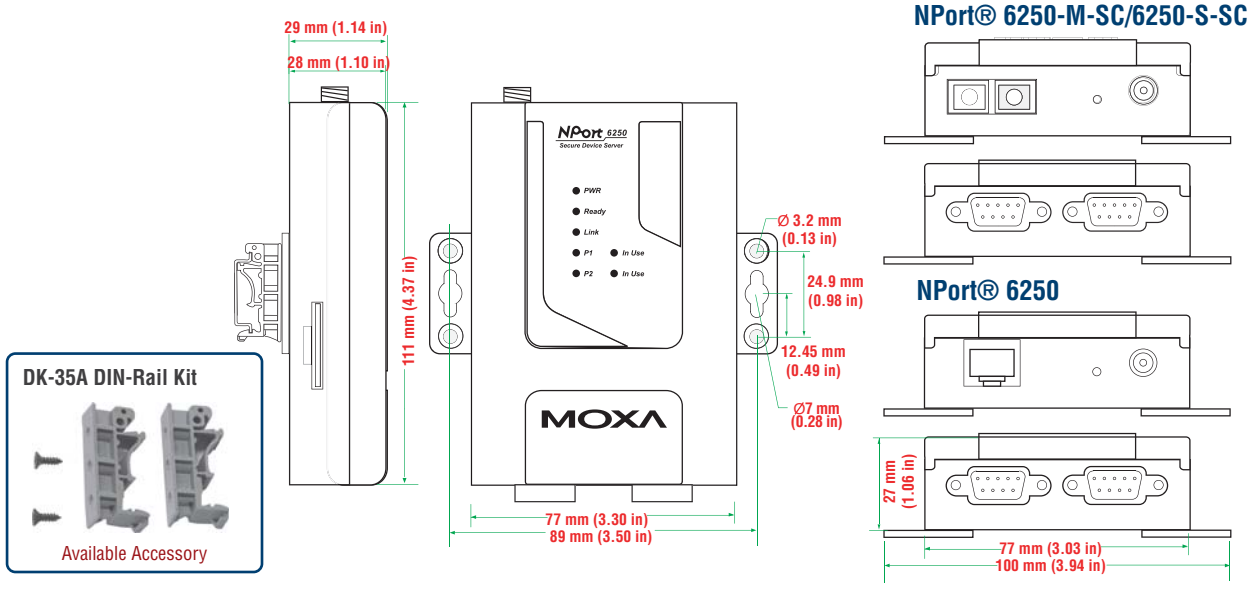
MTBF (meantime between failures):
NPort 6250: 226128 hrs
NPort 6250-M-SC: 225762 hrs
NPort 6250-S-SC: 225762 hrs

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions



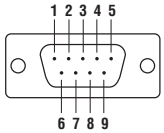
DK-35A DIN-Rail Kit

Available Accessory

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



Ordering Information

Available Models

NPort 6250: 2-port secure device server, RS-232/422/485 to Ethernet

NPort 6250-M-SC: 2-port secure device server, RS-232/422/485 to multi-mode fiber (SC connector)

NPort 6250-S-SC: 2-port secure device server, RS-232/422/485 to single-mode fiber (SC connector)

Optional Accessories (can be purchased separately)

DK-35A: Mounting Kit for 35-mm DIN-Rail

NP21101: DB25 male to DB9 female RS-232 cable, 30 cm

Package Checklist

- NPort® 6250 device server
- Power Adaptor
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

NPort® 6450

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

- LCD panel for easy IP address configuration
- Secure operation modes for Real COM, TCP Server, TCP Client, Pair Connection, Terminal and Reverse Terminal
- Non-standard baudrates supported with high precision
- Port buffers for storing serial data when the Ethernet is off-line
- Supports IPv6
- Ethernet redundancy (STP/RSTP/Turbo Ring) with network module

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

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, witn 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 an 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)

Fiber Port: 100BaseFX, SC connector

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

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)

Serial Line Protection: 15 KV ESD protection for all signals

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 non-standard 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 socket (supports up to 1 GB)

Software

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

Security Protocols: DES, 3DES, AES, SSH, SSL, HTTPS, RADIUS, PAP, CHAP, TACACS+

Configuration Options: Web Console, Serial Console, Telnet 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: 2.4.x, 2.6.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

Terminal Sessions: 8 sessions per port

Physical Characteristics

Case: Metal, IP30 protection

Weight: 1020 g

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: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 70°C (-4 to 158°F)

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption: 730 mA @ 12 V, 330 mA @ 24 V

Power Line Protection: 1 KV burst (EN61000-4-4: EFT/B), 0.5 KV surge (EN61000-4-5)

Regulatory Approvals

EMC: CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A

Safety: UL (UL60950-1), TÜV (EN60950-1)

EN61000-4-2 (ESD): Level 3

EN61000-4-4 (EFT): Level 2

EN61000-4-5 (Surge): Level 2

Reliability

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

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

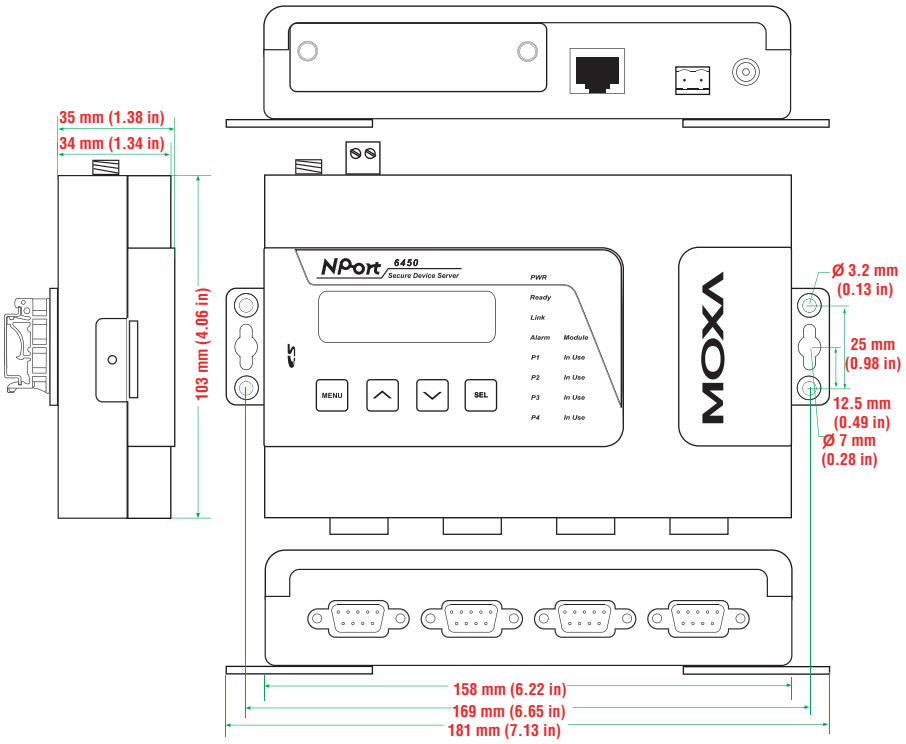
MTBF (meantime between failures): 120354 hrs

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

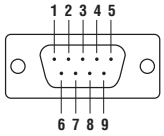
Dimensions



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



Ordering Information

Available Models

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

Optional Accessories (can be purchased separately)

DK-35A: Mounting Kit for 35-mm DIN-Rail

Package Checklist

- NPort® 6450 secure device server
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

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		1 10/100BaseTX port	---	---	√	√	√	√
NM-TX02		2 10/100BaseTX port	---	---	√	√	√	√
NM-FX01-S-SC		1 100BaseFX port, single mode, SC connector	---	---	√	√	√	√
NM-FX01-M-SC		1 100BaseFX port, multi mode, SC connector	---	---	√	√	√	√
NM-FX02-S-SC		2 100BaseFX ports, single mode, SC connector	---	---	√	√	√	√
NM-FX02-M-SC		2 100BaseFX ports, multi mode, SC connector	---	---	√	√	√	√
NM-GPRS/GSM		1 GPRS/GSM modem module	---	---	√	√	√	√
NM-Modem		1 PSTN modem port with RJ11 connector	---	---	√	√	√	√

Note: Expansion modules can be purchased separately.

NPort® 6600 Series

8/16/32-port RS-232/422/485 rackmount terminal servers

- Up to 32 ports for high density environments
- Non-standard baudrates supported with high precision
- Port buffers for storing serial data when the Ethernet is off-line
- Supports IPv6
- Ethernet redundancy (STP/RSTP/Turbo Ring) with network module
- Modular design for network expansion
- Secure data transmission

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

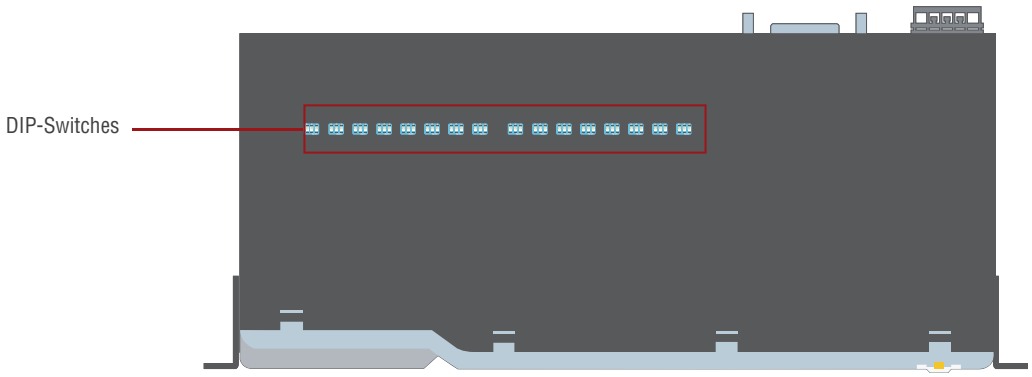
The NPort® 6600 series of secure device servers is the right choice for applications that use large numbers of serial devices packed into a small space. If you're worried about security, you can rest assured with the NPort® 6600, since it supports DES, 3DES, and AES, the three most common standards for data encryption. Serial devices of any type can be connected to the NPort® 6600, and each serial port on the NPort® can be configured independently for RS-232, RS-422, or RS-485 transmission.

LCD Panel Makes Configuration Easy

The NPort® 6600 has a built-in LCD panel for configuration. The panel displays the server name, serial number, and IP address, and any of the device server's configuration parameters, such as IP address, netmask, and gateway address, can be updated easily and quickly.

Adjustable Resistor Values for RS-485 Communication

The NPort® 6600 provides adjustable termination, pull high, and pull low resistors for RS-485 communication. In some critical environments, termination resistors may be needed to prevent the reflection of serial signals, and the pull high and pull low resistors may need adjusting to maintain the integrity of the electrical signal. Since no set of resistor values works for every environment, the NPort® 6600 allows manual adjustment of the resistor values for each serial port using built-in DIP switches.



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)

Fiber Port: 100BaseFX, SC connector

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

Serial Interface

Number of Ports: 8, 16, or 32

Serial Standards:
NPort 6610: RS-232
NPort 6650: RS-232/422/485

Connector: 8-pin RJ45

RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

Serial Line Protection: 15 KV ESD protection for all signals

Console Port: Dedicated RS-232 console port on rear panel (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, DTR/DSR, XON/XOFF

Baudrate: 50 bps to 921.6 Kbps (supports non-standard baudrates)

Pull High/Low Resistor for RS-485: 1 KΩ, 150 KΩ

Terminator for RS-485: 120 Ω

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 socket (supports up to 1 GB)

Software

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

Security Protocols: DES, 3DES, AES, SSH, SSL, HTTPS, RADIUS, PAP, CHAP, TACACS+

Configuration Options: Web Console, Serial Console, Telnet 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: 2.4.x, 2.6.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

Terminal Sessions: 8 sessions per port

Physical Characteristics

Case: Metal, IP30 protection

Weight:
NPort 6600-8: 3460 g
NPort 6600-16: 3580 g
NPort 6600-32: 3600g

Dimensions:
Without ears: 440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)
With ears: 480 x 195 x 44 mm (18.9 x 7.68 x 1.73 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 70°C (-4 to 158°F)

Power Requirements

Input Voltage:
AC Models: 100 to 240 VAC
DC Models: ±48 VDC (20 to 72 VDC, -20 to -72 VDC)

Power Consumption:
AC Models: 285 mA @ 100 VAC, 190 mA @ 240 VAC
DC Models: 293 mA @ 48 VDC

Power Line Protection: 1 KV burst (EN61000-4-4: EFT/B), 0.5 KV surge (EN61000-4-5)

Regulatory Approvals

EMC: CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A

Safety: UL (UL60950-1), TÜV (EN60950-1)

EN61000-4-2 (ESD): 4 KV contact

EN61000-4-4 (EFT): 1 KV power

EN61000-4-5 (Surge): 2 KV power

Reliability

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

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

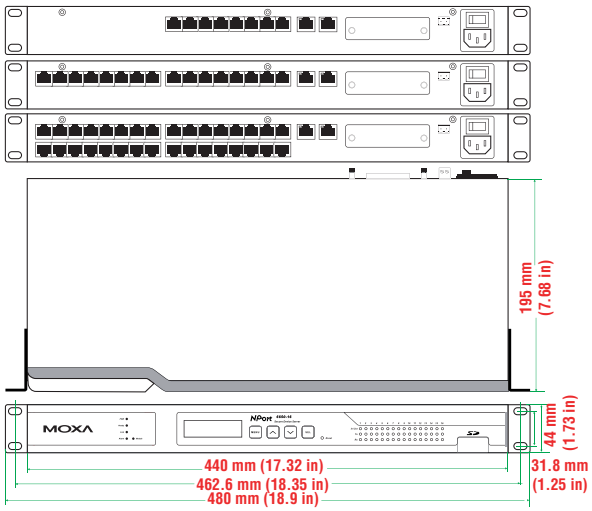
MTBF (meantime between failures):
NPort 6610-8: 135891 hrs
NPort 6610-16: 102373 hrs
NPort 6610-32: 68707 hrs
NPort 6650-8: 135370 hrs
NPort 6650-16: 101783 hrs
NPort 6650-32: 68177 hrs

Warranty

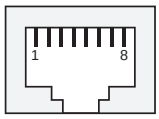
Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions and Pin Assignment



8-pin RJ45 connector



PIN	RS-232	RS-422/ 485-4W	RS-485-2w
1	DSR (in)	---	---
2	RTS (out)	TxD+	---
3	GND	GND	GND
4	TxD (out)	TxD-	---
5	RxD (in)	RxD+	Data+
6	DcD (in)	RxD-	Data-
7	CTS (in)	---	---
8	DTR (out)	---	---

Ordering Information

Available Models

NPort 6610-8: 8-port RS-232 to Ethernet secure terminal server, 100 to 240 VAC power input
NPort 6610-8-48V: 8-port RS-232 to Ethernet secure terminal server, ±48 VDC power input
NPort 6610-16: 16-port RS-232 to Ethernet secure terminal server, 100 to 240 VAC power input
NPort 6610-16-48V: 16-port RS-232 to Ethernet secure terminal server, ±48 VDC power input
NPort 6610-32: 32-port RS-232 to Ethernet secure terminal server, 100 to 240 VAC power input
NPort 6610-32-48V: 32-port RS-232 to Ethernet secure terminal server, ±48 VDC power input
NPort 6650-8: 8-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input
NPort 6650-8-48V: 8-port RS-232/422/485 to Ethernet secure terminal server, ±48 VDC power input
NPort 6650-16: 16-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input
NPort 6650-16-48V: 16-port RS-232/422/485 to Ethernet secure terminal server, ±48 VDC power input
NPort 6650-32: 32-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input
NPort 6650-32-48V: 32-port RS-232/422/485 to Ethernet secure terminal server, ±48 VDC power input

Package Checklist

- NPort® 6600 device server
- CBL-RJ45M9-150: 8-pin RJ45 to DB9 male connection cable, 150 cm
- Power Cord (AC models only)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Optional Accessories (can be purchased separately)

Serial Cables and Adaptors: See Appendix A for details

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		1 10/100BaseTX port	---	---	√	√	√	√
NM-TX02		2 10/100BaseTX port	---	---	√	√	√	√
NM-FX01-S-SC		1 100BaseFX port, single mode, SC connector	---	---	√	√	√	√
NM-FX01-M-SC		1 100BaseFX port, multi mode, SC connector	---	---	√	√	√	√
NM-FX02-S-SC		2 100BaseFX ports, single mode, SC connector	---	---	√	√	√	√
NM-FX02-M-SC		2 100BaseFX ports, multi mode, SC connector	---	---	√	√	√	√
NM-GPRS/GSM		1 GPRS/GSM modem module	---	---	√	√	√	√
NM-Modem		1 PSTN modem port with RJ11 connector	---	---	√	√	√	√

Note: Expansion modules can be purchased separately.

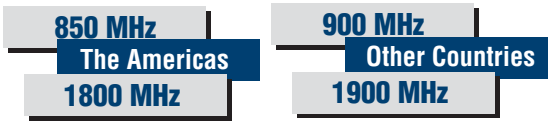
NM-GPRS/GSM Module

4-port cellular NM-GPRS/GSM module (for the NPort® 6400/6600 series)

- Quad-band 900/1800, 850/1900 MHz GSM/GPRS
- Cellular Status/Signal LED indicator
- GPRS Class 10
- CSD data connection
- Up to 14,400 bps in Circuit Switched Data mode
- Short message alerts
- Real COM mode supported

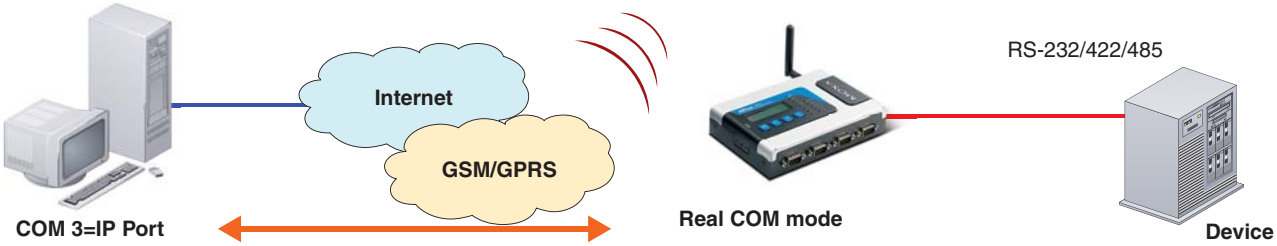
Quad-band GSM/GPRS Communication

Most countries in the world use the GSM-900 and GSM-1800 cellular frequencies. However, in the United States, Canada, and other parts of the Americas, GSM-850 and GSM-1900 are used. With the NM-GPRS/GSM quad-band cellular module, you don't need to worry about selecting different products for different parts of the world. The NM-GPRS/GSM module's GSM/GPRS band is configured at 900/1800 MHz by default, but can be easily reconfigured to 850/1900 MHz.



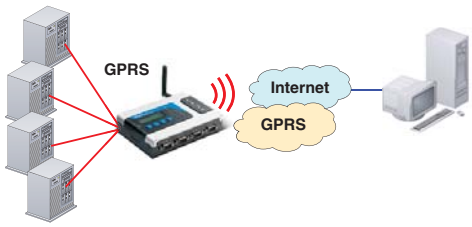
Real COM Mode

NPort® products come with Real COM drivers for Windows operating systems and Real TTY drivers for Linux operating systems used in a GSM/GPRS network environment. In Real COM mode, the bundled drivers are able to establish a transparent connection between a host and a serial device by mapping the serial port on the NPort® to a local COM/TTY port on the host computer. One of the major conveniences of using Real COM mode is that it allows you to use software that was written for pure serial communication applications.



GSM CSD Data Connection

CSD (Circuit Switched Data) provides direct modem access to remote devices, and system extensions can be used without installing cables and data lines. CSD transmits data at 9.6 to 14.4 Kbps to both GSM networks and the PSTN switching subsystem by calling direct. CSD overcomes the limitations of hard wiring and inaccessible terrain for easier, more flexible data collection and monitoring of applications that use NPort® device servers.

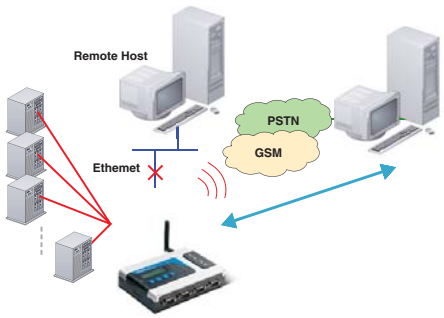


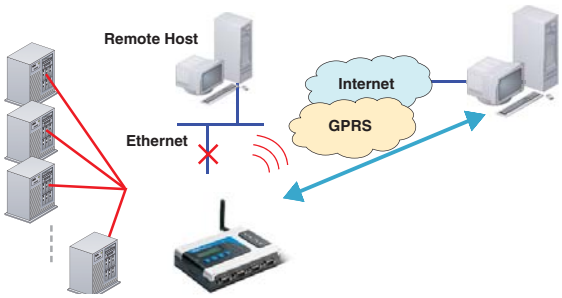
GPRS IP Connectivity

A GPRS packet-switched system can be viewed as a special IP network that offers IP connectivity to IP terminals. Devices without PPP or TCP/IP capability can be easily connected to the IP network and the Internet through GPRS by using the NPort® GSM/GPRS module.

GSM/GPRS Backup Application

The NM-GPRS/GSM module can be used to provide the NPort® with automatic backup capability. When the backup function is enabled, the NPort® will check the remote host's connection on the Ethernet side after power-on. If a connection failure occurs, data from the serial device will be sent out through the GSM/GPRS network. When the remote host on the Ethernet side returns to normal status, data will again be sent through the Ethernet connection. The NPort® backup function makes your data transmission safer and more reliable.

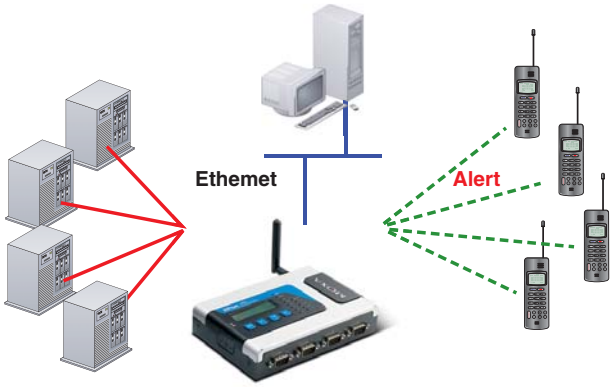




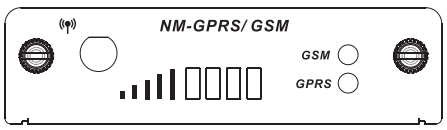
SMS Alerts by Event

The NM-GPRS/GSM module provides the NPort® device server with an SMS alert function that support up to 4 phone numbers. As shown in the table, there are four event categories (System, Network, Configure, Serial Port), and a total of eight different options that can be configured.

System Events	Network Events	Configure Events	Serial Port Events
Cold start	Ethernet link down	Console login authentication failure	DCD changed
Warm start	---	Ethernet IP changed	DSR changed
---	---	Password changed	---



Appearance



Cellular Status and Signal Strength LEDs	
GSM	Lights up when the GSM is connected
GPRS	Lights up when the GPRS is connected
Signal Strength	Number of lit LEDs indicates the signal strength

Specifications

Cellular Interface

Standards: GSM and GPRS

Band Options: 850/900 MHz and 1800/1900 MHz quad-band

GPRS Multi-slot Class: Class 10

GPRS Terminal Device Class: Class B

GPRS Coding Schemes: CS1 to CS4

CSD Data Transmission Rate: Up to 14,400 bps

SIM Control: Point-to-point Text/PDU, Mobile Originated (MO) and Mobile Terminated (MT Cell Broadcast is in accordance with GSM 07.05)

Antenna: SMA female type connecter, 50 W impedance and 1 dBm peak gain

NM-Modem Module

PSTN modem network module (for the NPort® 6400/6600 series)

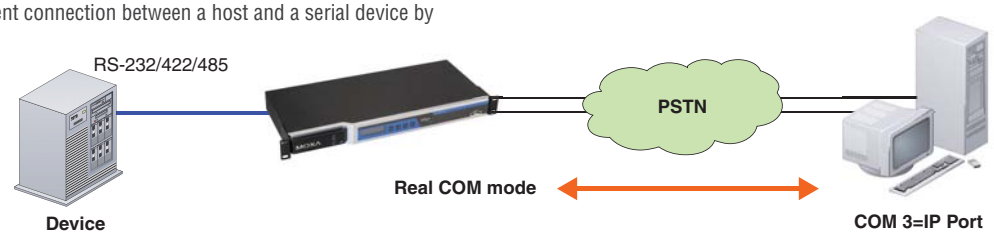
- Dial-in
- Dial-out
- Auto-answer
- PSTN leased-line mode (modem always on)
- PSTN economy-line mode (modem connects periodically)
- PSTN backup mode

Overview

The NM-Modem PSTN module can be used with any of the 4, 8, 16, and 32-port models. The module enables NPort® 6000 terminal servers to transmit data over PSTN networks.

Real COM Mode Supported

NPort 6000 device servers come with Real COM /TTY drivers for PSTN network applications. Real COM drivers are available for Windows operating systems and Real TTY drivers are available for Linux operating systems. In Real COM mode, the drivers can establish a transparent connection between a host and a serial device by mapping an NPort® 6000 serial port to a local COM/TTY port on the host computer. One of the major conveniences of using Real COM mode is that you can use software that was written for pure serial communication applications.

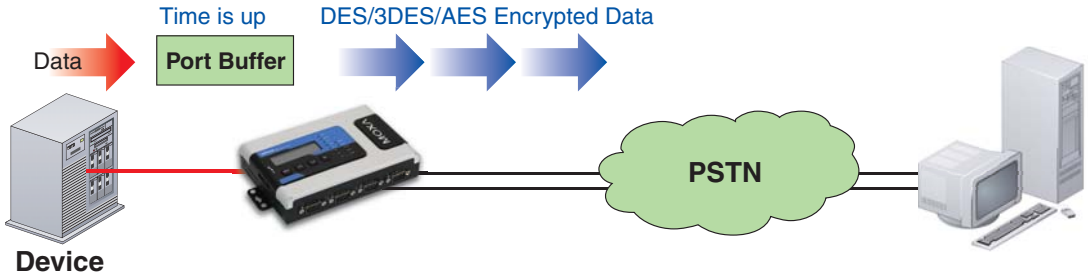


PSTN Leased-line Mode—Modem Always On

When Trunk-line mode is being used, the PSTN connection is always on, and data coming from the serial device will be sent out through the PSTN network as soon as the NPort® receives the data. In addition, the remote PC/Server will be able to manage the NPort® and poll for data from the serial device through the PSTN. Once the NPort® 6000 is powered on, the NM-Modem will always be on, making this operation mode suitable for applications that use a PSTN leased line.

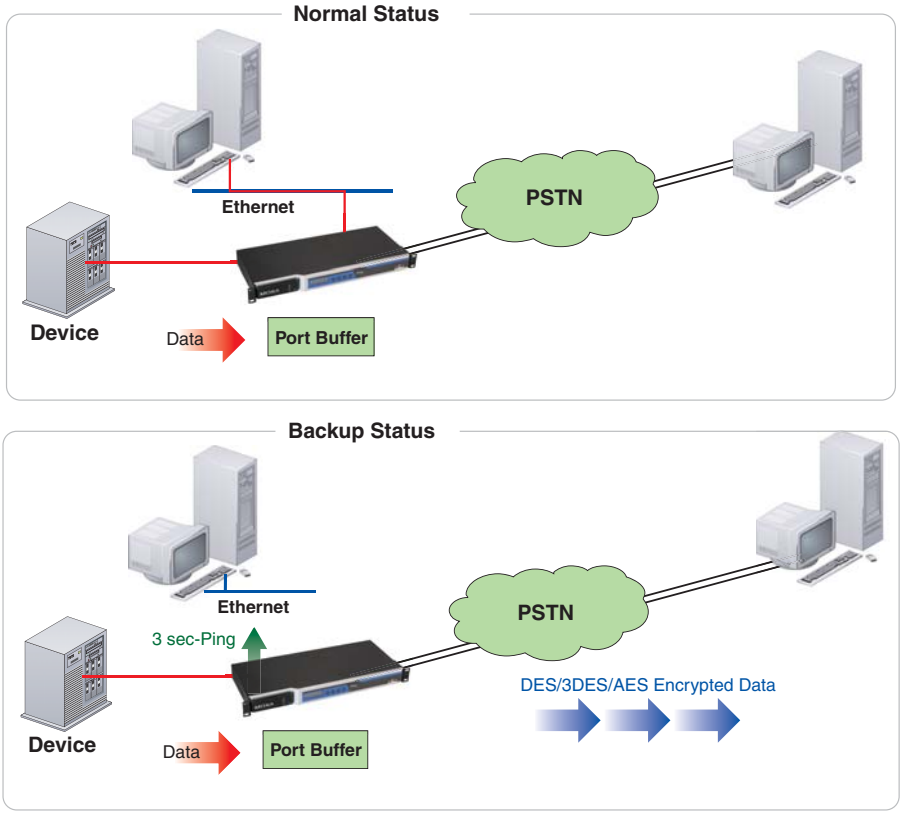
PSTN Economy-line Mode

When Economy-line mode is being used, the PSTN connection is activated periodically. In this case, data coming from the serial device will be stored in the NPort's buffer until the next PSTN activation time. Only then will the data be sent out through the PSTN network. In addition, when the PSTN connection is active, the remote PC/Server will be able to manage the NPort and poll for data from the serial device through the PSTN. When in Economy-line mode, the NPort® will de-activate the PSTN line if there is no data transmission activity for a preset idle time. Economy-line mode is suitable for non-urgent data transmission and message collection applications, and for applications that use a non-leased PSTN line.



PSTN Backup Mode

The NM-Modem module can be used to provide the NPort® with an automatic backup over a PSTN. When the backup function has been enabled, the NPort® will activate the PSTN line whenever the Ethernet fails. The backup data can either be sent to the same PC/server, or to an alternate backup machine. While the PSTN is active, the NPort® will repeatedly ping the PC/Server host over the Ethernet until it receives a response. Once the NPort® determines that the Ethernet has been re-activated, the PSTN will be de-activated, and the NPort® will resume sending and receiving data over the Ethernet.



Appearance

LED Indicators

LED Name	Color	Meaning
DCD	Green	Carrier detected
	Off	No carrier detected
TxD	Green	Data is being transmitted to the PSTN
	Off	No data is being transmitted through the PSTN
RxD	Green	Data is being received from the PSTN
	Off	No data is being received through the PSTN

Specifications

Modem

Serial I/O Interface: 3 V TTL
Error Correction: V.42, MNP 2-4, 10-error
V92HM-RC Data Rate: 56 Kbps max.
Data Compression: V.42bis and MNP-5
336HM-RC Data Rate: 33.6 Kbps max.
FAX: 14.4K send/receive
144HM-RC Data Rate: 24.4 Kbps max.
Additional Features:
• Low Power Sleep Mode
• Caller ID and DTMF tone detection
• Digital Line Guardd Protection
• Extension Pickup, Line in Use Detection
• Completely Integrated On Board DAA

Environmental Limits

Operating Temperature: -40 to 85°C (-40 to 185°F)

Regulatory Approvals

Medical Device: EN60601-1
FCC/IC: FCC Part 68 and IC CS03 approved
UL: UL 60950 recognized component
Green Product: RoHS compliant
CE Certification: EN60950-1, IEC 60950-1, EN55024, EN55022, TS103 021-2

CN2600 Series

8/16-port RS-232/422/485 terminal servers with LAN redundancy

- LCD panel for easy IP address configuration
- Dual-LAN cards with two independent MAC addresses and IP addresses
- Redundant COM function available when both LANs are active
- Dual-host redundancy can be used to add a backup PC to your system
- Dual AC power inputs
- Real COM/TTY drivers for Windows and Linux

The certification logos shown here apply to some or all of the products in this section. Please see the **Specifications** section or Moxa's website for details.

Overview

Redundancy is an important issue for industry, and several different solutions have been developed to prevent damage caused by equipment or software failures. "Watchdog" hardware is required to utilize redundant hardware, and a "Token" switching mechanism is required for software. The CN2600 terminal server uses its built-in dual-LAN ports to implement a "redundant COM" mode that keeps your applications running smoothly.

Dual-LAN Redundancy

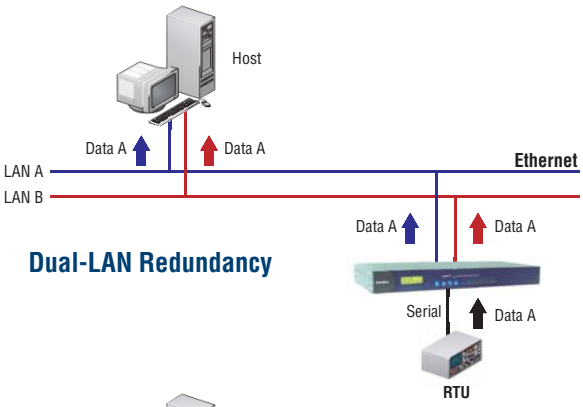
The CN2600 has two separate LAN ports that can be connected to separate LAN networks. Dual-LAN redundancy involves setting up two separate physical networks to connect the PC host with the CN2600. In this case, the PC host must also be installed with two LAN cards. If one of the networks fails, the PC host will still be able to communicate with your serial devices over the redundant LAN.

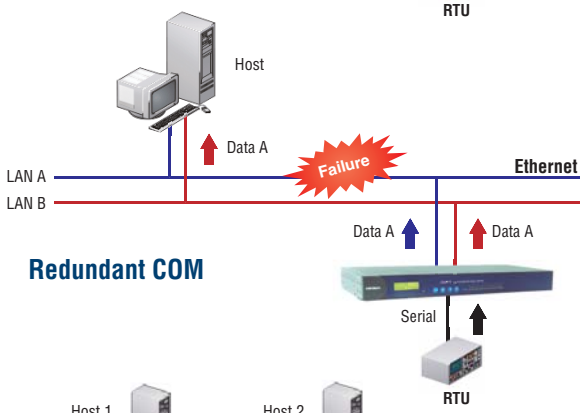
Redundant COM

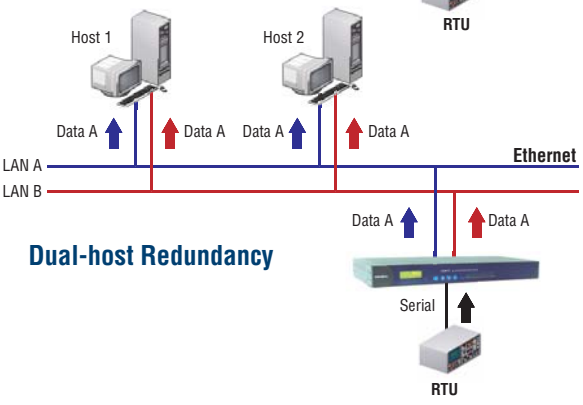
The "Redundant COM" (patent pending) operation mode can be used to set up a redundant LAN between the CN2600's COM ports and the host computer. The redundant structure involves using the CN2600's two LAN ports to set up two independent LANs that connect the CN2600 to the host computer. If either of the two LANs fails, the other LAN will continue transmitting packets between the serial devices and the host, with the data transmitted through the CN2600. One of the biggest advantages of using Moxa's Redundant COM mode is that the "switching time" is zero. What this means is that if one of the LANs fails, data transmission between the PC host the serial devices will not be interrupted.

Dual-host Redundancy

The CN2600's dual LAN cards can also be used to set up "dual-host" redundancy. In this case, both networks (LAN A and LAN B in the figure) are connected to two different hosts. If either of the two hosts shuts down unexpectedly, the other host will continue transmitting packets to (and receiving packets from) the serial devices connected to the CN2600.

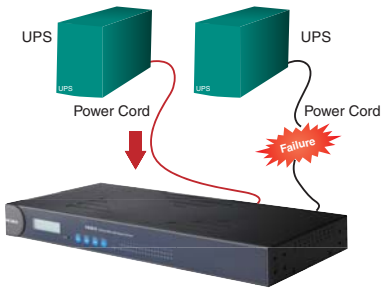




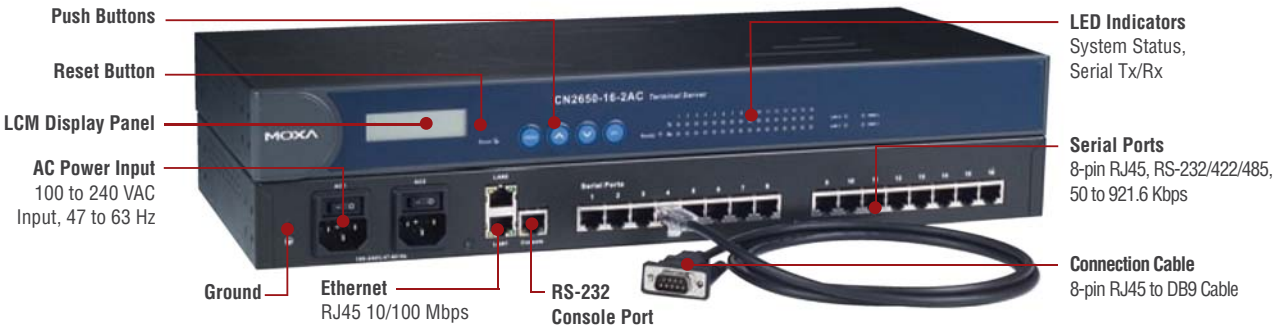


Dual-AC Model Supported

Dual-power redundancy uses two power inputs and redundant internal power supplies to ensure that all of the CN2600's functions will be available, even in the event of power circuit failure.



Appearance



Specifications

Ethernet Interface

Number of Ports: 2

Speed: 10/100 Mbps, auto MDI/MDIX

Connector: 8-pin RJ45

Magnetic Isolation: 1.5 KV built-in

Serial Interface

Number of Ports: 8 or 16

Serial Standards:
CN2610: RS-232
CN2650/2650I: RS-232/422/485

Connector:
CN2610/2650: 8-pin RJ45
CN2650I: DB9 male

RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

Serial Line Protection:
15 KV ESD protection for all signals
2 KV optical isolation (CN2650I)

Console Port: Dedicated RS-232 console port on rear panel (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, DTR/DSR, XON/XOFF

Baudrate: 50 bps to 921.6 Kbps

Pull High/Low Resistor for RS-485: 1 KΩ, 150 KΩ

Terminator for RS-485: 120 Ω

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

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

Security Protocols: RADIUS, HTTPS, SSH, PAP, CHAP

Configuration Options: Web Console, Serial Console, Telnet 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: 2.4.x, 2.6.x

Management: SNMP MIB-II

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

Operation Modes

Standard: Real COM, TCP Server, TCP Client, UDP, RFC2217, Terminal, Reverse Telnet, PPP, DRDAS, Redundant COM, Disabled

Applications

Terminal Sessions: 8 sessions per port

Physical Characteristics

Case: Metal, IP30 protection

Weight:
CN2610-8: 3525 g
CN2610-16: 3560 g
CN2610-8-2AC: 3760 g
CN2610-16-2AC: 3810 g
CN2650-8: 3740 g
CN2650-16: 3790 g
CN2650-8-2AC: 3900 g
CN2650-16-2AC: 3980 g
CN2650I-8: 3666 g
CN2650I-16: 3776 g
CN2650I-8-2AC: 3932 g
CN2650I-16-2AC: 4022 g

Dimensions:
Without ears: 440 x 198 x 45 mm (17.32 x 7.80 x 1.77 in)
With ears: 480 x 198 x 45 mm (18.9 x 7.80 x 1.77 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 70°C (-4 to 158°F)

Power Requirements

Input Voltage: 100 to 240 VAC, 47 to 63 Hz
Power Consumption: 235 mA @ 100 VAC, 145 mA @ 240 VAC
Power Line Protection: 1 KV burst (EN61000-4-4: EFT/B), 2 KV surge (EN61000-4-5)

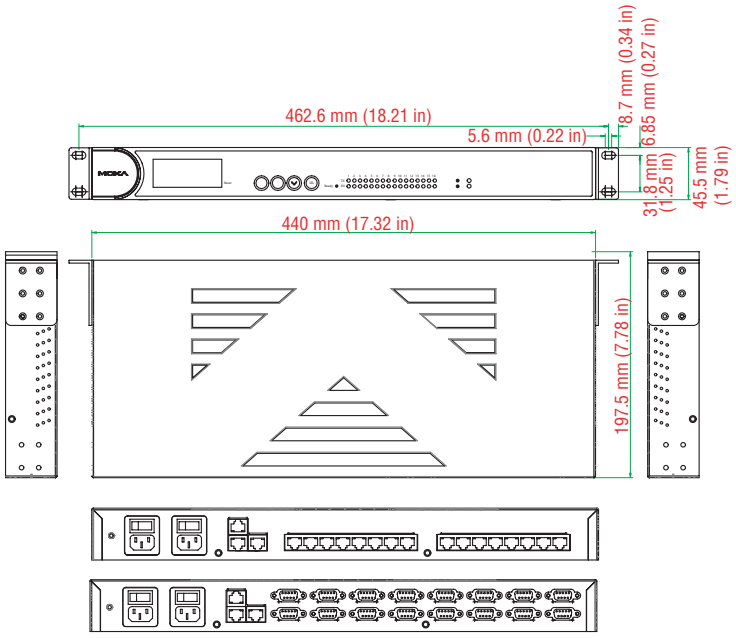
Regulatory Approvals

EMC: CE (EN55022 Class A, EN55024), FCC Part 15 Subpart B Class A
Safety: UL (UL60950), TÜV (EN60950)
EN61000-4-2 (ESD): Level 3
EN61000-4-4 (EFT): Level 4
EN61000-4-5 (Surge): Level 2
Alert Tools: Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
MTBF (meantime between failures): 99302 hrs

Warranty

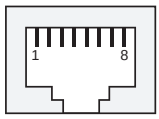
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions



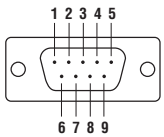
Pin Assignment

8-pin RJ45 connector



PIN	RS-232	RS-422/485-4w	RS-485-2w
1	DSR	–	–
2	RTS	TxD+(B)	–
3	GND	GND	GND
4	TxD	TxD-(A)	–
5	RxD	RxD+(B)	Data+(B)
6	DCD	RxD-(A)	Data-(A)
7	CTS	–	–
8	DTR	–	–

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	–	–

Ordering Information

Available Models

CN2610-8: Dual-LAN terminal server with 8 RS-232 ports
CN2610-16: Dual-LAN terminal server with 16 RS-232 ports
CN2610-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232 ports
CN2610-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232 ports
CN2650-8: Dual-LAN terminal server with 8 RS-232/422/485 ports
CN2650-16: Dual-LAN terminal server with 16 RS-232/422/485 ports
CN2650-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports
CN2650-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports
CN2650I-8: Dual-LAN terminal server with 8 RS-232/422/485 ports and 2 KV optical isolation
CN2650I-16: Dual-LAN terminal server with 16 RS-232/422/485 ports and 2 KV optical isolation
CN2650I-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports and 2 KV optical isolation
CN2650I-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports and 2 KV optical isolation

Package Checklist

- CN2600 terminal server
- CBL-RJ45F9-150: 8-pin RJ45 to DB9 female connection cable, 150 cm
- 2 power cords (AC models only)*
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Optional Accessories (can be purchased separately)

Serial Cables and Adaptors: See Appendix A for details