Master Catalog

2016-2017

Enabling Connectivity for the Industrial Internet of Things

• Edge Connectivity • Industrial Computing • Network Infrastructure

MOXA®

Reliable Networks ▲ Sincere Service

Moxa: Your Trusted Partner in Automation

As the Industrial Internet of Things (IoT) interconnects our world faster than ever, we rely more than ever on network infrastructures. Since its establishment in 1987, Moxa has had a proven track record of providing customers with the most reliable networks for a variety of industrial applications.

With over 25 years of industry experience, Moxa has connected more than 40 million devices worldwide. These devices have delivered highly reliable communications between people, systems, and processes to achieve all forms of automation and collaboration.

Promise for the Future

Reliable Networks, Sincere Service continues to be Moxa's promise to enable connectivity for the Industrial IoT. Moxa stays ahead of the curve with innovative Ethernet-core technology and solutions to help customers tap into the potential of the Industrial IoT market.

Reliable Networks

Network reliability is the cornerstone of Moxa's commitment to deliver the best value to our customers and partners. Moxa's many solutions share a common set of robust features designed to provide maximum network uptime, especially in harsh environments. Our cutting-edge product portfolio comprises quality and innovative technology to ensure nonstop productivity, operational efficiency, and robust security for complex industrial communications and automation applications.

Sincere Service

At Moxa, we listen carefully to learn more about our customers' expectations and needs before we develop a solution. With extensive experience and innovative technology, we provide premium customization, expert network consulting, and a broad range of technical support services. Through close collaboration with our worldwide partners, we help customers optimize their applications' performance, adapt to fast-changing technologies, and seize opportunities to achieve the best time-to-market results.

Product Offerings

Edge Connectivity

Moxa's edge connectivity products bridge various industrial devices to streamline the acquisition and transmission of data, voice, and video to backbone networks. Customers can enjoy seamless network integration for various cross-system collaborations.

- Serial connectivity
- Industrial Ethernet gateways
- RTU controllers and smart I/O devices
- Industrial IP cameras and video management software

Industrial Computing

Moxa provides RISC- and x86-based industrial computers to work in the most demanding conditions. The world's first wide-temperature-range 4G LTE computer is a perfect example of a device that delivers reliable 4G performance without requiring a fan or a heater.

- Mission-critical computers
- Displays and panel computers
- Compact and wireless computers
- Embedded CPU modules

Network Infrastructure

Moxa's network infrastructure solutions provide comprehensive building blocks to develop robust wired and wireless backbones for mission-critical applications with regard to device reliability, connection availability, cybersecurity, and easy management.

- Industrial Ethernet switches
- Industrial wireless AP/bridge/client and cellular routers
- Industrial secure routers
- Ethernet media converters
- Network management software

Get Connected to Success and Opportunity

Worldwide, Moxa's expert sales team is ready to provide the best quality, support, and services to assist you in all aspects of your projects—from concept to completion—to empower your network operations and applications.

Global Service Coverage

Customer-Oriented Service

Moxa has established a global service network to be closer to our customers to better understand their needs and respond faster to their requirements. Leveraging Moxa's industrial experiences and technological intelligence, our service team provides professional solutions and consulting services, backed by our extensive global resources and solution capabilities.

Extended Teamwork

Through our annual MTSC (Moxa Technical Support Certification) training, Moxa provides the most up-to-date solutions and technologies to our global partners to ensure the best service to customers. Integrating the strengths of our worldwide industry and technology partners, we deliver sincere service and an extended range of innovative solutions to customers.

Total Quality Management

Our commitment to quality is at the heart of Moxa's promise of *Reliable Networks, Sincere Service.* Moxa employs a corporate-wide Total Quality Management System (TQMS) to achieve customer satisfaction and unbeatable results in the following categories:

Robust Technology

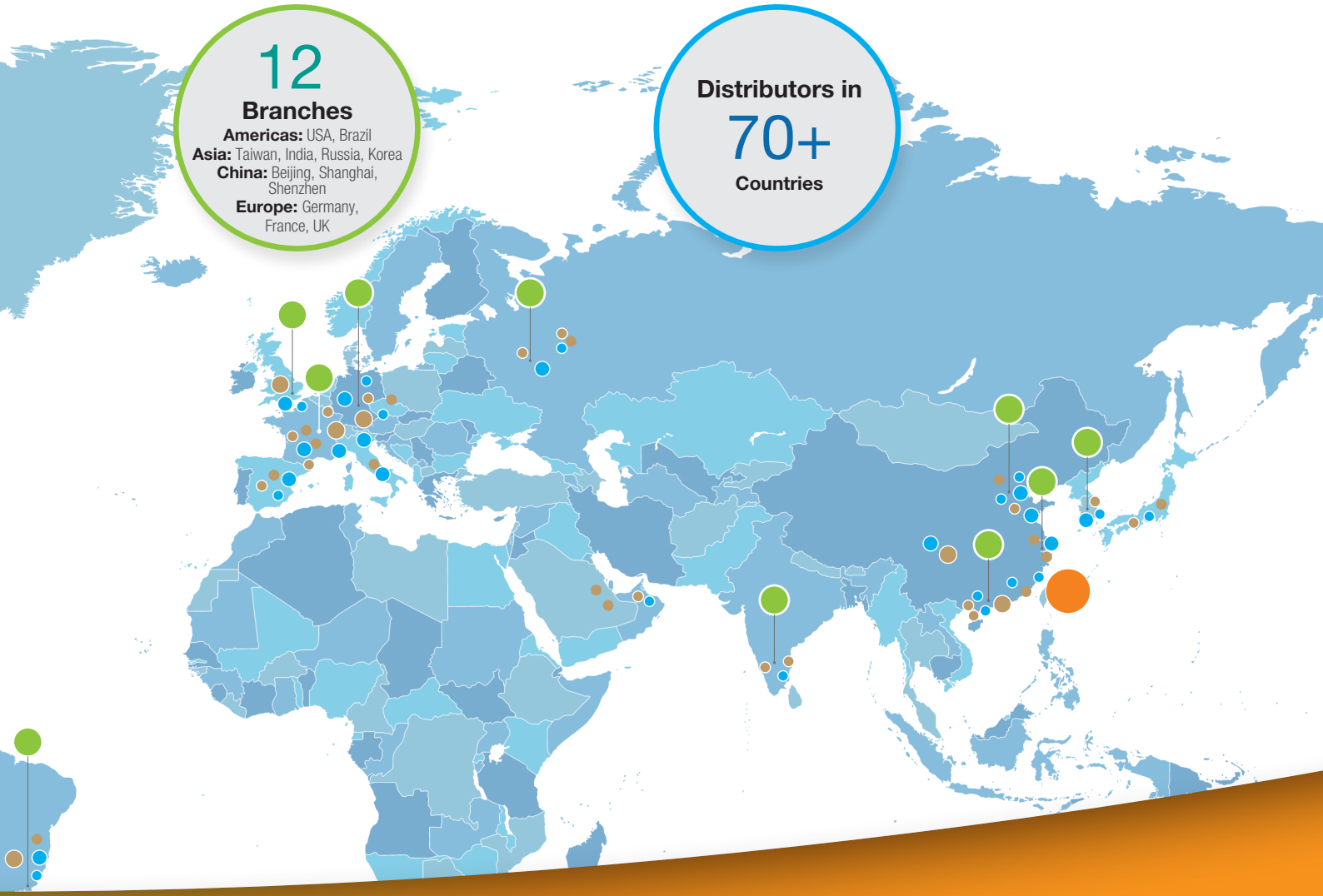
At Moxa, quality starts with concepts that benefit our partners and customers. Moxa attracts a broad spectrum of talent and encourages new ideas to nurture innovation at every level. Following the well-defined New Product Development Process (NPDP), all of Moxa's products must undergo strict tests, verifications, and validations to achieve tangible quality-related benchmarks for various industrial applications.

Project Life-Cycle Management

Moxa is IRIS-certified and implements a rigorous management process to ensure quality and optimal results for long-term projects. Specific RAMS and LCC management guidelines guarantee reliability, longevity, low life-cycle costs, and easy maintenance throughout a project's lifetime.

Continuous Improvement

Moxa motivates each employee to work smarter and find ways for continuous improvement. Our Quality Improvement Team (QIT) and Eight Disciplines Problem-Solving (8D) methodology for solving problems and preventing crises promote continuous progress in the quality of our products, service, and technology, to ensure customer satisfaction.



Technological Innovation

Moxa cultivates continuous technological innovation to meet the constantly changing requirements of industrial environments. To enable the most capable and reliable connectivity required for the Industrial IoT, Moxa strives to achieve application-driven innovations in the following aspects.

■ Performance
High-speed wired/wireless connectivity for future-proof networks

■ Reliability
Proven reliability for continuous productivity

■ Availability
Millisecond-level redundancy for nonstop operations

■ Security
Industrial cybersecurity for critical device protection and secure remote access

■ Manageability
Easy operations in deployment, monitoring, and diagnostics maintenance

■ Interoperability
Leading legacy and versatile fieldbus technologies for seamless automation communication

Industrial Ethernet

Industrial Wireless

Device Connectivity

Remote Automation

IP Surveillance

Industrial Computing

Enabling Connectivity for the Industrial Internet of Things

Moxa's industrial network and automation solutions are ready to take connectivity to new frontiers. With a forecast of more than 50 billion devices connected worldwide by 2020, Moxa focuses on connectivity enablement to expand communication and collaboration between various devices, technologies, and people.

Edge Connectivity

Serial/Fieldbus Connectivity

Serial or fieldbus connectivity bridges legacy, fieldbus, and Ethernet devices to reap the benefits of legacy-to-IP communications and operational efficiency.

I/O Connectivity

Industrial I/Os and controllers enable faster data transfer and SCADA response, as well as programming-free logic control.

Video Connectivity

Extreme weather IP cameras activate 360-degree HD surveillance for extreme applications.

Smart Value for Your Applications

Through our fully converged communication solutions, Moxa helps customers build remote control and monitoring networks suited for highly automated industrial operations and demanding public-safety applications.

Powering Productivity

Our cutting-edge product portfolio delivers superior performance thanks to high bandwidth, reliability, availability, and interoperability in mixed-protocol and legacy environments.

- High-speed transmission
- Maximum uptime and availability
- Video always-on networking
- Reliable mobile communications
- Industry-proven reliability
- Legacy compatibility
- Protocol interoperability

Optimizing Operational Efficiency

Moxa's extensive software solutions are the key to operational efficiency, including intuitive management software for operations that are faster and less error-prone, as well as an API platform for faster development and ease-of-use.

- Faster deployment
- Visualized management
- Easier troubleshooting
- Preventive maintenance
- APIs for easy application deployment
- Seamless integration with SCADA systems

Strengthening Security

A convergence of cybersecurity and physical security systems forge a reinforced network to ensure the full protection of control systems and staff safety in industrial applications.

- Device security with authentication, integrity, and firewall protection
- Secure remote access with IPSec, L2TP, or OpenVPN encryption
- IEC 62443 standard compliance *(Available in Q4, 2016)*
- Industrial-grade IP surveillance systems

Factory Automation

Moxa's factory automation solutions are designed to drive productivity and cost reduction through network convergence from the edge to the core. The solutions deliver optimized process integration and automation-friendly management to improve throughput and performance.

Industrial Computing

Industrial Computers

Embedded computers enable seamless data aggregation, analytics, and reporting from the extreme edge to the cloud/core.

Network Infrastructure

Industrial Ethernet

Industrial Wireless

Industrial Ethernet and WLAN solutions offer leading performance, availability, and reliability to achieve maximum uptime and efficiency for wired and wireless connectivity.

Industrial Routers

Industrial secure and cellular routers enable asset protection and secure access across public networks.

Management

IA-friendly device management and network management address easy deployment, supervision, troubleshooting, and seamless collaboration with SCADA and third-party platforms.

Railway Automation

Moxa's IRIS-certified railway solutions come with the top-notch service, quality, and commitment that industrial customers demand. Moxa's railway solutions deliver EN 50155-compliant control and communications between train, ground, and trackside to ensure safety and uninterrupted passenger services.

Power Automation

Moxa has delivered solutions in more than 300 successful substation networking and computing applications. Moxa's solutions ensure GOOSE compliance and zero-packet-loss performance in compliance with IEC 61850-3 and IEEE 1613 standards.

Oil and Gas Automation

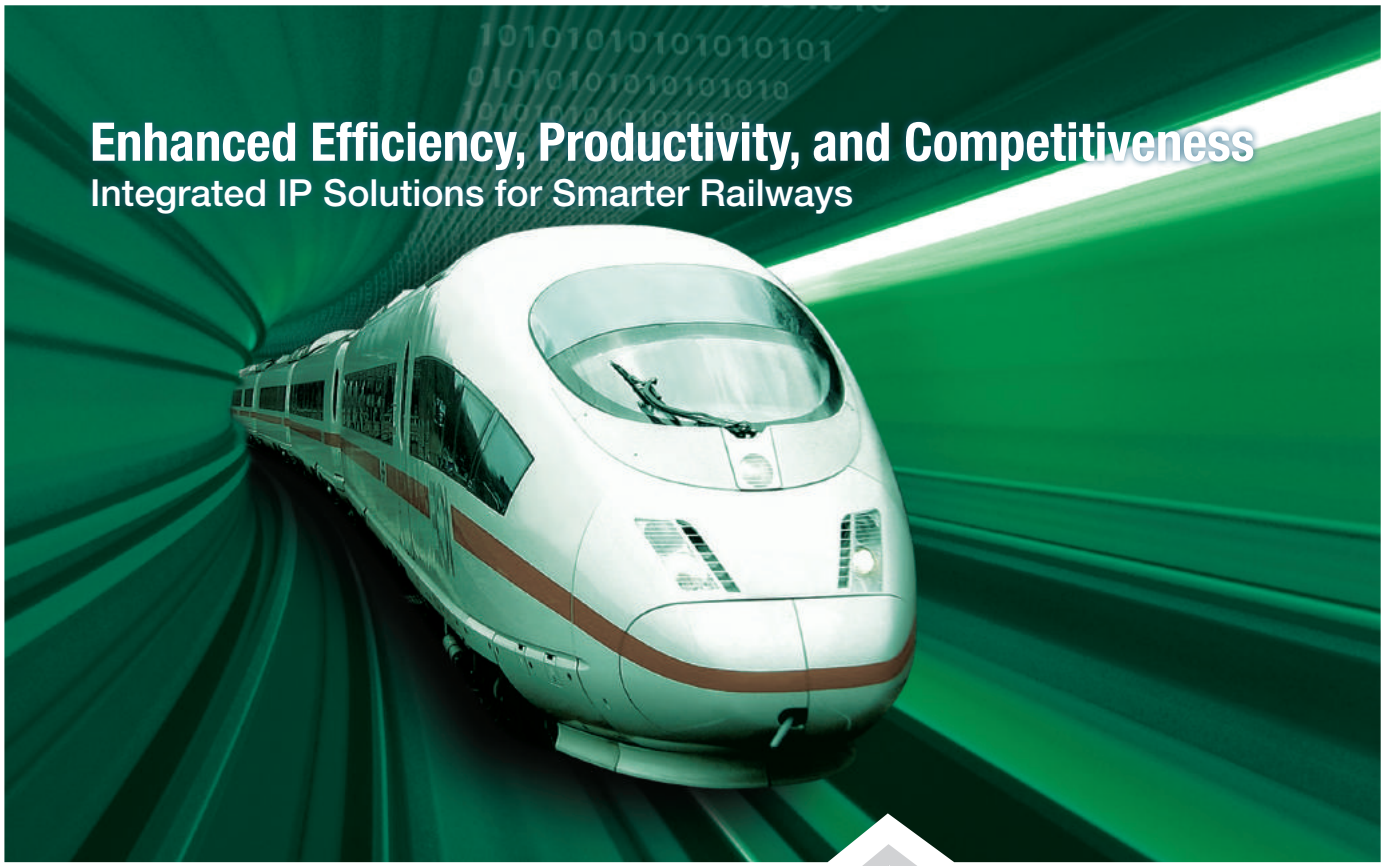
Moxa's oil and gas automation solutions comply with UL Class 1 Division 2, ATEX Zone 2, and IECEx standards, allowing customers to achieve maximum uptime and improved productivity with our oil and gas networking, monitoring, and computing solution portfolio.

Marine Automation

Moxa's marine solutions, compliant with all major maritime certifications, offer a wide range of marine-grade industrial Ethernet and computer products that ensure long-lasting and reliable operations in the challenging environments experienced by ship, offshore oil and gas, and windmill applications.

Intelligent Transportation Systems

Moxa's ITS solutions combine high-bandwidth networks and HD IP video solutions to ensure fast information convergence and nonstop operational continuity, allowing traffic control managers to make decisions quickly in the event of road traffic emergencies.



IRIS-Certified Rail Solutions Verified for Maximum Quality

Moxa is an IRIS-certified global leader in a wide range of IP-based communications solutions. Now, Moxa is contributing its networking expertise to the railway industry through membership in IEC railway committees. Railway operators world-wide have discovered new operational efficiencies by deploying Moxa's unique time and cost-saving railway technologies. By designing for a long MTBF, owning all the core component IPs, and building long-term partnerships, Moxa helps railway integrators create sustainable solutions with low life-cycle costs for passenger comfort and railway operation networks.

Application Focus

- Passenger-oriented service (e.g., onboard Wi-Fi, passenger information systems)
- Railway CCTV
- CBTC (Communication-Based Train Control)
- Wayside data communications systems

Leading Technologies

- Turbo Ring and Turbo Chain: Advanced Ethernet redundancy solutions
- Turbo Roaming: Fast and secure train-to-ground wireless communications
- ACC: Intelligent wireless inter-carriage links
- FLI: Flexible, location-based, intelligent industrial-grade auto-configuration technology

IRIS Certification

Visit www.moxa.com/rail

ACC Auto Carriage Connection FLI Industrial Auto Configuration EN 50155 EN 50121

ToughNet, EDS Series
Industrial Ethernet Switches
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TAP, AWK-RCC/RTG Series
Industrial Wireless AP/Bridge/Client
▶Page 8-4

NPort 5000AI-M12 Series
RS-232/422/485 Serial Device Servers
▶Page 10-18

TC-6000, V2000 Series
Industrial Embedded Computers
▶Page 22-4/22-11

VPort Series
Industrial IP Cameras
▶Page 19-19

ioPAC Series
Industrial RTU Controllers
▶Page 15-4

ioLogik E1500 Series
Remote I/Os
▶Page 17-17

Connect to the Smart Grid Today

End-to-End Networking and Computing Solutions for the Power Industry

Many Successful Deployments in Power Projects Worldwide

Create rock-solid and future-proof power networks by partnering with Moxa. Moxa is a Collective Member of CIGRE and has delivered solutions in over 500 successful substation transmission and distribution networking and computing applications around the world. Moxa is now the leading solar energy monitoring supplier in North America with many diverse projects in advanced metering infrastructures worldwide. You can rely on our expertise of more than 25 years in proven solutions in the following industry applications.

Application Focus

- Solar power
- Wind power
- IEC 61850 transmission and distribution substation
- Advanced metering infrastructure

Leading Technologies

- Industry's first IEC 61850 switch with MMS data modeling: SNMP/MMS management with integrated network monitoring solutions for power substation SCADA
- Industry's first integrated PRP/HSR redundancy box for zero recovery time
- Turbo Chain: Different redundant networks can be extended without any ring coupling effort
- Patented computing platform for heat dissipation with wide temperature tolerance
- ThingsPro: Asset management for solar energy monitoring

Visit www.moxa.com/SmartGrid

Turbo Chain | PRP HSR | IEC 61850 IEEE 1613 | ThingsPro

PT-7528 Series
IEC 61850 28-port IEEE 1613 Class 2 Managed Ethernet Switches
▶Page 2-44

PT-7728-PTP Series
IEC 61850 14-port IEEE 1588v2 Managed PRP/HSR Switches
▶Page 2-40

PT-G503-PHR-PTP Series
IEC 61850 3-port Full Gigabit Managed PRP/HSR Redundancy Boxes
▶Page 2-63

DA-820 Series
x86 IEC 61850-3 Certified i7 Rackmount Computers
▶Page 21-4

NPort S8000 Series
Combo Switches / Serial Device Servers
▶Page 10-14

UC-8100 Series
RISC Energy Monitoring Computers
▶Page 21-36

ioLogik E1200 Series
Compact Ethernet Remote I/O
▶Page 17-6

DCU-8620-T Series
Data Concentration Units
▶Available by request

Proven Solutions for the Harshest Oil & Gas Environments

Integrated Networking, Monitoring, and Computing Systems

Your Trusted Partner in Oil & Gas Automation

Moxa is a leading provider of industrial automation solutions and has proven experience in providing networking equipment and service suitable for the harshest oil & gas environments. Moxa's industrial-grade products and well respected technology enable efficient remote monitoring and easy asset management, delivering business value to customers all over the world. To assure the highest level of safety, the computing, networking, and automation products Moxa develops especially for use in oil & gas facilities meet important global certifications, including ATEX Zone 2, Class 1 Division 2, and IECEx.

Application Focus

- Offshore oil drilling control systems
- Onshore drilling / wellhead monitoring
- Pump stations and pipeline monitoring
- Oil refining and gas station operations

Leading Technologies

- Turbo Ring and Turbo Chain: Unrivaled network redundancy solutions with 20 ms recovery
- Dual-Radio and Turbo Roaming: Zero packet loss and millisecond-level wireless roaming
- ISA99/IEC 62443 compliant for industrial security: Layered cybersecurity solution with innovative PacketGuard™ for Modbus TCP deep packet inspection
- World-leading panel computer design: 1000-nit LCD, glove-friendly multi-touch, system bootup within 3 minutes, -40 to 70°C operating temperature without heater
- MXview, MXview ToGo, QuickLink, MX-AOPC UA Server: Efficient network management by smart visualization, automated configuration, and seamless integration with SCADA systems

Visit www.moxa.com/Solutions/Oil_and_gas

EDS/IKS/ICS Series

Edge-to-Core Ethernet Switches

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EDR Series

VPN/Firewall Secure Routers

▶Page 5-2

AWK Series

IEEE 802.11a/b/g/n Wireless AP/Bridge/Client

▶Page 6-6

MGate and NPort Series

Industrial Gateways and Device Servers

▶Page 4-5; 10-43

ICF Series

Industrial Serial/PROFIBUS-to Fiber Converters

▶Page 14-32

ioLogik 2500 Series and ioLogik E1200 Series

Smart Remote I/O and Ethernet Remote I/O

▶Page 16-4; 17-6

VPort Series

HD IP Cameras

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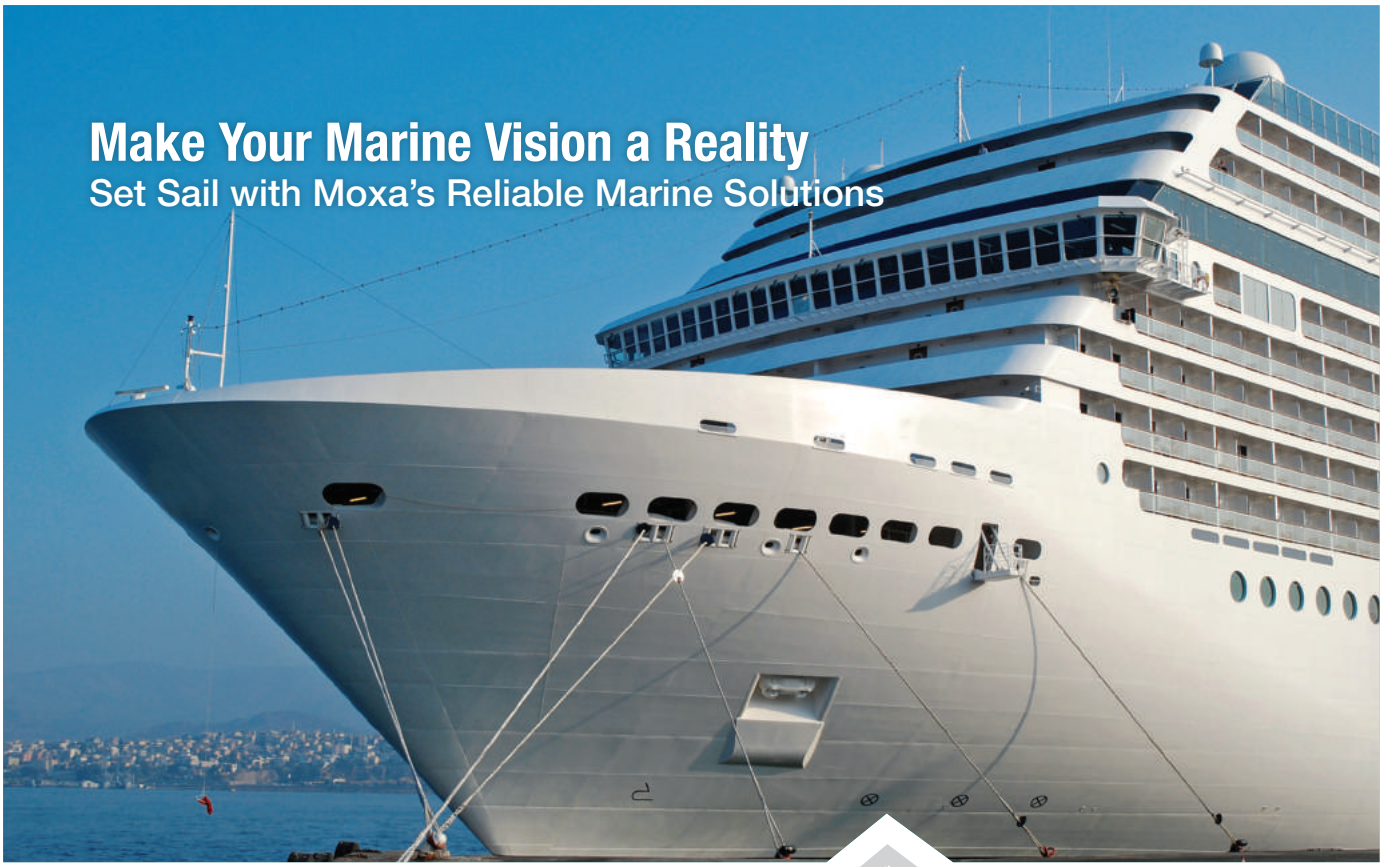
EXPC-1519 Series

Zone 2 Panel Computers

▶Page 25-12



Make Your Marine Vision a Reality

Set Sail with Moxa's Reliable Marine Solutions

Successful Deployment of Integrated Marine Bridge Solutions Worldwide

Moxa provides maritime professionals with industrial-grade marine computers, panel PCs, displays, and Ethernet switches that use leading technologies and reliable designs perfect for applications on docks, marine bridges, open decks, and in control rooms.

Moxa's marine solutions pass strict tests and follow critical industrial standards to ensure compliance with international marine standards, including DNV, ABS, GL, LR, IEC 60945, IEC 61174, IEC 61162, and IACS E10, making Moxa's marine solutions the best option for marine applications.

Application Focus

- Electronic Chart Display and Information System (ECDIS)
- Radar System
- Integrated Navigation System (INS)
- Integrated Platform Management System (IPMS)

Leading Technologies

- Advanced ECDIS color calibration technology: more consistent color rendering for a longer period of use
- Customer initiated smart OSD design: Off-Screen-Display control allows users to easily control the monitor in low light environments
- High performance computing power in a fanless design enhances computers' reliability and reduces customers' maintenance costs

Visit www.moxa.com/marine

GL Lloyd's Register DNV ABS

IACS - E10 IEC 61162 IEC 60945 ClassNK

MPC-2150/2190/2240/2260 Series
Marine Panel Computers
▶Page 24-9

MD-219/224/226 Series
Marine Displays
▶Page 24-3

MC-7200 Series
Marine ECDIS Computers
▶Page 23-3

MGate 5101-PBM-MN Series
PROFIBUS-to-Modbus TCP Gateways
▶Page 4-18

ioLogik E1200H Series
Ethernet Remote I/O
▶Page 17-13

EDS-408A Series
Managed Ethernet Switches
▶Page 1-46

Maximize Your Factory Potential

With Reliability, Ease of Integration, and Global Support

Your Trusted Partner for Factory Automation

To help manufacturers maximize the benefits of integrating network and automation technology, Moxa has focused on the factory automation market for over 26 years. Moxa provides leading solutions for industrial communications, including wired and wireless infrastructures, industrial computing, remote monitoring, and video surveillance.

Application Focus

- SCADA
- Control system networks
- Wireless infrastructures and machine-to-machine communication
- Packaging equipment
- Cybersecurity
- Industrial video surveillance
- Material handling

Main Benefits

Reliability

- Industry leading communication redundancy for < 20 ms recovery time
- Unique thermal design that supports fanless wide temperature operation (-40 to 75°C)
- High level EMI/EMC shielding
- Redundant power supply with isolation protection
- Continual improvement of total quality management
- ISO 9001 quality management standard recognized

Ease of Integration

- User-friendly network and device management software
- Serial, Ethernet, I/O, and wireless solutions integrated into a single network
- Quick mass configuration tool for 90% time savings (with up to 100 switches)
- OPC server for cost-effective SCADA integration

Global Support

- Access to products and support in over 70 countries
- Customization service

VPort Series
Industrial IP Cameras
▶Page 19-1

EDS Series
Industrial Ethernet Switches
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MGate Series
Industrial Ethernet Gateways
▶Page 4-1

NPort Series
Serial-to-Ethernet Device Servers
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ioLogik 2500-WL1 Series
Smart Wireless I/O
▶Page 16-4

EDR-810 Series
Industrial 8+2G Multiport Secure Routers
▶Page 5-7

AWK-A Series
Industrial Wireless AP/Bridge/Client
▶Page 6-6

Integrated Network Solutions for Intelligent Transportation

Real-Time Convergence for Non-Stop Safety

Today more than ever before, roadway safety and efficiency depend on real-time information and communication. To increase traffic flow, reduce congestion, and improve incident response times, Moxa's industrial Ethernet solutions facilitate real-time convergence of various sensor data, voice, and video by providing high-speed throughputs and a wide range of network devices. All of these devices emphasize extreme reliability, smart redundancy, easy manageability, and a lower total cost of ownership.

Application Focus

- Advanced Transportation Management Systems
- Tunnels
- Intelligent E-Bus
- Electronic Toll Collection (ETC)

Leading Technologies

High Bandwidth

- 1GbE/10GbE switching and routing
- Up to 500 Mbps router throughput
- Up to 300 Mbps wireless transmission
- Up to 150 Mbps VPN traffic

Extreme Reliability

- Turbo Ring and Turbo Chain self-recovery (< 20 ms @ 250 switches)
- V-ON network redundancy under 50 ms for mission-critical IP surveillance
- Turbo Roaming with millisecond-level handoff times for seamless mobility

Efficient Management

- MXstudio network management suite for installation, operation, maintenance, and diagnostics
- OnCell Central Manager for remote cellular device management
- IP surveillance software solutions for easy SCADA surveillance

Visit www.moxa.com/ITS

ICS Series
Industrial 10GbE Ethernet Switches
▶Page 1-12

AWK-A Series
Industrial 802.11n AP/Bridge/Client
▶Page 6-6

EDS-G512E-8PoE
8-port PoE+ Full Gigabit Managed Switch
▶Page 1-64

VPort Series
Industrial HD IP Cameras
▶Page 19-7

IEX-408E-2VDSL2 Series
Copper Extender Switches
▶Page 3-26

NPort IA5000A Series
2-Port Industrial Serial Device Servers
▶Page 10-43

MXstudio
Industrial Network Management Suite
▶Page 5-11

Terminal Servers

9

Terminal Servers

NPort® 6000 Terminal Servers

	NPort 6150 NPort 6150-T	NPort 6250 NPort 6250-T	NPort 6250-M-SC NPort 6250-M-SC-T	NPort 6250-S-SC NPort 6250-S-SC-T	NPort 6450 NPort 6450-T	NPort 6610-8	NPort 6610-16
LAN Interface							
10/100BaseT(X) Ports	1 port (8-pin RJ45 connector)						
Magnetic Isolation Protection	1.5 kV						
100BaseFX Ports	–	–	1 (multi-mode)	1 (single-mode)	–	–	–
Expansion Modules							
10/100BaseT(X) (RJ45)	–	–	–	–	1 or 2 ports	1 or 2 ports	1 or 2 ports
Multi-mode Fiber (SC)	–	–	–	–	1 or 2 ports	1 or 2 ports	1 or 2 ports
Single-mode Fiber (SC)	–	–	–	–	1 or 2 ports	1 or 2 ports	1 or 2 ports
Serial Interface							
RS-232 Ports	–	–	–	–	–	8	16
RS-232/422/485 Ports	1	2	2	2	4	–	–
Connector	DB9 male	DB9 male	DB9 male	DB9 male	DB9 male	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 nonstandard baudrates)						
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port	✓	✓	✓	✓	✓	✓	✓
Advanced Features							
Serial Data Log	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
SD Slot	–	✓	✓	✓	✓	✓	✓
Software							
Network Protocols	ICMP, IPv4/v6, TCP, UDP, ARP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, DDNS, HTTP, SMTP, HTTPS, SSL, SSH, PPPoE, RFC2217, Turbo Ring, Turbo Ring 2						
Security Protocols	DES, 3DES, AES, SSH, SSL						
Configuration Options	Web Console, Telnet Console, Serial 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						
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						
Weight	700 g (1.54 lb)	730 g (1.61 lb)	730 g (1.61 lb)	730 g (1.61 lb)	1,020 g (2.25 lb)	3,460 g (7.63 lb)	3,580 g (7.89 lb)
Dimensions	67 x 100.4 x 29 mm (2.64 x 3.95 x 1.1 in)	77 x 111 x 29 mm (3.30 x 4.37 x 1.1 in)	77 x 111 x 29 mm (3.30 x 4.37 x 1.1 in)	77 x 111 x 29 mm (3.30 x 4.37 x 1.1 in)	158 x 103 x 35 mm (6.22 x 4.06 x 1.38 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)
Environmental Limits							
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)						
Operating Temperature – Wide Temperature	-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	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	100 to 240 VAC	100 to 240 VAC
Input Current	285 mA @ 12 VDC	430 mA @ 12 VDC			730 mA @ 12 VDC	285 mA @ 100 VAC, 47 to 63 Hz	
Standards and Certifications							
Safety	UL 60950-1						
EMC	EN 55022/24						
EMI	CISPR 22, 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					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: 2 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	
Transportation	NEMA TS2		–	–	NEMA TS2		
Reliability							
Buzzer, RTC, WDT	✓	✓	✓	✓	✓	✓	✓
MTBF	Time: 2,097,705 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 1,947,486 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 1,092,794 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 1,477,682 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 850,905 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 135,891 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 102,373 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty	5 years (see www.moxa.com/warranty)						
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NPort® 6000 Terminal Servers

	NPort 6610-32	NPort 6610-8-48V NPort 6610-16-48V NPort 6610-32-48V	NPort 6650-8 NPort 6650-8-T	NPort 6650-16 NPort 6650-16-T	NPort 6650-32	NPort 6650-8-48V NPort 6650-16-48V NPort 6650-32-48V	NPort 6650-8-HV-T NPort 6650-16-HV-T NPort 6650-32-HV-T
LAN Interface							
10/100BaseT(X) Ports	1 port (8-pin RJ45 connector)						
Magnetic Isolation Protection	1.5 kV						
Expansion Modules							
10/100BaseT(X) (RJ45)	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports
Multi-mode Fiber (SC)	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports
Single-mode Fiber (SC)	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports	1 or 2 ports
Serial Interface							
RS-232 Ports	32	8/16/32	–	–	–	–	–
RS-232/422/485 Ports	–		8	16	32	8/16/32	8/16/32
Connector	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 nonstandard baudrates)						
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port	✓	✓	✓	✓	✓	✓	✓
Advanced Features							
Serial Data Log	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
SD Slot	✓	✓	✓	✓	✓	✓	✓
Software							
Network Protocols	ICMP, IPv4/v6, TCP, UDP, ARP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, DDNS, HTTP, SMTP, HTTPS, SSL, SSH, PPPoE, RFC2217, Turbo Ring, Turbo Ring 2						
Security Protocols	DES, 3DES, AES, SSH, SSL						
Configuration Options	Web Console, Telnet Console, Serial 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						
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						
Weight	3,600 g (7.94 lb)	3,460 g (7.63 lb) / 3,580 g (7.89 lb) / 3,600 g(7.94 lb)	3,460 g (7.63 lb)	3,580 g (7.89 lb)	3,600 g (7.94 lb)	3,460 g (7.63 lb) / 3,580 g (7.89 lb) / 3,600 g (7.94 lb)	3,460 g (7.63 lb) / 3,580 g (7.89 lb) / 3,600 g (7.94 lb)
Dimensions	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)
Environmental Limits							
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)						–
Operating Temperature – Wide Temperature	–	–	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	–	–	-40 to 85°C (-40 to 185°F)
Storage Temperature	-40 to 75°C (-40 to 167°F)						-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)						
Power Requirements							
Input Voltage	100 to 240 VAC	±48 VDC	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC	±48 VDC	88 to 300 VDC
Input Current	285 mA @ 100 VAC, 47 to 63 Hz	293 mA @ 48 VDC	285 mA @ 100 VAC, 47 to 63 Hz			293 mA @ 48 VDC	200 mA @ 88 VDC
Standards and Certifications							
Safety	UL 60950-1						
EMC	EN 55022/24						
EMI	CISPR 22, 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: 2 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	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 IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 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: 2 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			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 IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 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: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Transportation	NEMA TS2						
Reliability							
Buzzer, RTC, WDT	✓	✓	✓	✓	✓	✓	✓
MTBF	Time: 68,707 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 135,891 hrs/102,373 hrs/ 68,707 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 636,600 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 439,673 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 310,078 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 636,600 hrs/ 439,673 hrs/ 310,078 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 501,171 hrs/ 380,006 hrs/ 290,914 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty	5 years (see www.moxa.com/warranty)						
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CN2600 Terminal Servers

	CN2610-8-2AC	CN2610-16-2AC	CN2650-8	CN2650-16	CN2650-8-2AC CN2650-8-2AC-T	CN2650-16-2AC CN2650-16-2AC-T
LAN Interface						
10/100BaseT(X) Ports	2 ports (2 MAC, 8-pin RJ45 connectors)					
Magnetic Isolation Protection	1.5 kV					
Serial Interface						
RS-232 Ports	8	16	–	–	–	–
RS-232/422/485 Ports	–	–	8	16	8	16
Connector	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					
2 kV Isolation Protection	–	–	–	–	–	–
RS-485 Data Direction Control	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port	✓	✓	✓	✓	✓	✓
Advanced Features						
Serial Data Log	128K					
Offline Port Buffering	128K					
Software						
Network Protocols	ICMP, IPv4, 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 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					
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					
Weight	3,760 g (8.29 lb)	3,980 g (8.77 lb)	3,740 g (8.25 lb)	3,790 g (8.36 lb)	3,900 g (8.60 lb)	3,980 g (8.77 lb)
Dimensions	440 x 198 x 45.5 mm (17.32 x 7.80 x 1.77 in)					
Environmental Limits						
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)					
Operating Temperature – Wide Temperature	–	–	–	–	-40 to 75°C (-40 to 167°F)	-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						
Dual-Power Inputs for Redundancy	✓	✓	–	–	✓	✓
Input Voltage	100 to 240 VAC, 47 to 63 Hz					
Input Current	280 mA @ 100 VAC, 47 to 63 Hz					
Standards and Certifications						
Safety	UL 60950-1					
EMC	EN 55022/24					
EMI	CISPR 22, FCC Part 15B Class A					
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 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					
Reliability						
Buzzer, RTC, WDT	✓	✓	✓	✓	✓	✓
MTBF	Time: 124,859 hrs Standard: MIL-HDBK-217F	Time: 105,915 hrs Standard: MIL-HDBK-217F	Time: 457,140 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 375,472 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 457,140 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 375,472 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty	5 years (see www.moxa.com/warranty)					
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CN2600 Terminal Servers

		CN2650I-8	CN2650I-16	CN2650I-8-2AC	CN2650I-16-2AC	CN2650I-8-HV-T	CN2650I-16-HV-T
LAN Interface							
10/100BaseT(X) Ports		2 ports (2 MAC, 8-pin RJ45 connectors)					
Magnetic Isolation Protection		1.5 kV					
Serial Interface							
RS-232 Ports		–					
RS-232/422/485 Ports		8	16	8	16	8	16
Connector		DB9 male	DB9 male	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					
2 kV Isolation Protection		✓	✓	✓	✓	✓	✓
RS-485 Data Direction Control		ADDC®	ADDC®	ADDC®	ADDC®	ADDC®	ADDC®
RS-232 Console Port		✓	✓	✓	✓	✓	✓
Advanced Features							
Serial Data Log		128 KB					
Offline Port Buffering		128 KB					
Software							
Network Protocols		ICMP, IPv4, 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 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					
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					
Weight		3,666 g (8.08 lb)	3,776 g (8.32 lb)	3,932 g (8.67 lb)	4,022 g (8.87 lb)	3,910 g (8.62 lb)	3,930 g (8.66 lb)
Dimensions		440 x 198 x 45.5 mm (17.32 x 7.80 x 1.77 in)					
Environmental Limits							
Operating Temperature	Standard Temperature	0 to 55°C (32 to 131°F)				–	–
	Wide Temperature	–	–	–	–	-40 to 85°C (-40 to 185°F)	-40 to 85°C (-40 to 185°F)
Storage Temperature		-40 to 75°C (-40 to 167°F)				-40 to 85°C (-40 to 185°F)	
Ambient Relative Humidity		5 to 95% (non-condensing)					
Power Requirements							
Dual-Power Inputs for Redundancy		–	–	✓	✓	–	–
Input Voltage		100 to 240 VAC, 47 to 63 Hz				88 to 300 VDC	
Input Current		325 mA @ 100VAC, 47 to 63 Hz				200 mA @ 88 VDC	
Standards and Certifications							
Safety		UL 60950-1					
EMC		EN 55022/24					
EMI		CISPR 22, FCC Part 15B Class A					
EMS		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 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				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: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF	
Reliability							
Buzzer, RTC, WDT		✓	✓	✓	✓	✓	✓
MTBF		Time: 190,562 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 115,887 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 190,562 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 115,887 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 191,326 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 116,924 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty		5 years (see www.moxa.com/warranty)					
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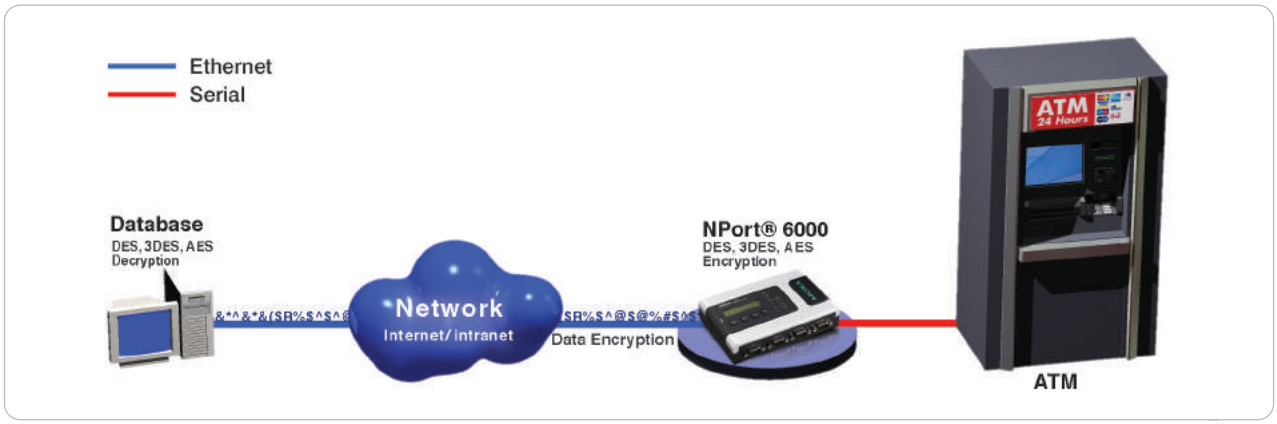
Secure Terminal Servers

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. It 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. To prevent hacker attacks, the NPort® will automatically switch from DES/3DES to AES encryption.



Reliable Data Communication

Port Buffering that Preserves Data if the Ethernet Connection Fails

For mission-critical applications, data collected from a serial connection 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 of their devices into an Ethernet environment. A problem can arise if both Ethernet-ready and legacy serial devices need to be connected at 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 and 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, multimode 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 fiber Ethernet port (single- or multi-mode)

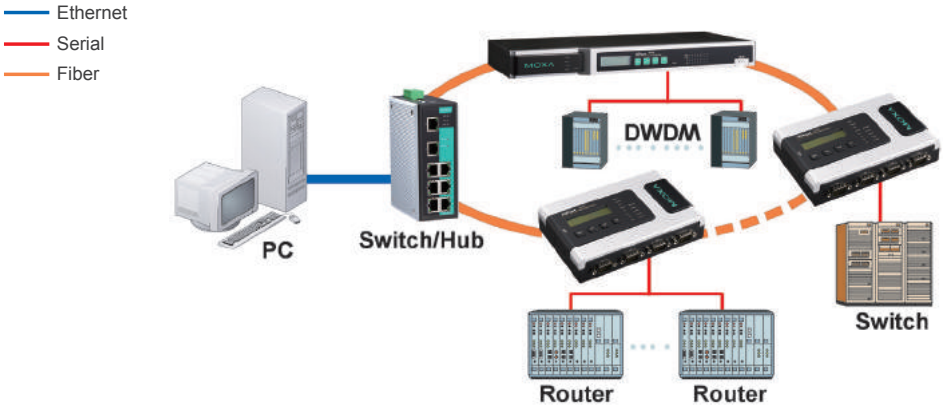
2 fiber Ethernet ports (single- or multi-mode)

1 RJ45 Ethernet port

2 RJ45 Ethernet ports

Ethernet Ring Topology with Fast Recovery (NPort® 6450/6600 only)

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.



NPort® 6150 Series

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

- Secure operation modes for Real COM, TCP Server, TCP Client, Pair Connection, Terminal, and Reverse Terminal
- Nonstandard 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 offline
- Supports IPv6
- Generic serial commands supported in Command-by-Command mode

Overview

The NPort® 6150 1-port device servers use 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. To answer 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)
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 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

Software

Network Protocols: ICMP, IPv4/v6, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP, PPPoE
Security Protocols: DES, 3DES, AES, SSH, SSL
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: 700 g (1.54 lb)
Dimensions:
Without ears: 67 x 100.4 x 29 mm (2.64 x 3.95 x 1.1 in)
With ears: 90 x 100.4 x 29 mm (3.54 x 3.95 x 1.1 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: 285 mA @ 12 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 55022/24
EMI: CISPR 22, 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)

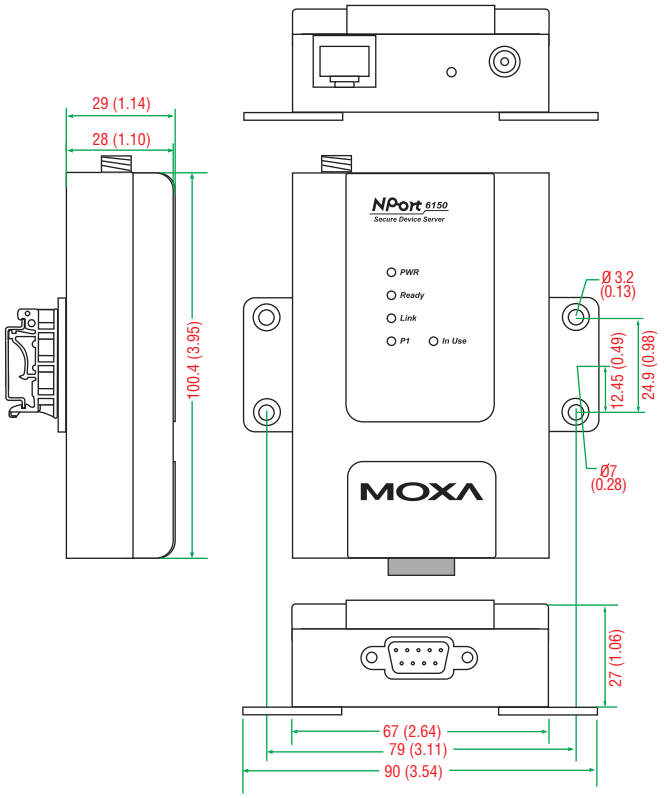
Time: 2,097,705 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

Warranty

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

Dimensions and Pin Assignment

Unit: mm (inch)

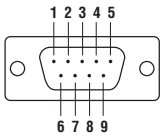


DK35A DIN-Rail Kit

Available Accessory

DB9 male connector

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	–	–

Ordering Information

Available Models

NPort 6150: 1-port RS-232/422/485 secure device server, 0 to 55°C operating temperature
NPort 6150-T: 1-port RS-232/422/485 secure device server, -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 6150 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.

NPort® 6250 Series

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

- Secure operation modes for Real COM, TCP Server, TCP Client, Pair Connection, Terminal, and Reverse Terminal
- Nonstandard baudrates supported with high precision
- Choice of network medium: 10/100BaseT(X) or 100BaseFX
- Enhanced remote configuration with HTTPS and SSH
- Port buffers for storing serial data when the Ethernet is offline
- Supports IPv6
- Generic serial commands supported in Command-by-Command mode

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 10/100BaseT(X) copper Ethernet or 100BaseT(X) fiber network. Both single-mode and multi-mode fiber are supported.

Zero 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 of the 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)

		100BaseFX		
		Multi-Mode		Single-Mode
Fiber Cable Type		OM1	50/125 µm	G.652
			800 MHz*km	
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: 2
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
Security Protocols: DES, 3DES, AES, SSH, SSL
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: 730 g (1.61 lb)
Dimensions:
Without ears: 77 x 111 x 29 mm (3.30 x 4.37 x 1.1 in)
With ears: 89 x 111 x 29 mm (3.50 x 4.37 x 1.1 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:
NPort 6250: 333 mA @ 12 VDC
NPort 6250-M-SC: 428 mA @ 12 VDC
NPort 6250-S-SC: 376 mA @ 12 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 55022/24
EMI: CISPR 22, 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 (excluding fiber models)

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:
NPort 6250: 1,947,486 hrs
NPort 6250 Multi-mode fiber: 1,092,794 hrs
NPort 6250 Single-mode fiber: 1,477,682 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

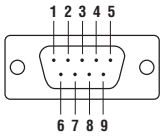
Warranty

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

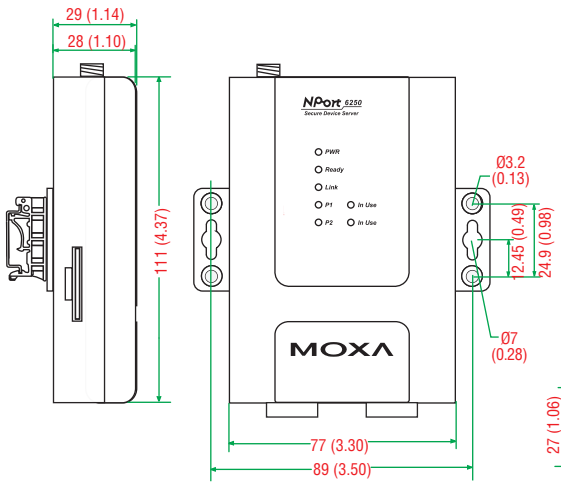


Dimensions

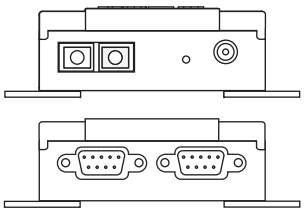
Unit: mm (inch)

DK35A DIN-Rail Kit

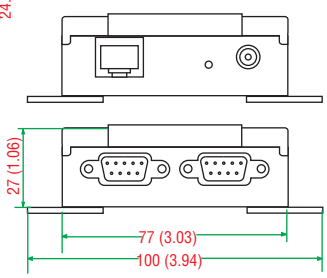
Available Accessory



NPort® 6250-M-SC/6250-S-SC



NPort® 6250



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)
NPort 6250-T: 2-port secure device server, RS-232/422/485 to Ethernet, -40 to 75°C operating temperature
NPort 6250-M-SC-T: 2-port secure device server, RS-232/422/485 to multi-mode fiber (SC connector), -40 to 75°C operating temperature
NPort 6250-S-SC-T: 2-port secure device server, RS-232/422/485 to single-mode fiber (SC connector), -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 6250 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.

NPort® 6450 Series

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

NPort 6450-T

NPort 6450

- 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

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
Security Protocols: DES, 3DES, AES, SSH, SSL
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 55022/24
EMI: CISPR 22, 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

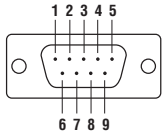
Warranty

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

Pin Assignment

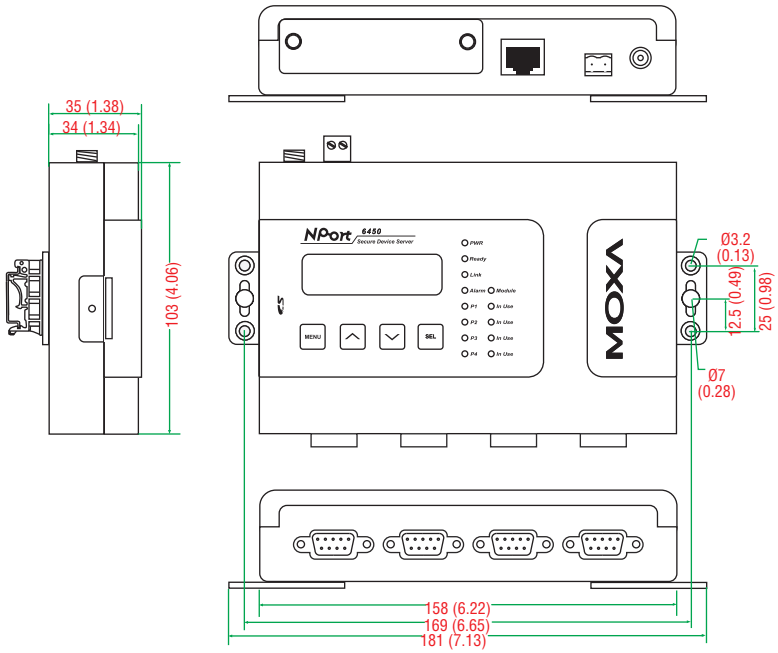
PIN	RS-232	RS-422/485-4w	RS-485-2w
1	DCD	TxD-(A)	–
2	RxD	TxD+(B)	–
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

DB9 male connector



Dimensions

Unit: mm (inch)



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.

NPort® 6600 Series

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

NPort 6600-T

NPort 6600

- Up to 32 ports for high-density environments
- 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
- Modular design for scalability
- DES/3DES/AES for highly secure data transmissions
- Universal high-voltage ranges: 100 to 240 VAC or 88 to 300 VDC
- Popular low-voltage ranges: ±48 VDC (20 to 72 VDC, -20 to -72 VDC)

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. Security breaches are intolerable and the NPort® 6600 ensures data transmission integrity with support of DES, 3DES, and AES encryption algorithms. 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.

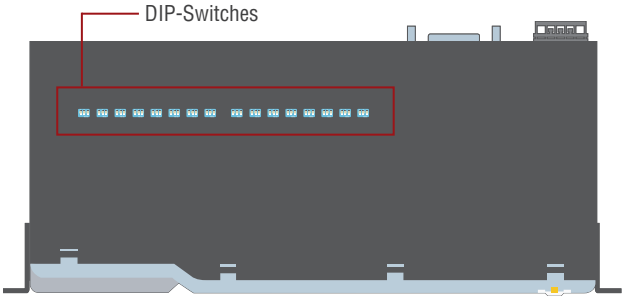
LCD Panel Makes Configuration Easy

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.

Note: The LCD panel is only available with standard temperature models.

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)

		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: 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)
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 nonstandard 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 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
Security Protocols: DES, 3DES, AES, SSH, SSL
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:
NPort 6600-8: 3,460 g (7.63 lb)
NPort 6600-16: 3,580 g (7.89 lb)
NPort 6600-32: 3,600 g (7.94 lb)
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:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
High-Voltage Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature:
Standard Models: -40 to 75°C (-40 to 167°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
High-Voltage Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage:
AC Models: 100 to 240 VAC
DC Models: ±48 VDC (20 to 72 VDC, -20 to -72 VDC), 110 VDC (88 to 300 VDC)
Input Current:
AC Models:
140 mA @ 100 VAC (8 ports)
192 mA @ 100 VAC (16 ports)
285 mA @ 100 VAC (32 ports)
DC Models:
293 mA @ 48 VDC
200 mA @ 88 VDC
Alarm Contact: Relay output with current-carrying capacity of 1 A @ 24 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
NPort 6600-8/16/32:
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: 2 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
NPort 6600 48V models:
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
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
IEC 61000-4-8 PFMF

NPort 6650 HV models:
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: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
IEC 61000-4-8 PFMF
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:
NPort 6610-8: 135,891 hrs
NPort 6610-16: 102,373 hrs
NPort 6610-32: 68,707 hrs
NPort 6650-8: 636,600 hrs
NPort 6650-16: 439,673 hrs
NPort 6650-32: 310,078 hrs
NPort 6650-8-HV-T: 501,171 hrs
NPort 6650-16-HV-T: 380,006 hrs
NPort 6650-32-HV-T: 290,914 hrs
Standard: Telcordia (Bellcore) Standard

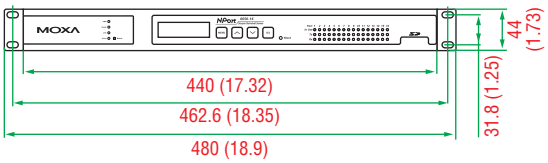
Warranty

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

Dimensions and Pin Assignment

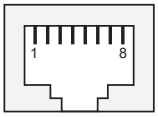
Unit: mm (inch)

Standard model



Wide temp. model

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, 0 to 55°C operating temperature
NPort 6610-8-48V: 8-port RS-232 to Ethernet secure terminal server, ±48 VDC power input, 0 to 55°C operating temperature
NPort 6610-16: 16-port RS-232 to Ethernet secure terminal server, 100 to 240 VAC power input, 0 to 55°C operating temperature
NPort 6610-16-48V: 16-port RS-232 to Ethernet secure terminal server, ±48 VDC power input, 0 to 55°C operating temperature
NPort 6610-32: 32-port RS-232 to Ethernet secure terminal server, 100 to 240 VAC power input, 0 to 55°C operating temperature
NPort 6610-32-48V: 32-port RS-232 to Ethernet secure terminal server, ±48 VDC power input, 0 to 55°C operating temperature
NPort 6650-8: 8-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input, 0 to 55°C operating temperature
NPort 6650-8-T: 8-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input, -40 to 75°C operating temperature
NPort 6650-8-HV-T: 8-port RS-232/422/485 to Ethernet secure terminal server, 88 to 300 VDC power input, -40 to 85°C operating temperature
NPort 6650-8-48V: 8-port RS-232/422/485 to Ethernet secure terminal server, ±48 VDC power input, 0 to 55°C operating temperature
NPort 6650-16: 16-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input, 0 to 55°C operating temperature
NPort 6650-16-48V: 16-port RS-232/422/485 to Ethernet secure terminal server, ±48 VDC power input, 0 to 55°C operating temperature
NPort 6650-16-T: 16-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input, -40 to 75°C operating temperature
NPort 6650-16-HV-T: 16-port RS-232/422/485 to Ethernet secure terminal server, 88 to 300 VDC power input, -40 to 85°C operating temperature
NPort 6650-32: 32-port RS-232/422/485 to Ethernet secure terminal server, 100 to 240 VAC power input, 0 to 55°C operating temperature
NPort 6650-32-48V: 32-port RS-232/422/485 to Ethernet secure terminal server, ±48 VDC power input, 0 to 55°C operating temperature
NPort 6650-32-HV-T: 32-port RS-232/422/485 to Ethernet secure terminal server, 88 to 300 VDC power input, -40 to 85°C operating temperature

Package Checklist

- 1 NPort 6600 secure device server
- Serial cable: CBL-RJ45M9-150
- Power cord (AC models only)*
- Rack-mounting kit: WK-44-01
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

*For AC models, the package includes one power cord suitable for your region.

Optional Accessories (can be purchased separately)

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

CN2600 Series

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

- LCD panel for easy IP address configuration (excluding wide temperature range models)
- 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 (for AC models only)
- Real COM/TTY drivers for Windows and Linux
- Universal high-voltage range: 100 to 240 VAC or 88 to 300 VDC

Overview

Redundancy is an important issue for industrial networks, and various types of solutions have been developed to provide alternative network paths when equipment or software failures occur. "Watchdog" hardware is installed to utilize redundant hardware, and a "Token"-switching software mechanism is applied. The CN2600 terminal server uses its built-in Dual-LAN ports to implement a "Redundant COM" mode that keeps your applications running uninterrupted.

Dual-LAN Redundancy

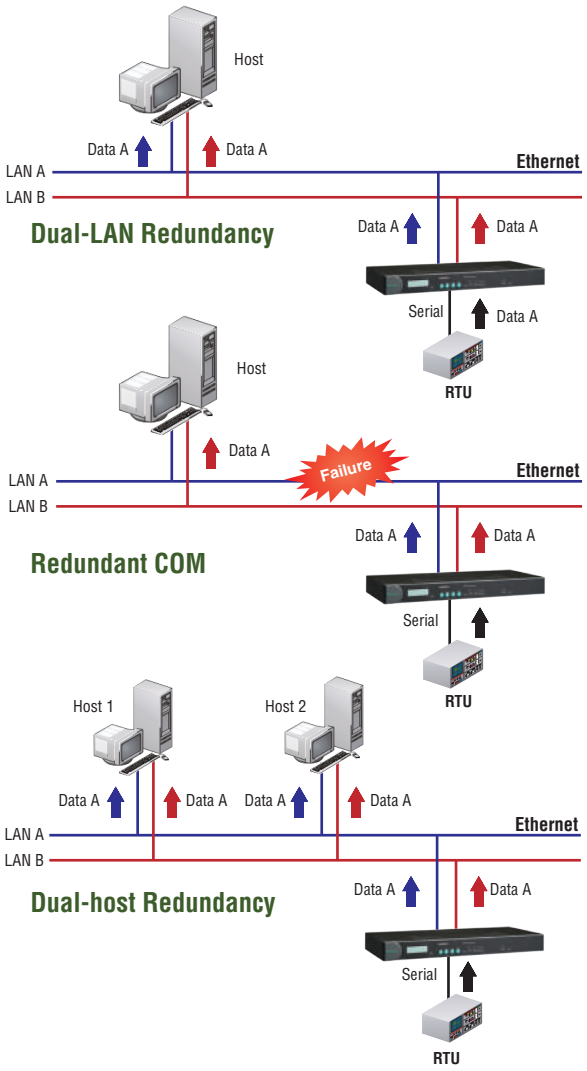
The CN2600 has two separate LAN ports that can be connected to separate LAN networks. Dual-LAN redundancy involves setting up two separate physical networks to connect the PC host with the CN2600 (the PC host also requires two LAN cards). If one connection fails, the PC host can still communicate with your serial devices over the alternative LAN connection.

Redundant COM

Moxa offers "Redundant COM", an easy-to-use application to provide an alternative solution for network redundancy. When the CN2600 receives a data packet from a connected device, two identical data packets are sent over two independent LAN connections to prevent lost data packets if one LAN connection becomes unavailable. The CN2600 software is programmed to automatically discard duplicate data packets.

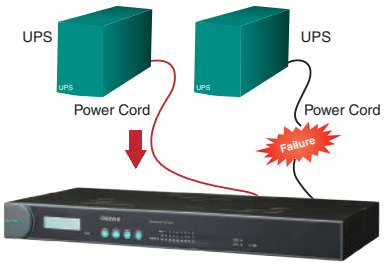
Dual-Host Redundancy

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 still be able to communicate with serial devices connected to the CN2600.

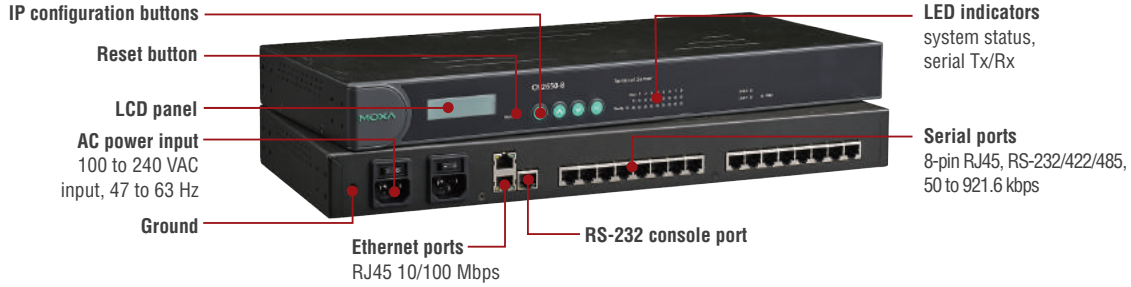


Dual-AC Model Supported

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 failures.



Appearance



Note: The product shown is the CN2610-8-2AC. HV models (CN2650I-8-HV-T and CN2650I-16-HV-T) use terminal blocks for their power input.
Note: LCD panel and configuration buttons are not available for wide temperature models

Specifications

Ethernet Interface

Number of Ports: 2 (2 IPs)
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
Serial Line Protection:
2 kV optical isolation (CN2650I)
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
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, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP, HTTP, SMTP, ARP, PPPoE, DDNS
Security Protocols: RADIUS, HTTPS, SSH, PAP, CHAP
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, RFC2217, Terminal, Reverse Telnet, PPP, DRDAS, Redundant COM, Disabled

Applications

Terminal Sessions: 8 sessions per port

Physical Characteristics

Housing: Metal
Weight:
CN2610-8-2AC: 3,760 g (8.29 lb)
CN2610-16-2AC: 3,980 g (8.77 lb)
CN2650-8: 3,740 g (8.25 lb)
CN2650-16: 3,790 g (8.36 lb)
CN2650-8-2AC: 3,900 g (8.60 lb)
CN2650-16-2AC: 3,980 g (8.77 lb)
CN2650I-8: 3,666 g (8.08 lb)
CN2650I-16: 3,776 g (8.32 lb)
CN2650I-8-2AC: 3,932 g (8.67 lb)
CN2650I-16-2AC: 4,022 g (8.87 lb)
CN2650I-8-HV: 3,910 g (8.62 lb)
CN2650I-16-HV: 3,930 g (8.66 lb)
Dimensions:
Without ears: 440 x 198 x 45.5 mm (17.32 x 7.80 x 1.77 in)
With ears: 480 x 198 x 45.5 mm (18.9 x 7.80 x 1.77 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)
High-Voltage Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature:
Standard Models: -40 to 75°C (-40 to 167°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
High-Voltage Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage:
AC Models: 100 to 240 VAC, 47 to 63 Hz
DC Models: 110 VDC (88 to 300 VDC)
Input Current:
CN2600 AC models: 325 mA @ 100 VAC, 47 to 64 Hz
CN2650I HV models: 200 mA @ 88 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
AC models:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2.5 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

HVDC models:
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: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF
Freefall: IEC-68-2-34, IEC-68-2-32
Vibration: IEC-68-2-6
Green Product: RoHS, CRoHS, WEEE

Reliability

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

MTBF (mean time between failures)

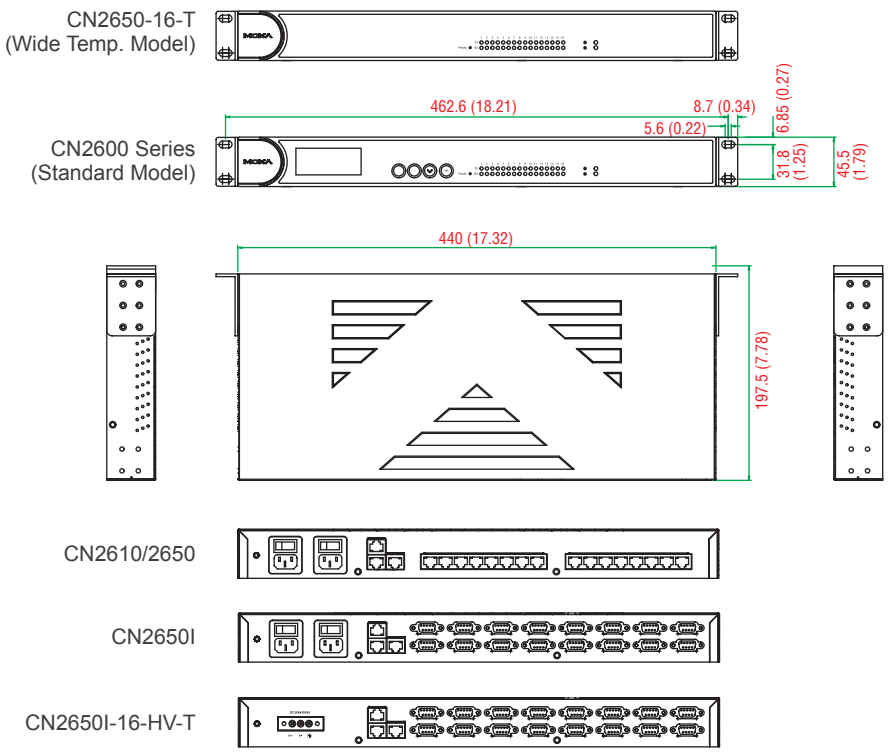
Time:
CN2610-8-2AC: 124,859 hrs
CN2610-16-2AC: 105,915 hrs
CN2650-8 series: 457,140 hrs
CN2650-16 series: 375,472 hrs
CN2650I-8 series: 190,562 hrs
CN2650I-16 series: 115,887 hrs
CN2650I-8-HV-T: 191,326 hrs
CN2650I-16-HV-T: 116,924 hrs
Standard:
CN2610-8-2AC, CN2610-16-2AC: MIL-HDBK-217F
CN2650-8/16, CN2650I-8/16, CN2650I-8/16-HV-T: Telcordia (Bellcore) Standard TR/SR

Warranty

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

Dimensions

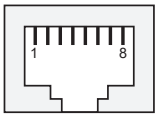
Unit: mm (inch)



Pin Assignment

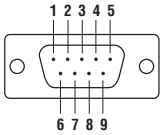
8-pin RJ45 connector

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, 0 to 55°C operating temperature
CN2610-16: Dual-LAN terminal server with 16 RS-232 ports, 0 to 55°C operating temperature
CN2610-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232 ports, 0 to 55°C operating temperature
CN2610-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232 ports, 0 to 55°C operating temperature
CN2650-8: Dual-LAN terminal server with 8 RS-232/422/485 ports, 0 to 55°C operating temperature
CN2650-16: Dual-LAN terminal server with 16 RS-232/422/485 ports, 0 to 55°C operating temperature
CN2650-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports, 0 to 55°C operating temperature
CN2650-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports, 0 to 55°C operating temperature
CN2650I-8: Dual-LAN terminal server with 8 RS-232/422/485 ports and 2 kV optical isolation, 0 to 55°C operating temperature
CN2650I-16: Dual-LAN terminal server with 16 RS-232/422/485 ports and 2 kV optical isolation, 0 to 55°C operating temperature
CN2650I-8-2AC: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports and 2 kV optical isolation, 0 to 55°C operating temperature
CN2650I-16-2AC: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports and 2 kV optical isolation, 0 to 55°C operating temperature
CN2650-8-2AC-T: Dual-LAN, dual-AC-power terminal server with 8 RS-232/422/485 ports, -40 to 75°C operating temperature
CN2650-16-2AC-T: Dual-LAN, dual-AC-power terminal server with 16 RS-232/422/485 ports, -40 to 75°C operating temperature
CN2650I-8-HV-T: Dual-LAN terminal server with 8 RS-232/422/485 ports and 2 kV optical isolation, 88 to 300 VDC power input, -40 to 85°C operating temperature
CN2650I-16-HV-T: Dual-LAN terminal server with 16 RS-232/422/485 ports and 2 kV optical isolation, 88 to 300 VDC power input, -40 to 85°C operating temperature

Package Checklist

- 1 CN2600 terminal server
- Serial cable: CBL-RJ45F9-150
- Power cord (2AC models come with 2 cords)*
- Rack-mounting kit: WK-45-01
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

*For AC models, the package includes one power cord suitable for your region.

Optional Accessories (can be purchased separately)

Mini DB9F-to-TB: DB9(F) to terminal block connector (CN2650I only)
Note: One power cord suitable for your region is included in the product package. Additional power cords can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

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	✓	–	–	–	–	–	–
2 ports	NPort 6250	✓	–	–	–	–	–	–
	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	–	✓	✓	✓	✓	✓	✓

Barrel Plug Type		Locking barrel plug					
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	✓	✓	✓	✓	✓	✓
2 ports	NPort 6250	✓	✓	✓	✓	✓	✓
	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	–	–	–	–	–	–

Serial-to-Ethernet Device Servers

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Serial-to-Ethernet Device Servers

Product Selection Guide

Combo Switch / Serial Device Servers

Railway Device Servers

General-Purpose Device Servers

Industrial-Grade Device Servers

Wireless Device Servers

ZigBee Device Servers

Power Accessories

Combo Switch / Serial Device Servers

NPort S8455I/S8458: Ethernet Switch Specifications	
Ethernet Interface	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for Flow Control IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid STP IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.1X for Authentication IEEE 802.3ad for Port Trunk with LACP
Network Protocols	ICMP, IPv4, TCP, UDP, ARP, Telnet, DNS, HTTP, SMTP, SNTP, IGMPv1/v2 device, GVRP, SNMPv1/v2c/v3, DHCP Server/ Client, DHCP Option 82, BootP, TFTP, SNTP, SMTP, RARP, GMRP, LACP, RMON
MIB	MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9
Flow Control	IEEE 802.3x flow control, back pressure flow control interface
Switch Properties	
Priority Queues	4
"Max. Number of Available VLANs"	64
VLAN ID Range	VID 1 to 4094
IGMP Groups	256
Switch Interface	
Optical Fiber Interface	Multi-mode or Single-mode
RJ45 Ports	10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
DIP Switches	Turbo Ring, Master, Coupler, Reserve
Alarm Contact	2 relay outputs with current-carrying capacity of 1 A @ 24 VDC

NPort S8455I/S8458: Device Server Specifications	
Serial Interface	
Number of Ports	4
Serial Standards	RS-232/422/485
Connector	DB9 male
Serial Line Protection	2 kV isolation protection
RS-485 Data Direction Control	ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485	1 kΩ, 150 kΩ
Terminator for RS-485	120 Ω
Console Port	Dedicated RS-232 console port (8-pin RJ45)
Serial Communication Parameters	
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark
Flow Control	RTS/CTS and XON/XOFF
Baudrate	50 bps to 921.6 kbps
Serial Signals	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND
Software	
Configuration Options	Web Console, Telnet Console, Serial Console, Windows 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
Operation Modes	Real COM, TCP Server, TCP Client, UDP, RFC2217
Management	SNMP MIB-II
IP Routing	Static, RIP-I, RIP-II
Reliability	
Alert Tools	Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger	Built-in WDT (watchdog timer)

NPort S8455I/S8458: General Specifications		
Port Summary		
Serial Ports		4 RS-232/422/485 ports
Ethernet Switch Ports		NPort S8455I fiber: 3 RJ45 copper ports, 2 multi-mode/ single-mode fiber ports NPort S8455I all copper: 5 RJ45 copper ports NPort S8458: 4 RJ45 copper ports and 4 single-mode fiber ports
Console Ports		1 (8-pin RJ45 connector)
LED Indicators		PWR1, PWR2, READY, MASTER, COUPLER, LINK4, LINK5
Physical Characteristics		
Housing		Metal
Weight		NPort S8455I series: 578 g (1.27 lb) NPort S8458 series: 1,105 g (2.44 lb)
Dimensions		NPort S8455I series: 73.1 x 134 x 105 mm (2.88 x 5.27 x 4.92 in) NPort S8458 series: 93 x 144 x 125 mm (3.66 x 5.64 x 4.92 in)
Environmental Limits		
Operating Temperature	Standard Temperature	0 to 60°C (32 to 140°F)
	Wide Temperature	NPort S8455I-T: -40 to 75°C (-40 to 167°F) NPort S8458-T: -40 to 85°C (-40 to 185°F)
Operating Humidity		5 to 95% (non-condensing)
Storage Temperature		-40 to 75°C (-40 to 167°F)
Power Requirements		
Input Voltage		12 to 48 VDC
Input Current		NPort S8458: 940 mA @ 12 VDC NPort S8455I: 935 mA @ 12 VDC
Standards and Certifications		
Safety		UL 508, UL 60950-1
EMC		EN 55022/24
EMI		CISPR 22, FCC Part 15B Class A
EMS		NPort S8455I: IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV (4 kV for all copper models); Signal: 0.25 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF NPort S8458 series: IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF
Reliability		
Buzzer, RTC, WDT		✓
MTBF		Time: NPort S8455I Single-mode: 286,993 hrs NPort S8455I Multi-mode: 200,951 hrs NPort S8455I All copper: 287,354 hrs NPort S8458: 163,624 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty		5 years (see www.moxa.com/warranty)
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Railway Device Servers



		NPort 5150AI-M12/ NPort 5150AI-M12-T/ NPort 5150AI-M12-CT	NPort 5250AI-M12/ NPort 5250AI-M12-T/ NPort 5250AI-M12-CT	NPort 5450AI-M12/ NPort 5450AI-M12-T/ NPort 5450AI-M12-CT
Ethernet Interface				
10/100BaseT(X) Ports		1	1	1
Connector		M12	M12	M12
Serial Interface				
RS-232/422/485 Ports		1	2	4
Connector		DB9 male	DB9 male	DB9 male
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		
Software				
Network Protocols		ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2, LLDP, ARP		
Configuration Options		Web Console, Telnet Console, Windows Search 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		
Physical Characteristics				
Housing		Metal, IP40 protection		
Weight		686 g (1.51 lb)		
Dimensions		80 x 216.6 x 52.9 mm (3.15 x 8.53 x 2.08 in)		
Environmental Limits				
Operating Temperature	Standard Temperature	-25 to 55°C (-13 to 131°F)		
	Wide Temperature	-40 to 75°C (-40 to 167°F)		
Operating Humidity		5 to 95% (non-condensing)		
Storage Temperature		-40 to 85°C (-40 to 185°F)		
Power Requirements				
Input Voltage		12 to 48 VDC		
Input Current		310 mA @ 12 VDC	360 mA @ 12 VDC	440 mA @ 12 VDC
Connector		M12		
Standards and Certifications				
Safety		UL 60950-1		
EMC		EN 55022/24		
EMI		CISPR 22, FCC Part 15B Class A		
EMS		IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power 2 kV; Signal 2 kV IEC 61000-4-5 Surge: Power 0.5 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz, 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF		
Rail Traffic		EN 50155 (essential compliance*), EN 50121-4		
Vibration		IEC 60068-2-6		
Reliability				
Comformal Coating		Yes (-CT model only)	Yes (-CT model only)	Yes (-CT model only)
Buzzer, RTC, WDT		Yes	Yes	Yes
MTBF		Time: 789,341 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 639,622 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 467,777 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty		5 years (see www.moxa.com/warranty)		
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*Moxa defines “essential compliance” to include those EN 50155 requirements that make products more suitable for rolling stock railway applications.

General-Purpose Device Servers

	NPort 5110A NPort 5110A-T	NPort 5130A NPort 5130A-T	NPort 5150A NPort 5150A-T	NPort P5150A NPort P5150A-T	NPort 5110 NPort 5110-T	NPort 5130	NPort 5150
Ethernet Interface							
10/100BaseT(X) Ports	1	1	1	1	1	1	1
Connector	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
Magnetic Isolation Protection	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV
Serial Interface							
RS-232 Ports	1	–	–	–	1	–	–
RS-422/485 Ports	–	1	–	–	–	1	–
RS-232/422/485 Ports	–	–	1	1	–	–	1
Connector	DB9-M	DB9-M	DB9-M	DB9-M	DB9-M	DB9-M	DB9-M
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, XON/XOFF						
Baudrate	50 bps to 921.6 kbps				110 bps to 230.4 kbps	50 bps to 921.6 kbps	
Software							
Network Protocols	ICMP, IPv4, ARP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2				ICMP, IPv4, ARP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP		
Configuration Options	Web Console, Telnet Console, Serial Console, Windows Utility	Web Console, Telnet Console, Windows Utility	Web Console, Telnet Console, Serial Console, Windows Utility			Web Console, Telnet Console, Windows Utility	Web Console, Telnet Console, Serial 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						
Physical Characteristics							
Housing	Metal						
Weight	340 g (0.75 lb)			300 g (0.66 lb)	340 g (0.75 lb)		
Dimensions	52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)			77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)	52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)		
Environmental Limits							
Operating Temperature – Standard Temperature	0 to 60°C (32 to 140°F)				0 to 55°C (32 to 131°F)		
Operating Temperature – Wide Temperature	-40 to 75°C (-40 to 167°F)				-40 to 75°C (-40 to 167°F)	–	
Operating Humidity	5 to 95% (non-condensing)						
Storage Temperature	-40 to 75°C (-40 to 167°F)						
Power Requirements							
Input Voltage	12 to 48 VDC						
Input Current	82.5 mA @ 12 VDC	89.1 mA @ 12 VDC	92.4 mA @ 12 VDC	DC Jack I/P: 125 mA @ 12 VDC; PoE I/P: 180 mA @ 48 VDC	128.7 mA @ 12 VDC	200 mA @ 12 VDC	200 mA @ 12 VDC
Standards and Certifications							
Safety	UL 60950-1						
EMC	EN 55022/24						
EMI	CISPR 22, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 Dips			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: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 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	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: 1 kV IEC 61000-4-5 Surge: Power: 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		
Reliability							
Buzzer, RTC, WDT	WDT only						
MTBF	Time: 2,231,530 hrs Standard: Telcordia (Bellcore) Standard TR/SR				Time: 3,126,448 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 2,836,863 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 2,736,202 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty	5 years (see www.moxa.com/warranty)						
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General-Purpose Device Servers

	NPort 5210A NPort 5210A-T	NPort 5230A NPort 5230A-T	NPort 5250A NPort 5250A-T	NPort 5210 NPort 5210-T	NPort 5230 NPort 5230-T	NPort 5232 NPort 5232-T	NPort 5232I NPort 5232I-T
Ethernet Interface							
10/100BaseT(X) Ports	1	1	1	1	1	1	1
Connector	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
Magnetic Isolation Protection	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV
Serial Interface							
RS-232 Ports	2	–	–	2	1	–	–
RS-422/485 Ports	–	2	–	–	1	2	2
RS-232/422/485 Ports	–	–	2	–	–	–	–
Connector	DB9-M	Terminal Block	DB9-M	RJ45	Terminal Block	Terminal Block	Terminal Block
2 kV Isolation Protection	–	–	–	–	–	–	✓
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, XON/XOFF						
Baudrate	50 bps to 921.6 kbps			110 bps to 230.4 kbps			
Software							
Network Protocols	ICMP, IPv4, ARP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2			ICMP, IPv4, ARP, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP			
Configuration Options	Web Console, Telnet Console, Serial Console, Windows Utility	Web Console, Telnet Console, Windows Utility	Web Console, Telnet Console, Serial Console, Windows Utility			Web 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						
Physical Characteristics							
Housing	Metal						
Weight	340 g (0.75 lb)				360 g (0.79 lb)		380 g (0.84 lb)
Dimensions	77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)			67 x 100.4 x 22 mm (2.64 x 3.95 x 0.87 in)			67 x 100.4 x 35 mm (2.64 x 3.95 x 0.87 in)
Environmental Limits							
Operating Temperature – Standard Temperature	0 to 60°C (32 to 140°F)			0 to 55°C (32 to 131°F)			
Operating Temperature – Wide Temperature	-40 to 75°C (-40 to 167°F)						
Storage Temperature	-40 to 75°C (-40 to 167°F)						
Operating Humidity	5 to 95% (non-condensing)						
Power Requirements							
Input Voltage	12 to 48 VDC						
Input Current	119 mA @ 12 VDC			325 mA @ 12 VDC	325 mA @ 12 VDC	280 mA @ 12 VDC	365 mA @ 12 VDC
Standards and Certifications							
Safety	UL 60950-1						
EMC	EN 55022/24						
EMI	CISPR 22, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 Dips			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 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			
Marine	–	–	–	–	DNV	DNV	DNV
Reliability							
Buzzer, RTC, WDT	✓						
MTBF	Time: 847,750 hrs Standard: Telcordia (Bellcore) Standard TR/SR			Time: 381,342 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 377,937 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 309,383 hrs Standard: Telcordia (Bellcore) Standard TR/SR	
Warranty	5 years (see www.moxa.com/warranty)						
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General-Purpose Device Servers





	NPort 5410	NPort 5430	NPort 5430I	NPort 5450 NPort 5450-T	NPort 5450I NPort 5450I-T
Ethernet Interface					
10/100BaseT(X) Ports	1	1	1	1	1
Connector	RJ45	RJ45	RJ45	RJ45	RJ45
Magnetic Isolation Protection	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV
Serial Interface					
RS-232 Ports	4	–	–	–	–
RS-422/485 Ports	–	4	4	–	–
RS-232/422/485 Ports	–	–	–	4	4
Connector	DB9-M	Terminal Block	Terminal Block	DB9-M	DB9-M
2 kV Isolation Protection	–	–	✓	–	✓
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, XON/XOFF				
Baudrate	50 bps to 921.6 kbps				
Software					
Network Protocols	ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP				
Configuration Options	Web 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				
Onsite Configuration					
Mini Screen with Push Buttons	✓	✓	✓	✓ (excluding T models)	✓ (excluding T models)
Physical Characteristics					
Housing	Metal				
Weight	740 g (1.63 lb)	740 g (1.63 lb)	740 g (1.63 lb)	740 g (1.63 lb)	740 g (1.63 lb)
Dimensions	158 x 103 x 33 mm (6.22 x 4.06 x 1.30 in)				
Environmental Limits					
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)				
Operating Temperature – Wide Temperature	–	–	–	-40 to 75°C (-40 to 167°F)	
Operating Humidity	5 to 95% (non-condensing)				
Storage Temperature	-20 to 70°C (-4 to 158°F)			-40 to 75°C (-40 to 167°F)	
Power Requirements					
Input Voltage	12 to 48 VDC				
Input Current	350 mA @ 12 VDC	320 mA @ 12 VDC	530 mA @ 12 VDC	350 mA @ 12 VDC	554 mA @ 12 VDC
Standards and Certifications					
Safety	UL 60950-1				
EMC	EN 55022/24				
EMI	CISPR 22, 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: 2 kV; Signal: 2 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	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		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: 2 kV; Signal: 2 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	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 2.5 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power 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
Marine	DNV (standard temp. models only)				
Medical	EN 60601-1-2 Class B, EN 55011 (NPort 5410, 5450, and 5450I only)				
Reliability					
Buzzer, RTC, WDT	✓				
MTBF	Time: 310,331 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 265,650 hrs Standard: Telcordia (Bellcore) Standard TR/SR		Time: 206,903 hrs Standard: Telcordia (Bellcore) Standard TR/SR	
Warranty	5 years (see www.moxa.com/warranty)				
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General-Purpose Device Servers

	NPort 5610-8	NPort 5610-8-48V	NPort 5610-16	NPort 5610-16-48V	NPort 5630-8	NPort 5630-16	NPort 5650-8 NPort 5650-8-T
Ethernet Interface							
10/100BaseT(X) Ports	1	1	1	1	1	1	1
Connector	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
Magnetic Isolation Protection	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV
Serial Interface							
RS-232 Ports	8	8	16	16	–	–	–
RS-422/485 Ports	–	–	–	–	8	16	–
RS-232/422/485 Ports	–	–	–	–	–	–	8
Connector	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	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, XON/XOFF						
Baudrate	50 bps to 921.6 kbps						
Software							
Network Protocols	ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP, PPP, SLIP, RFC2217						
Configuration Options	Web 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						
Onsite Configuration							
Mini Screen with Push Buttons	✓	✓	✓	✓	✓	✓	✓ (excluding T models)
Physical Characteristics							
Housing	Metal						
Weight	3,340 g (7.36 lb)	3,160 g (6.97 lb)	3,420 g (7.54 lb)	3,260 g (7.19 lb)	3,380 g (7.45 lb)	3,400 g (7.50 lb)	3,360 g (7.41 lb)
Dimensions	440 x 45 x 198 mm (18.9 x 1.77 x 7.80 in)						
Environmental Limits							
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)						
Operating Temperature – Wide Temperature	–	–	–	–	–	–	-40 to 75°C (-40 to 167°F)
Operating Humidity	5 to 95% (non-condensing)						
Storage Temperature	-20 to 70°C (-4 to 158°F)						-40 to 75°C (-40 to 167°F)
Power Requirements							
Input Voltage	100 to 240 VAC, 47 to 63 Hz	±48 VDC	100 to 240 VAC, 47 to 63 Hz	±48 VDC	100 to 240 VAC, 47 to 63 Hz		
Input Current	141 mA @ 100 VAC, 47 to 63 Hz	135 mA @ 48 VDC	141 mA @ 100 VAC, 47 to 63 Hz	135 mA @ 48 VDC	152 mA @ 100 VAC, 47 to 63 Hz	152 mA @ 100 VAC, 47 to 63 Hz	158 mA @ 100 VAC, 47 to 63 Hz
Standards and Certifications							
Safety	UL 60950-1						
EMC	EN 55022/24						
EMI	CISPR 22, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 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						
Medical	EN 60601-1-2 Class B, EN 55011						
Reliability							
Buzzer, RTC, WDT	✓						
MTBF	Time: 97,294 hrs Standard: MIL-HDBK-217F	Time: 96,758 hrs Standard: MIL-HDBK-217F	Time: 94,928 hrs Standard: MIL-HDBK-217F	Time: 926,643 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 118,405 hrs Standard: MIL-HDBK-217F	Time: 91,483 hrs Standard: MIL-HDBK-217F	Time: 117,584 hrs Standard: MIL-HDBK-217F
Warranty	5 years (see www.moxa.com/warranty)						
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General-Purpose Device Servers

	NPort 5650-8-M-SC	NPort 5650-8-S-SC	NPort 5650-8-HV-T	NPort 5650-16 NPort 5650-16-T	NPort 5650-16-M-SC	NPort 5650-16-S-SC	NPort 5650-16-HV-T
Ethernet Interface							
10BaseT Ports	–	–	–	–	–	–	–
10/100BaseT(X) Ports	–	–	1	1	–	–	1
100BaseFX Ports	1 (multi-mode)	1 (single-mode)	–	–	1 (multi-mode)	1 (single-mode)	–
Connector	SC	SC	RJ45	RJ45	SC	SC	RJ45
Magnetic Isolation Protection	–	–	1.5 kV	1.5 kV	–	–	1.5 kV
Serial Interface							
RS-232 Ports	–	–	–	–	–	–	–
RS-422/485 Ports	–	–	–	–	–	–	–
RS-232/422/485 Ports	8	8	8	16	16	16	16
Connector	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
2 kV Isolation Protection	–	–	–	–	–	–	–
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, XON/XOFF						
Baudrate	50 bps to 921.6 kbps						
Software							
Network Protocols	ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP, PPP, SLIP,RFC2217						
Configuration Options	Web 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						
Onsite Configuration							
Mini Screen with Push Buttons	✓	✓	–	✓ (excluding T models)	✓	✓	–
Physical Characteristics							
Housing	Metal						
Weight	3,380 g (7.45 lb)	3,380 g (7.45 lb)	3,720 g (8.20 lb)	3,460 g (7.63 lb)	3,440 g (7.58 lb)	3,440 g (7.58 lb)	3,820 g (8.42 lb)
Dimensions	440 x 45 x 198 mm (18.9 x 1.77 x 7.80 in)						
Environmental Limits							
Operating Temperature (Standard Temperature)	0 to 55°C (32 to 131°F)		–	0 to 55°C (32 to 131°F)			–
Operating Temperature (Wide Temperature)	–	–	-40 to 85°C (-40 to 185°F)	-40 to 75°C (-40 to 167°F)	–	–	-40 to 85°C (-40 to 185°F)
Operating Humidity	5 to 95% (non-condensing)						
Storage Temperature	-20 to 70°C (-4 to 158°F)		-40 to 85°C (-40 to 185°F)	-40 to 75°C (-40 to 167°F)	-20 to 70°C (-4 to 158°F)		-40 to 85°C (-40 to 185°F)
Power Requirements							
Input Voltage	100 to 240 VAC, 47 to 63 Hz	100 to 240 VAC, 47 to 63 Hz	110 VDC (88 to 300 VDC)	100 to 240 VAC, 47 to 63 Hz	100 to 240 VAC, 47 to 63 Hz	100 to 240 VAC, 47 to 63 Hz	110 VDC (88 to 300 VDC)
Input Current	174 mA @ 100 VAC, 47 to 63 Hz	164 mA @ 100 VAC, 47 to 63 Hz	152 mA @ 88 VDC	158 mA @ 100 VAC, 47 to 63 Hz	174 mA @ 100 VAC, 47 to 63 Hz	164 mA @ 100 VAC, 47 to 63 Hz	152 mA @ 88 VDC
Standards and Certifications							
Safety	UL 60950-1						
EMC	EN 55022/24						
EMI	CISPR 22, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 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		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: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power 2.5 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		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: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Medical	EN 60601-1-2 Class B, EN 55011						
Reliability							
Buzzer, RTC, WDT	✓						
MTBF	Time: 116,914 hrs Standard: MIL-HDBK-217F		Time: 725,390 hrs Standard: Telcordia (Bellcore) Standard TR/SR	104,767 hrs	Time: 87,528 hrs Standard: MIL-HDBK-217F		Time: 531,264 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty	5 years (see www.moxa.com/warranty)						
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General-Purpose Device Servers



	NPort 5610-8-DTL NPort 5610-8-DTL-T	NPort 5650-8-DTL NPort 5650-8-DTL-T	NPort 5650I-8-DTL NPort 5650I-8-DTL-T
Ethernet Interface			
10/100BaseT(X) Ports	1	1	1
Connector	RJ45	RJ45	RJ45
Magnetic Isolation Protection	1.5 kV	1.5 kV	1.5 kV
Serial Interface			
RS-232 Ports	8	–	–
RS-422/485 Ports	–	–	–
RS-232/422/485 Ports	–	8	8
Connector	DB9-M	DB9-M	DB9-M
2 kV Isolation Protection	–	–	✓
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, XON/XOFF		
Baudrate	50 bps to 921.6 kbps		
Software			
Network Protocols	ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP, RFC2217		
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		
Onsite Configurations			
Mini Screen with Push Buttons	–	–	–
Physical Characteristics			
Housing	Metal		
Weight	1,760 g (3.88 lb)	1,770 g (3.90 lb)	1,850 g (4.08 lb)
Dimensions	197 x 44 x 125 mm (7.76 x 1.73 x 4.92 in)		
Environmental Limits			
Operating Temperature (Standard Temperature)	0 to 60°C (32 to 140°F)		
Operating Temperature (Wide Temperature)	-40 to 75°C (-40 to 167°F)		
Operating Humidity	5 to 95% (non-condensing)		
Storage Temperature	-40 to 75°C (-40 to 167°F)		
Power Requirements			
Input Voltage	12 to 48 VDC		
Input Current	340 mA @ 12 VDC	470 mA @ 12 VDC	740 mA @ 12 VDC
Standards and Certifications			
Safety	UL 60950-1		
EMC	EN 55022/24		
EMI	CISPR 22, 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: 2 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		
Reliability			
Buzzer, RTC, WDT	✓		
MTBF	Time: 953,388 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 740,457 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 258,150 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty	5 years (see wwwmoxacom/warranty)		
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Industrial-Grade Device Servers






		NPort IA5150A NPort IA5150A-T	NPort IA5150AI NPort IA5150AI-T	NPort IA5250A NPort IA5250A-T	NPort IA5250AI NPort IA5250AI-T	NPort IA5450A NPort IA5450A-T	NPort IA5450AI NPort IA5450AI-T
Ethernet Interface							
10/100BaseT(X) Ports		2 (2 IPs)	2 (2 IPs)	2 (2 IPs)	2 (2 IPs)	2 (2 IPs)	2 (2 IPs)
Connector		RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
Magnetic Isolation Protection		1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV	1.5 kV
Serial Interface							
RS-232/422/485 Ports		1	1	2	2	4	4
Connector		DB9-M/Terminal Block	DB9-M/Terminal Block	DB9-M	DB9-M	DB9-M	DB9-M
2 kV Isolation Protection		–	✓	–	✓	–	✓
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, XON/XOFF					
Baudrate		50 bps to 921.6 kbps					
Software							
Network Protocols		ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, IGMP, ARP					
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					
Physical Characteristics							
Housing		Metal					
Weight		475 g (1.05 lb)		485 g (1.07 lb)		560 g (1.23 lb)	
Dimensions		36 x 105 x 140 mm (1.42 x 4.13 x 5.51 in)				45.8 x 134 x 105 mm (1.8 x 5.28 x 4.13 in)	
Environmental Limits							
Operating Temperature	Standard Temperature	0 to 60°C (32 to 140°F)					
	Wide Temperature	-40 to 75°C (-40 to 167°F)					
Operating Humidity		5 to 95% (non-condensing)					
Storage Temperature		-40 to 75°C (-40 to 167°F)					
Power Requirements							
Input Voltage		12 to 48 VDC					
Input Current		220 mA @ 12 VDC	225 mA @ 12 VDC	250 mA @ 12 VDC	290 mA @ 12 VDC	374 mA @ 12 VDC	512 mA @ 12 VDC
Standards and Certifications							
Safety		UL 508					
EMC		EN 55022/24					
EMI		CISPR 22, FCC Part 15B Class A					
EMS		IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF					
Hazardous Location		UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Class I Zone 2, IECEx					
Shock		IEC 60068-2-27					
Freefall		IEC 60068-2-32					
Vibration		IEC 60068-2-6					
Reliability							
Buzzer, RTC, WDT		✓					
MTBF		Time: 262,805 hrs Standard: Telcordia (Bellcore) Standard TR/SR					
Warranty		5 years (see www.moxa.com/warranty)					
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Industrial-Grade Device Servers

	NPort IA5150 NPort IA5150-T	NPort IA5150I NPort IA5150I-T	NPort IA5150-M-SC NPort IA5150-M-SC-T	NPort IA5150I-M-SC NPort IA5150I-M-SC-T	NPort IA5150-S-SC NPort IA5150-S-SC-T	NPort IA5150I-S-SC NPort IA5150I-S-SC-T	NPort IA5250 NPort IA5250-T	NPort IA5250I NPort IA5250I-T
Ethernet Interface								
10/100BaseT(X) Ports	2 (1 IP)	2 (1 IP)	–	–	–	–	2 (1 IP)	2 (1 IP)
100BaseFX Ports	–	–	1 (multi-mode)	1 (multi-mode)	1 (single-mode)	1 (single-mode)	–	–
Connector	RJ45	RJ45	SC	SC	SC	SC	RJ45	RJ45
Magnetic Isolation Protection	1.5 kV	1.5 kV	–	–	–	–	1.5 kV	1.5 kV
Serial Interface								
RS-232/422/485 Ports	1	1	1	1	1	1	2	2
Connector	DB9-M/ Terminal Block	DB9-M/ Terminal Block	DB9-M/ Terminal Block	DB9-M/ Terminal Block	DB9-M/ Terminal Block	DB9-M/ Terminal Block	DB9-M	DB9-M
2 kV Isolation Protection	–	✓	–	✓	–	✓	–	✓
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, XON/XOFF							
Baudrate	110 bps to 230.4 kbps							
Software								
Network Protocols	ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP							
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							
Physical Characteristics								
Housing	Plastic (IP30)							
Weight	360 g (0.79 lb)						380 g (0.84 lb)	
Dimensions	29 x 89.2 x 118.5 mm (0.82 x 3.51 x 4.57 in)							
Environmental Limits								
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)							
Operating Temperature – Wide Temperature	-40 to 75°C (-40 to 167°F)							
Operating Humidity	5 to 95% (non-condensing)							
Storage Temperature	-40 to 75°C (-40 to 167°F)							
Power Requirements								
Input Voltage	12 to 48 VDC							
Input Current	238 mA @ 12 VDC	257 mA @ 12 VDC	315 mA @ 12 VDC	339 mA @ 12 VDC	328 mA @ 12 VDC	333 mA @ 12 VDC	238 mA @ 12 VDC	300 mA max @ 12 VDC
Standards and Certifications								
Safety	UL 508, UL 60950-1							
EMC	EN 55022/24							
EMI	CISPR 22, FCC Part 15B Class A							
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power 4 kV; Signal 2 kV IEC 61000-4-5 Surge: Power 2 kV; Signal 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz, 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF							
Hazardous Location	UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Class 1 Zone 2, IECEx							
Marine	DNV							
Shock	IEC 60068-2-27							
Freefall	IEC 60068-2-32							
Vibration	IEC 60068-2-6							
Reliability								
Buzzer, RTC, WDT	✓							
MTBF	Time: 183,747 hrs Standard: MIL-HDBK-217F	Time: 195,614 hrs Standard: MIL-HDBK-217F	Time: 183,747 hrs Standard: MIL-HDBK-217F	Time: 195,614 hrs Standard: MIL-HDBK-217F	Time: 183,747 hrs Standard: MIL-HDBK-217F	Time: 195,614 hrs Standard: MIL-HDBK-217F	Time: 194,765 hrs Standard: MIL-HDBK-217F	Time: 341,417 hrs Standard: Telcordia (Bellcore) Standard SR-332
Warranty	5 years (see www.moxa.com/warranty)							
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Wireless Device Servers

		NPort W2150A NPort W2150A-T	NPort W2250A NPort W2250A-T
WLAN Interface			
IEEE 802.11a/g/b/n		✓	
Radio Frequency Type		DSSS/OFDM	
WEP		✓	
WPA, WPA2, 802.11i		✓	
Encryption		128-bit TKIP/AES-CCMP EAP-TLS, PEAP/GTC, PEAP/MD5, PEAP/MSCHAPV2, EAP-TTLS/PAP, EAP-TTLS/CHAP, EAP-TTLS/MSCHAP, EAP-TTLS/MSCHAPV2, EAP-TTLS/EAP-MSCHAPV2, EAP-TTLS/EAP-GTC, EAP-TTLS/EAP-MD5, LEAP	
Max. Transmission Rate		54 Mbps	
Max. Transmission Distance		100 m	
LAN Interface			
Ethernet Ports		1 x 10/100 Mbps (RJ45)	
1.5 kV Magnetic Isolation Protection		✓	
Serial Interface			
Number of Ports		1	2
Serial Standards		RS-232/422/485	
Connector		DB9-M	
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, XON/XOFF	
Baudrate		50 bps to 921.6 kbps	
Serial Data Log		64 KB	
Software			
Network Protocols		ICMP, IPv4, TCP, UDP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, SNTP, SSH, HTTPS, ARP	
Configuration Options		Web Console, Serial Console, Telnet Console, Windows Utility	
Management		SNMP MIB-II	
Secure Configuration Options		HTTPS, SSH	
Utilities		NPort Search Utility and NPort Windows Driver Manager	
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	
Physical Characteristics			
Housing		Aluminum	
Weight		547 g (1.21 lb)	557 g (1.23 lb)
Dimensions		77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)	
Environmental Limits			
Operating Temperature	Standard Temperature	0 to 55°C (32 to 131°F)	
	Wide Temperature	-40 to 75°C (-40 to 167°F)	
Operating Humidity		5 to 95% (non-condensing)	
Storage Temperature		-40 to 75°C (-40 to 167°F)	
Power Requirements			
Input Voltage		12 to 48 VDC	
Input Current		179 mA @ 12 VDC	200 mA @ 12 VDC
Standards and Certifications			
Safety		UL 60950-1	
EMC		EN 55022/24	
EMI		CISPR 22, 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: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 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	
Radio		CE (ETSI EN 301 893, ETSI EN 300 328, ETSI EN 301 489-17, ETSI EN 301 489-1), ARIB RCR STD-33, ARIB STD-66	
Reliability			
MTBF		Time: 383,187 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 363,327 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty		5 years (see www.moxa.com/warranty)	
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ZigBee Device Servers

		NPort Z2150 NPort Z2150-T	NPort Z3150 NPort Z3150-T
ZigBee Interface			
RF Standard		802.15.4	
Frequency Band		2.4 GHz	
RF Data Rate		250 kbps	
Encryption		128-bit AES	
Network Topology		Star, Mesh, Cluster tree	
Transmission Distance		100 m	
Ethernet Interface (NPort Z3150 only)			
Ethernet Ports		–	1 x 10/100 Mbps (RJ45)
1.5 kV Magnetic Isolation Protection		–	✓
Serial Interface			
Number of Ports		1	
Serial Standards		RS-232/422/485	
Connector		DB9-M	
Serial Communication Parameters		Data Bits: 8; Stop Bits: 1, 2; Parity: None, Even, Odd	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 2; Parity: None, Even, Odd, Space, Mark
Flow Control		RTS/CTS	RTS/CTS, XON/XOFF
Baudrate		50 bps to 230.4 kbps	50 bps to 921.6 kbps
Software			
Configuration		ZigBee Configuration Utility	Web Console
Management		–	SNMP v1
Secure Configuration Options		–	HTTPS, SSH
Utilities		ZigBee Configuration Utility	NPort Search Utility and NPort Windows Driver Manager
Windows Real COM Drivers		–	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/10 x86/x64, Embedded CE 5.0/6.0, XP Embedded, Windows 2012 x64
Fixed TTY Drivers		–	–
Linux Real TTY Drivers		–	–
Physical Characteristics			
Housing		Aluminum	
Weight		340 g (0.75 lb)	780 g (1.72 lb)
Dimensions		52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)	77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
Environmental Limits			
Operating Temperature	Standard Temperature	0 to 55°C (32 to 131°F)	
	Wide Temperature	-40 to 75°C (-40 to 167°F)	
Operating Humidity		5 to 95% (non-condensing)	
Storage Temperature		-40 to 75°C (-40 to 167°F)	
Power Requirements			
Input Voltage		12 to 48 VDC	
Input Current		45 mA @ 12 VDC	120 mA @ 12 VDC
Standards and Certifications			
Safety		UL 60950-1	
EMC		EN 55022/24	
EMI		CISPR 22, 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	
Radio		CE (ETSI EN 301 893, ETSI EN 300 328, ETSI EN 301 489-1-17, ETSI EN 301 489-1)	
Reliability			
MTBF		Time: 2,542,774 hrs Standard: Telcordia (Bellcore) Standard TR/SR	Time: 1,109,589 hrs Standard: Telcordia (Bellcore) Standard TR/SR
Warranty		5 years (see www.moxa.com/warranty)	
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NPort® S8000 Series

Combo switch / serial device servers

NPort S8455I NPort S8455I Fiber NPort S8458

- 4-port RS-232/422/485 serial device server
  - Serial QoS for configuring serial data transmission priority
  - 2 kV (DC) isolation protection for each serial port (S8455I only)
  - Adjustable pull high/low resistor for RS-485 ports (S8455I only)
- Built-in managed Ethernet switch
  - S8455I Fiber: Two fiber Ethernet ports and three Ethernet ports
  - S8455I All Copper: Five Ethernet ports
  - S8458: Four fiber Ethernet ports and four Ethernet ports
- Ethernet redundancy with Turbo Ring and Turbo Chain (recovery time < 20 ms) or RSTP/STP (IEEE 802.1w/D) supported
- QoS, IGMP-snooping/GMRP, VLAN, LACP, SNMPv1/v2c/v3, RMON supported
- Surge protection for serial, power, and Ethernet

Overview

The NPort S8000 series combines an industrial device server with a full-function managed Ethernet switch with 4 RS-232/422/485 serial ports, allowing you to easily install, manage, and maintain the product. Combining a device server and switch in one product allows you to save space in your cabinet, reduce overall power consumption, and reduce costs, since you will not need to purchase a switch and serial device server separately.

Supports the Full Range of NPort 5000 Series Device Server Functions

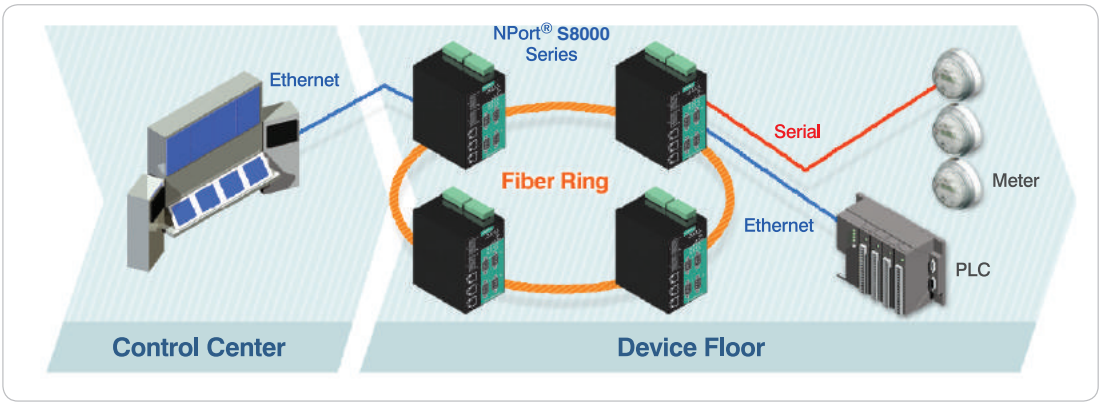
The NPort S8000 series supports the complete array of NPort 5000 series device server functions. You can network your existing serial devices by connecting up to 4 serial devices through Ethernet ports, with only basic configuration required. In addition, data transmission between the serial and Ethernet interfaces is bi-directional.

Full-Function Managed Ethernet Switch

The NPort S8000 series has a built-in full-function managed Ethernet switch that supports QoS, IGMP-snooping/GMRP, VLAN, Port Trunking, SNMPv1/v2c/v3, and IEEE 802.1X, allowing you to handle virtually any kind of application. Ethernet redundancy, which is used to increase the reliability and availability of your industrial Ethernet network, is provided by Moxa's Turbo Ring and Turbo Chain technology (recovery time < 20 ms) or RSTP/STP (IEEE 802.1w/D).

Ring Redundancy at the Device Level

Device-level communication networks for industrial automation are very critical since they are used to control and monitor device processes. The reliability of these communications depends on ring redundancy at the device level. which is designed to provide fast network fault detection and reconfiguration in order to support the most demanding control applications. The NPort S8000 series integrates a full function NPort device server with an industrial switch to carry serial and Ethernet devices at the same time. In addition, the NPort S8000 can also achieve ring redundancy with standard STP/RSTP and Moxa's proprietary Turbo Ring or Turbo Chain 2 redundancy protocols. This all-in-one design can be used to optimize and simplify your device network and enhance reliability.



Rugged Design with Complete Protection

UL 508 Safety
The NPort S8000 series complies with the UL 508 standard, which covers safety requirements for industrial control equipment.

Level 4 ESD (NPort S8458 only)
The NPort S8000 series supports high level, 8/15 kV, ESD protection to prevent damage from static electricity.

Full Surge Protection (NPort S8458 only)
The NPort S8000 series is equipped with surge protection for power, Ethernet interface, and serial interface to protect against voltage spikes.

2 kV Serial Isolation (NPort S8455I only)
Each serial port is protected by 2 kV of isolation protection to guard against harmful currents.

Appearance

General Specifications

Port Summary
Serial Ports: 4 RS-232/422/485 ports
Ethernet Switch Ports:
NPort S8455I all copper: 5 RJ45 copper ports
NPort S8455I fiber: 3 RJ45 copper ports and 2 fiber ports
NPort S8458: 4 RJ45 copper ports and 4 fiber ports
Console Ports: 1 (8-pin RJ45 connector)

Physical Characteristics
Housing: Metal
Weight:
NPort S8455I: 578 g (1.27 lb)
NPort S8458: 1,105 g (2.44 lb)
Dimensions:
NPort S8455I: 73.1 x 134 x 125 mm (2.88 x 5.27 x 4.92 in)
NPort S8458: 93 x 144 x 125 mm (3.66 x 5.64 x 4.92 in)

Environmental Limits
Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models:
NPort S8455I-T: -40 to 75°C (-40 to 167°F)
NPort S8458-T: -40 to 85°C (-40 to 185°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:
NPort S8455I: 935 mA @ 12 VDC
NPort S8458: 940 mA @ 12 VDC

Standards and Certifications
Safety: UL 508, UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
NPort S8455I:
IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power 1 kV (4 kV for all copper models); Signal: 0.25 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
NPort S8458 series:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
Hazardous Location: UL/cUL Class I Division 2 Groups A/B/C/D (S8455I all copper model only)

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

Device Server Specifications

Serial Interface

Number of Ports: 4
Serial Standards: RS-232/422/485
Connector: DB9 male
Serial Line Protection:
2 kV isolation protection (NPort S8455I only)
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 KΩ, 150 KΩ
Terminator for RS-485: 120 Ω
Console Port: Dedicated RS-232 console port (8-pin RJ45)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and XON/XOFF
Baudrate: 50 bps to 921.6 Kbps

Serial Signals

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

Software

Configuration Options: Web Console, Telnet Console, Serial Console, Windows 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
Operation Modes: Real COM, TCP Server, TCP Client, UDP, RFC2217
Management: SNMP MIB-II

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:
NPort S8455I Single-mode: 286,993 hrs
NPort S8455I Multi-mode: 200, 951 hrs
NPort S8455I All copper: 287,354 hrs
NPort S8458: 163,624 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

Ethernet Switch Specifications

Ethernet Interface

Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100BaseFX
IEEE 802.3x for Flow Control
IEEE 802.1D for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
IEEE 802.1Q for VLAN Tagging
IEEE 802.1p for Class of Service
IEEE 802.1x for Authentication
IEEE 802.3ad for Port Trunk with LACP
Network Protocols: ICMP, IPv4, TCP, UDP, ARP, Telnet, DNS, HTTP, SMTP, SNTP, IGMPv1/v2, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNTP, SMTP, RARP, GMRP, LACP, RMON
MIB: MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9
Flow Control: IEEE 802.3x flow control, back pressure flow control interface

Switch Properties

Priority Queues: 4
Max. Number of Available VLANs: 64
VLAN ID Range: VID 1 to 4094
IGMP Groups: 256

Optical Fiber Interface

		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).

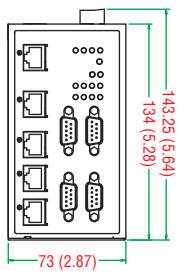
Switch Interface

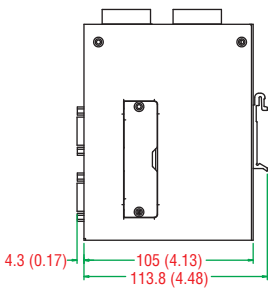
RJ45 Ports: 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
DIP Switches: Turbo Ring, Master, Coupler, Reserve
Alarm Contact: 2 relay outputs with current carrying capacity of 1A @ 24 VDC

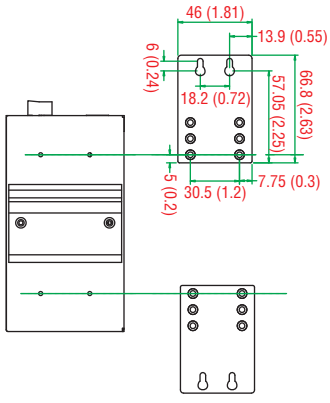
Dimensions

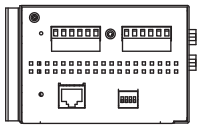
Unit: mm (inch)

NPort S8455I







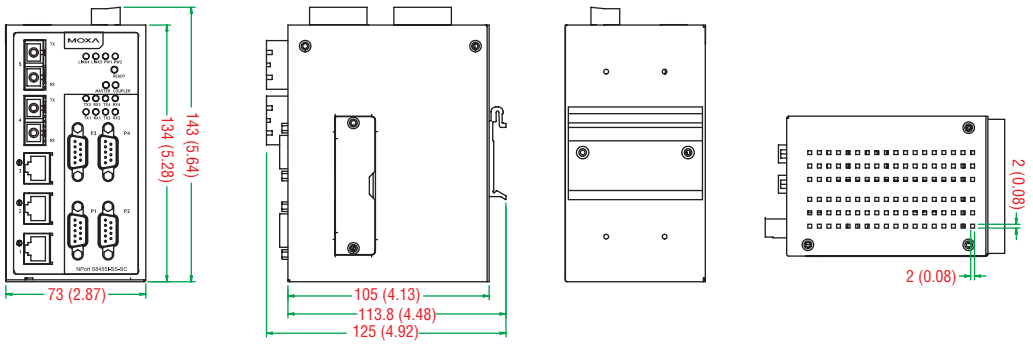


Panel-Mounting Kit

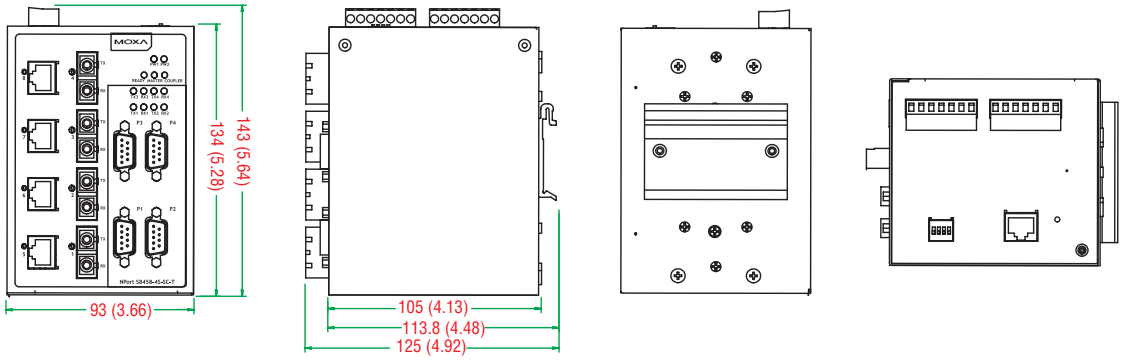
Dimensions

Unit: mm (inch)

NPort S8455I Fiber

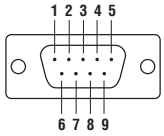


NPort S8458



Pin Assignment

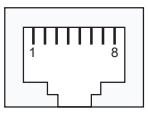
DB9 male connector



Serial Port (DB9 male connector)

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

8-pin RJ45 connector



Console Port (RJ45)

PIN	RS-232
1	DSR
2	RTS
3	GND
4	TxD
5	RxD
6	DCD
7	CTS
8	RTS

Ethernet Port (RJ45)

PIN	Signal
1	RXD+
2	RXD-
3	TXD+
4	–
5	–
6	TXD-
7	
8	

Ordering Information

Available Models

NPort 8455I: 4 RS-232/422/485 ports, 5 10/100M Ethernet ports, 12 to 48 VDC, 2 kV isolation protection, 0 to 60°C operating temperature
NPort S8455I-T: 4 RS-232/422/485 ports, 5 10/100M Ethernet ports, 12 to 48 VDC, 2 kV isolation protection, -40 to 75°C operating temperature
NPort S8455I-MM-SC: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M multi-mode fiber ports with SC connector, 12 to 48 VDC, 2 kV isolation protection, 0 to 60°C operating temperature
NPort S8455I-SS-SC: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M single-mode fiber ports with SC connector, 12 to 48 VDC, 2 kV isolation protection, 0 to 60°C operating temperature
NPort S8455I-MM-SC-T: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M multi-mode fiber ports with SC connector, 12 to 48 VDC, 2 kV isolation protection, -40 to 75°C operating temperature
NPort S8455I-SS-SC-T: 4 RS-232/422/485 ports, 3 10/100M Ethernet ports, 2 100M multi-mode fiber ports with SC connector, 12 to 48 VDC, 2 kV isolation protection, -40 to 75°C operating temperature
NPort S8458-4S-SC-T: 4 RS-232/422/485 ports, 4 10/100M Ethernet ports, 4 100M single-mode fiber ports with SC connector, 12 to 48 VDC, -40 to 85°C operating temperature

Package Checklist

- 1 NPort S8000 device server
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Optional Accessories (can be purchased separately)

CBL-PJTB-10: Non-locking barrel plug to bare-wires cable
Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications
MXview: Moxa industrial network management software

NPort® 5000AI-M12 Series

Award-winning Product
TAIWAN EXCELLENCE 2013

Railway 1, 2, and 4-port RS-232/422/485 serial device servers

- Speedy 3-step web-based configuration
- COM port grouping and UDP multicast applications
- Real COM/TTY drivers for Windows and Linux
- Standard TCP/IP interface and versatile TCP and UDP operation modes
- Compliant with EN 50121-4 and essential sections of EN 50155
- M12 connector and IP40 metal housing
- 2 kV isolation for serial signals

EN 50121

Overview

The NPort 5000AI-M12 serial device servers are designed to make serial devices network-ready in an instant, and provides direct access to serial devices from anywhere on the network. Moreover, the NPort 5000AI-M12 is compliant with EN 50121-4 and essential sections of EN 50155, covering operating temperature, power input voltage, surge, ESD, and vibration, making them suitable for rolling stock and wayside applications where high levels of vibration exist in the operating environment.

3-step Web-Based Configuration

The NPort 5000AI-M12's 3-step web-based configuration tool is straightforward and user-friendly. The NPort 5000AI-M12's web console guides users through 3 simple configuration steps that are necessary to activate the serial-to-Ethernet application. With this speedy 3-step web-based configuration, a user only needs to spend an average of 30 seconds to complete the NPort settings and enable the application, saving a great amount of time and effort.

Easy to Troubleshoot

NPort 5000AI-M12 device servers support SNMP, which can be used to monitor all units over Ethernet. Each unit can be configured to send trap messages automatically to the SNMP manager when user-defined errors are encountered. For users who do not use SNMP manager, an e-mail alert can be sent instead. Users can define the trigger for the alerts using Moxa's Windows utility, or the web console. For example, alerts can be triggered by a warm start, a cold start, or a password change.

Specifications

Ethernet Interface

Number of Ports: 1
Speed: 10/100 Mbps, auto MDI/MDIX
Connector: M12

Serial Interface

Number of Ports: 1, 2, 4
Serial Standards: RS-232/422/485
Connector: DB9 male
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate: 50 bps to 921.6 kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2, ARP, LLDP
Configuration Options: Web Console (with new Quick Setup), 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

Physical Characteristics

Housing: Metal, IP40 protection
Weight: 686 g (1.51 lb)
Dimensions: 80 x 216.6 x 52.9 mm (3.15 x 8.53 x 2.08 in)

Environmental Limits

Operating Temperature:
Standard Models: -25 to 55°C (-13 to 131°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC
Note: Compliant with EN 50155 on 24/48 VDC
Input Current:
NPort 5150AI-M12: 310 mA @ 12 VDC
NPort 5250AI-M12: 360 mA @ 12 VDC
NPort 5450AI-M12: 440 mA @ 12 VDC
Connector: M12

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 2 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
Rail Traffic: EN 50155 (essential compliance*), EN 50121-4
*Moxa defines "essential compliance" to include those EN 50155 requirements that make products more suitable for rolling stock railway applications.
Vibration: IEC 60068-2-6

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:
NPort 5150AI-M12: 789,341 hrs
NPort 5250AI-M12: 639,622 hrs
NPort 5450AI-M12: 467,777 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

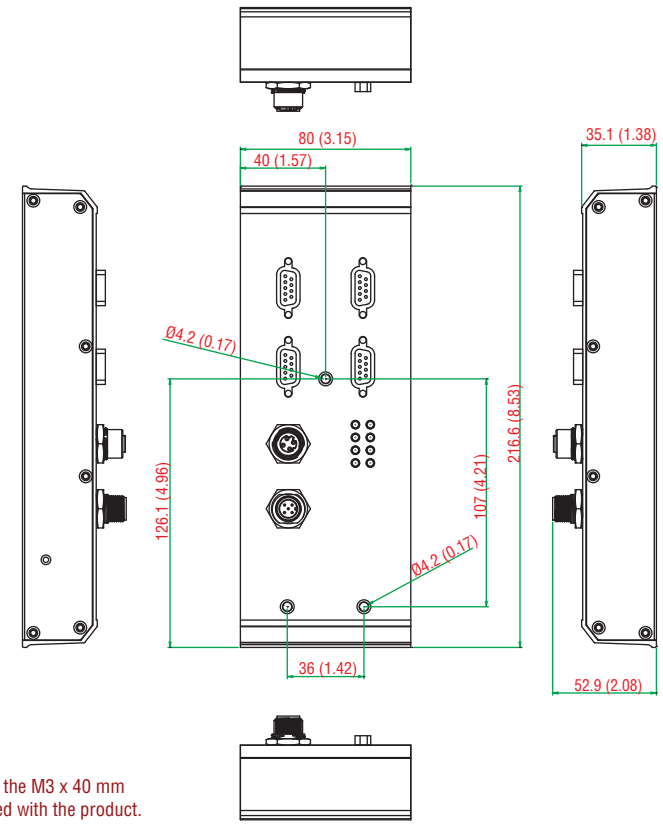
Warranty

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

Dimensions

All models of the NPort 5000AI-M12 series (NPort 5150AI-M12, NPort 5250AI-M12, and NPort 5450AI-M12) have the same dimensions.

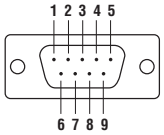
Unit: mm (inch)



Be sure to use the M3 x 40 mm screws included with the product.

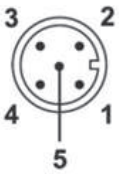
Pin Assignment

DB9 male connector



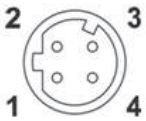
PIN	RS-232	RS-422/485-4w	RS-485-2w
1	DCD	TxD-(A)	–
2	RxD	TxD+(B)	–
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	–	–
7	RTS	–	–
8	CTS	–	–

Power input



PIN	Description
1	Input V+
2	Not assigned
3	Input V-
4	Not assigned
5	Function ground

Ethernet port



PIN	Description
1	TD+
2	RD+
3	TD-
4	RD-

Ordering Information

Available Models

NPort 5150AI-M12: 1-port RS-232/422/485 device server with M12 connector, M12 power input, -25 to 55°C operating temperature
NPort 5150AI-M12-CT: 1-port RS-232/422/485 device server with M12 connector, M12 power input, -25 to 55°C operating temperature, conformal coating
NPort 5150AI-M12-T: 1-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -40 to 75°C operating temperature
NPort 5150AI-M12-CT-T: 1-port RS-232/422/485 device server with M12 connector, M12 power input, conformal coating, -40 to 75°C operating temperature
NPort 5250AI-M12: 2-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature
NPort 5250AI-M12-CT: 2-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature, conformal coating
NPort 5250AI-M12-T: 2-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -40 to 75°C operating temperature
NPort 5250AI-M12-CT-T: 2-port RS-232/422/485 device server with M12 connector, M12 power input, conformal coating, -40 to 75°C operating temperature
NPort 5450AI-M12: 4-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature
NPort 5450AI-M12-CT: 4-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -25 to 55°C operating temperature, conformal coating
NPort 5450AI-M12-T: 4-port RS-232/422/485 device server, 1 10/100BaseT(X)port with M12 connector, M12 power input, -40 to 75°C operating temperature
NPort 5450AI-M12-CT-T: 4-port RS-232/422/485 device server with M12 connector, M12 power input, conformal coating, -40 to 75°C operating temperature

Package Checklist

- 1 NPort 5000AI-M12 device server
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Optional Accessories (can be purchased separately)

Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications
MXview: Moxa industrial network management software with 50, 100, 250, 500, 1000, or 2000 nodes
DR-75-48/DR-120-48: 75/120 W DIN-rail 48 VDC power supplies

NPort® 5100A Series

1-port RS-232/422/485 serial device servers

- Only 1 W power consumption
- Speedy 3-step web-based configuration
- Surge protection for serial, Ethernet, and power lines
- COM port grouping and UDP multicast applications
- Screw connectors for secure installation
- Real COM/TTY drivers for Windows and Linux
- Standard TCP/IP interface and versatile TCP and UDP operation modes
- Connect up to 8 TCP hosts

Overview

The NPort® 5100A device servers are designed to make serial devices network-ready in an instant and give your PC software direct access to serial devices from anywhere on the network. The NPort® 5100A device servers are ultra-lean, ruggedized, and user-friendly, making simple and reliable serial-to-Ethernet solutions possible.

A Greener Serial-to-Ethernet Solution

The Moxa MiiNe is a small but powerful ARM-based serial-to-Ethernet SoC with RAM and Flash embedded. With the MiiNe inside, the NPort® 5110A series becomes the world's only device server with power consumption less than 1 W. The NPort® 5100A series saves at least 50% on power consumption compared to existing solutions on the market, helping engineers meet the tough environmental compliance challenges found in today's industrial environments.

Surge-Protected Serial, Ethernet, and Power Lines

Surge, which is typically caused by high voltages that result from switching and lightning transients, is a common threat to all electrical devices. Moxa's leading-edge surge immunity solution, which is applied to the NPort® 5100A's serial, power, and Ethernet lines, is tested and proven compliant with IEC 61000-4-5. This state-of-the-art surge protection provides a robust serial-to-Ethernet solution that can protect electrical devices from voltage spikes and withstand electrically noisy environmental conditions.

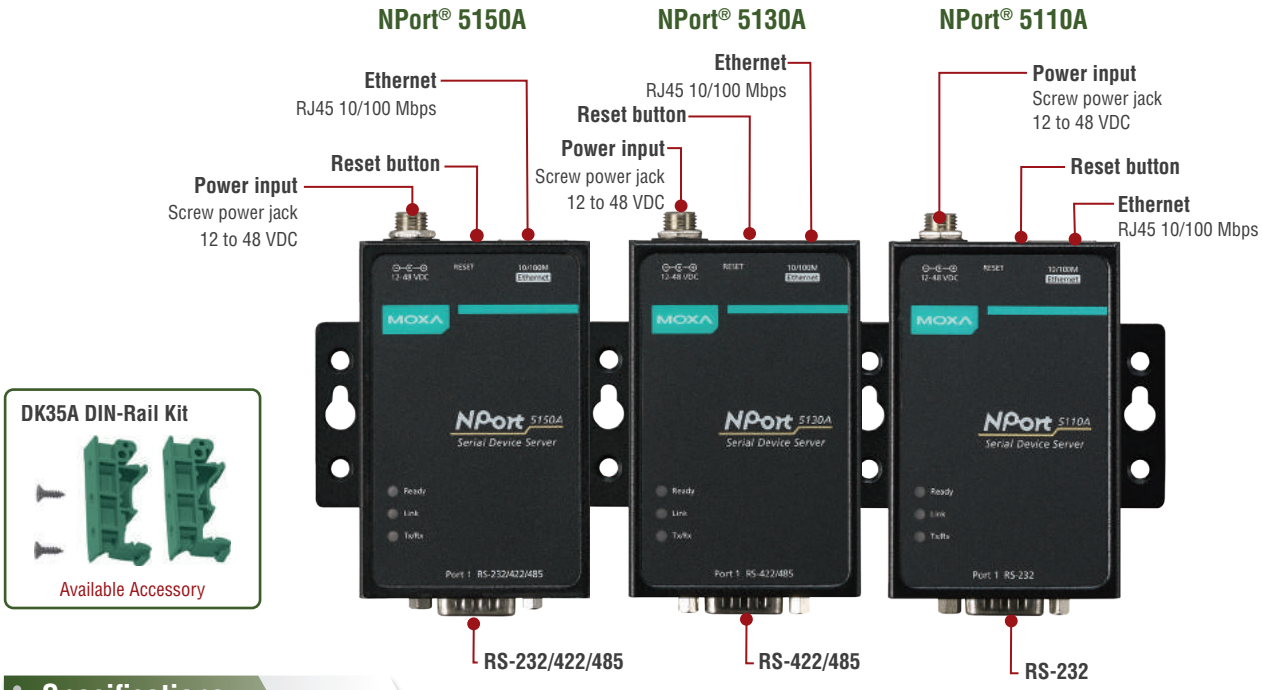
3-step Web-Based Configuration

The NPort® 5100A's 3-step web-based configuration tool is straightforward and user-friendly. The NPort® 5100A's web console guides users through 3 simple configuration steps that are necessary to activate the serial-to-Ethernet application. With this speedy 3-step web-based configuration, a user only needs to spend an average of 30 seconds to complete the NPort® settings and enable the application, saving a great amount of time and effort.

Easy to Troubleshoot

NPort® 5100A device servers support SNMP, which can be used to monitor all units over Ethernet. Each unit can be configured to send trap messages automatically to the SNMP manager when user-defined errors are encountered. For users who do not use SNMP manager, an e-mail alert can be sent instead. Users can define the trigger for the alerts using Moxa's Windows utility, or the web console. For example, alerts can be triggered by a warm start, a cold start, or a password change.

Appearance



DK35A DIN-Rail Kit

Available Accessory

Specifications

Ethernet Interface

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

Serial Interface

Number of Ports: 1
Serial Standards:
NPort 5110A: RS-232
NPort 5130A: RS-422/485
NPort 5150A: RS-232/422/485
Connector: DB9 male
Serial Line Protection: Level 1 surge, EN 61000-4-5
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate: 50 bps to 921.6 kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2, ARP
Configuration Options: Web Console (with new Quick Setup), Serial Console (NPort 5110A/5150A only), 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

Physical Characteristics

Housing: Metal
Weight: 340 g (0.75 lb)
Dimensions:
Without ears: 52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)
With ears: 75.2 x 80 x 22 mm (2.96 x 3.15 x 0.87 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
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:
NPort 5110A: 82.5 mA @ 12 VDC
NPort 5130A: 89.1 mA @ 12 VDC
NPort 5150A: 92.4 mA @ 12 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
IEC 61000-4-11 DIPs

Reliability

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

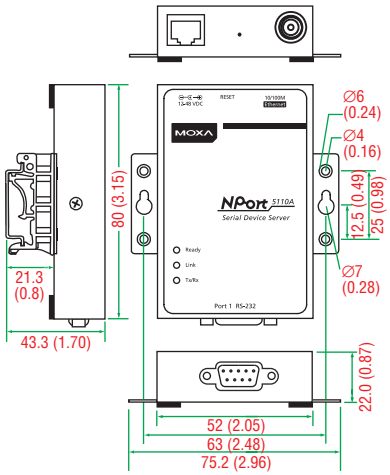
MTBF (mean time between failures)
Time: 2,231,530 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

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

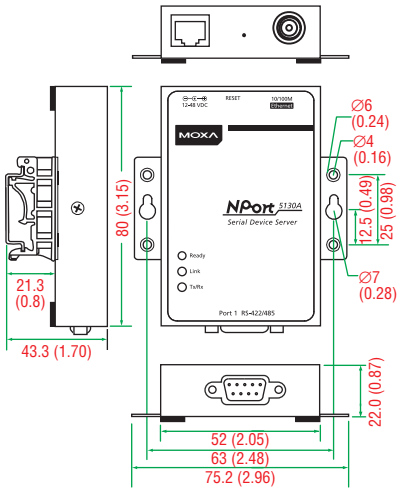
Dimensions

Unit: mm (inch)

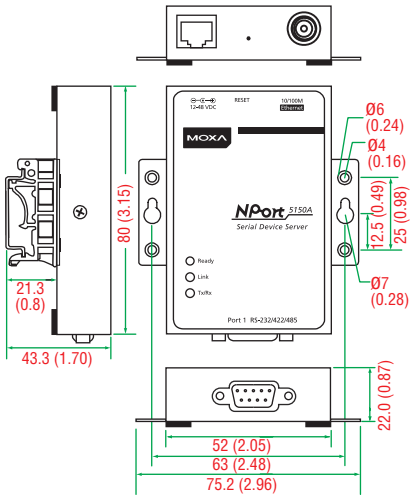
NPort® 5110A



NPort® 5130A

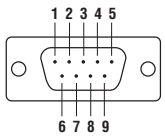


NPort® 5150A



Pin Assignment

DB9 male connector



NPort® 5110A (RS-232)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

NPort® 5130A (RS-422/485)

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

NPort® 5150A (RS-232/422/485)

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 5110A: 1-port RS-232 device server, 0 to 60°C operating temperature
NPort 5130A: 1-port RS-422/485 device server, 0 to 60°C operating temperature
NPort 5150A: 1-port RS-232/422/485 device server, 0 to 60°C operating temperature
NPort 5110A-T: 1-port RS-232 device server, -40 to 75°C operating temperature
NPort 5130A-T: 1-port RS-422/485 device server, -40 to 75°C operating temperature
NPort 5150A-T: 1-port RS-232/422/485 device server, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 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 female to terminal block adapter for RS-422/485 applications
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 5100A device server
- 100 to 240 VAC power adapter (excluding T models)*
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

*The package includes one power adapter suitable for your region.

NPort® P5150A Series

1-port RS-232/422/485 PoE serial device servers

- IEEE 802.3af-compliant PoE PD equipment
- Speedy 3-step web-based configuration
- Surge protection for serial, Ethernet, and power lines
- COM port grouping and UDP multicast applications
- Screw connectors for secure installation
- Real COM/TTY drivers for Windows and Linux
- Standard TCP/IP interface and versatile TCP and UDP operation modes

PoE Power over Ethernet

Overview

NPort® P5150A device servers are designed to make serial devices network-ready in an instant. It is a PD device and is IEEE 802.3af compliant, so it can by powered by a PoE PSE device without an additional power supply. Use the NPort® P5150A device servers to give your PC software direct access to serial devices from anywhere on the network. The NPort® P5150A device servers are ultra-lean, ruggedized, and user-friendly, making simple and reliable serial-to-Ethernet solutions possible.

Surge-Protected Serial, Ethernet, and Power Lines

Surge, which is typically caused by high voltages that result from switching and lightning transients, is a common threat to all electrical devices. Moxa's leading-edge surge immunity solution, which is applied to the NPort® P5150A's serial, power, and Ethernet lines, is tested and proven compliant with IEC 61000-4-5. This state-of-the-art surge protection provides a robust serial-to-Ethernet solution that can protect electrical devices from voltage spikes and withstand electrically noisy environmental conditions.

3-step Web-Based Configuration

The NPort® P5150A's 3-step web-based configuration tool is straightforward and user-friendly. The NPort® P5150A's web console guides users through 3 simple configuration steps that are necessary to activate the serial-to-Ethernet application. With this speedy 3-step web-based configuration, a user only needs to spend an average of 30 seconds to complete the NPort® settings and enable the application, saving a great amount of time and effort.

Easy to Troubleshoot

NPort® P5150A device servers support SNMP, which can be used to monitor all units over Ethernet. Each unit can be configured to send trap messages automatically to the SNMP manager when user-defined errors are encountered. For users who do not use SNMP manager, an e-mail alert can be sent instead. Users can define the trigger for the alerts using Moxa's Windows utility, or the web console. For example, alerts can be triggered by a warm start, a cold start, or a password change.

Appearance

NPort® P5150A

DK35A DIN-Rail Kit

Available Accessory

Specifications

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

Serial Interface
Number of Ports: 1
Serial Standards: RS-232/422/485
Connector: DB9 male
Serial Line Protection: Level 2 Surge, EN61000-4-5
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate: 50 bps to 921.6 kbps

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

Software
Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2, ARP
Configuration Options: Web Console (with new Quick Setup), 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

Physical Characteristics
Housing: Metal
Weight: 300 g (0.66 lb)
Dimensions:
Without ears: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
With ears: 100 x 111 x 26 mm (3.94 x 4.37 x 1.02 in)

Environmental Limits
Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
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 (supplied by power adapter) or 48 VDC (supplied by PoE)
Input Current:
DC Jack I/P: 125 mA @ 12 VDC
PoE I/P: 180 mA @ 48 VDC

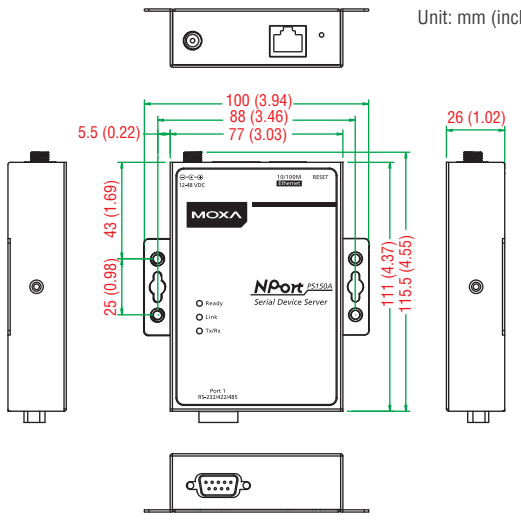
Standards and Certifications
Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
IEC 61000-4-8 PFMF
IEC 61000-4-11 DIPs

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

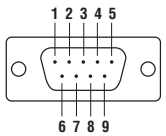
MTBF (mean time between failures)
Time: 2,231,530 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

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

Dimensions
Unit: mm (inch)



Pin Assignment
DB9 male connector



NPort® P5150A (RS-232/422/485)

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 P5150A: 1-port RS-232/422/485 PoE device server, 0 to 60°C operating temperature
NPort P5150A-T: 1-port RS-232/422/485 PoE device server, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)
DK35A: DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws
Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications
Note: Additional power adapters can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist
- 1 NPort P5150A device server
- 4 stick-on pads
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

NPort® 5200A Series

2-port RS-232/422/485 serial device servers

- Speedy 3-step web-based configuration
- Surge protection for serial, Ethernet, and power lines
- COM port grouping and UDP multicast applications
- Screw connectors for secure installation
- Dual DC power inputs with power jack and terminal block
- Versatile TCP and UDP operation modes

Overview

The NPort® 5200A device servers are designed to make serial devices network-ready in an instant and give your PC software direct access to serial devices from anywhere on the network. The NPort® 5200A device servers are ultra-lean, ruggedized, and user-friendly, making simple and reliable serial-to-Ethernet solutions possible.

A Greener Serial-to-Ethernet Solution

The Moxa MiiNe is a small but powerful ARM-based serial-to-Ethernet SoC with RAM and Flash embedded. The NPort® 5200A series saves at least 50% on power consumption compared to existing solutions on the market, helping engineers meet the tough environmental compliance challenges found in today's industrial environments.

Surge-Protected Serial, Ethernet, and Power Lines

Surge, which is typically caused by high voltages that result from switching and lightning transients, is a common threat to all electrical devices. Moxa's leading-edge surge immunity solution, which is applied to the NPort® 5200A's serial, power, and Ethernet lines, is tested and proven compliant with IEC 61000-4-5. This state-of-the-art surge protection provides a robust serial-to-Ethernet solution that can protect electrical devices from voltage spikes and withstand electrically noisy environmental conditions.

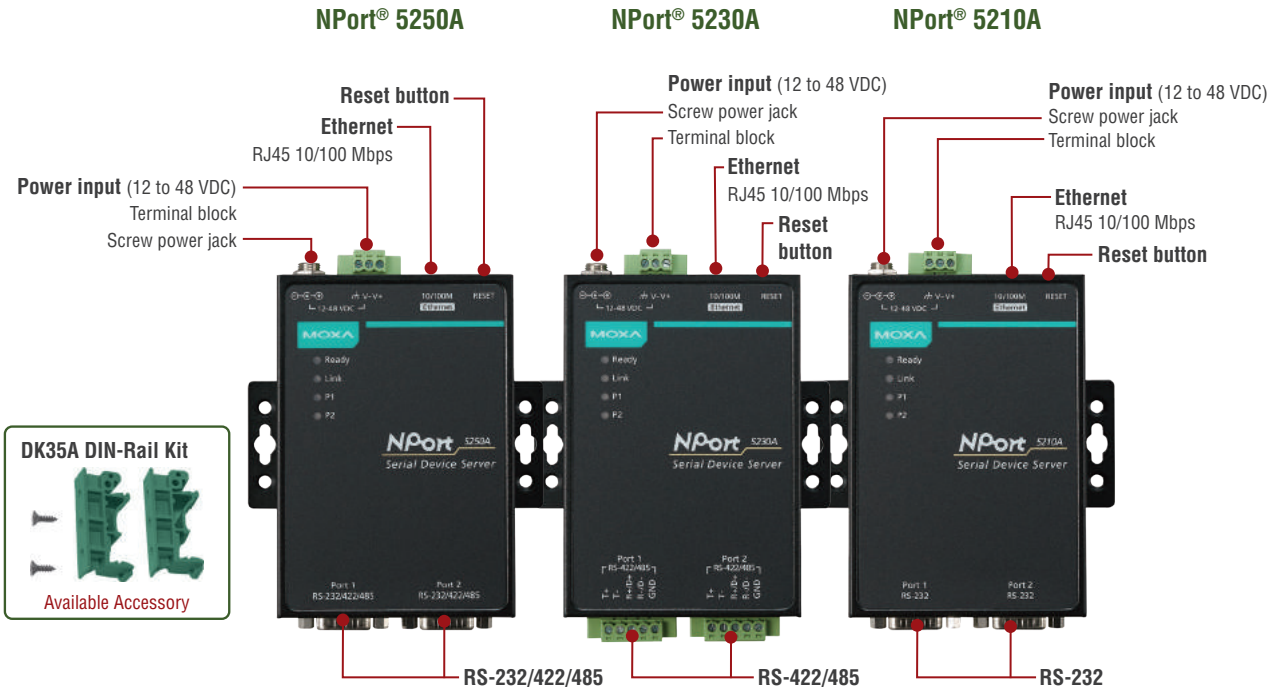
3-step Web-Based Configuration

The NPort® 5200A's 3-step web-based configuration tool is straightforward and user-friendly. The NPort® 5200A's web console guides users through 3 simple configuration steps that are necessary to activate the serial-to-Ethernet application. With this speedy 3-step web-based configuration, a user only needs to spend an average of 30 seconds to complete the NPort® settings and enable the application, saving a great amount of time and effort.

COM Port Grouping

The NPort® 5200A's COM Grouping function allows you to create a COM Group and redirect data from it to several physical COM ports on NPort device servers. With COM Grouping, you will be able to control multiple physical serial ports simultaneously by operating only one COM port.

Appearance



Specifications

Ethernet Interface

Number of Ports: 1
Speed: 10/100 Mbps, auto MDI/MDIX
Connector: 8-pin RJ45
Magnetic Isolation Protection: 1.5 kV built-in
Ethernet Line Protection: EN 61000-4-5 (Surge) Level 2

Serial Interface

Number of Ports: 2
Serial Standards:
NPort 5210A: RS-232
NPort 5230A: RS-422/485
NPort 5250A: RS-232/422/485
Connector:
NPort 5210A/5250A: DB9 male
NPort 5230A: Terminal Block (5 pins per port)
Serial Line Protection: EN 61000-4-5 (Surge) Level 1
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate: 50 bps to 921.6 kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, IGMP V1/2, ARP
Configuration Options: Web Console (with new Quick Setup), Serial Console (NPort 5210A/5250A only), 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

Physical Characteristics

Housing: Metal
Weight: 340 g (0.75 lb)
Dimensions:
Without ears: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
With ears: 100 x 111 x 26 mm (3.94 x 4.37 x 1.02 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
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: 119 mA @ 12 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
IEC 61000-4-11 DIPs

Reliability

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

MTBF (mean time between failures)

Time: 847,750 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

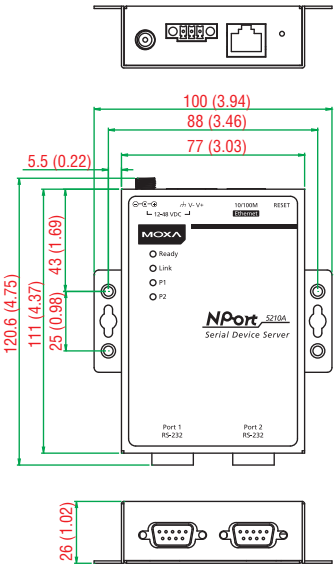
Warranty

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

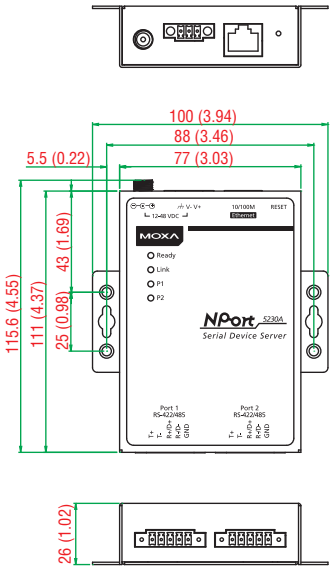
Dimensions

Unit: mm (inch)

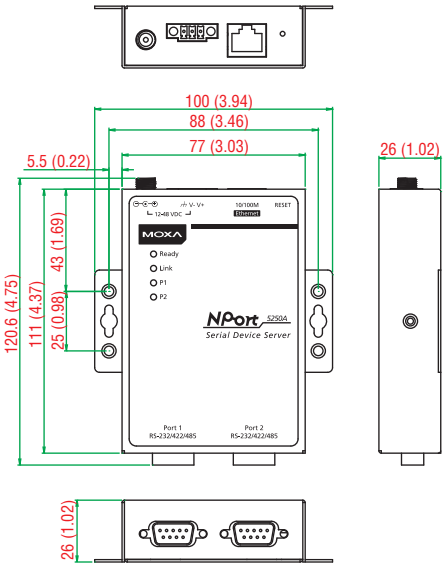
NPort® 5210A



NPort® 5230A



NPort® 5250A

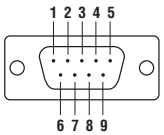


Pin Assignment

NPort® 5250A (RS-232/422/485)

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	–	–

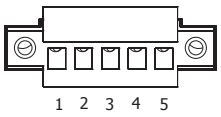
DB9 male connector



NPort® 5230A (RS-422/485)

PIN	RS-422/485-4w	RS-485-2w
1	TxD+(B)	–
2	TxD-(A)	–
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND

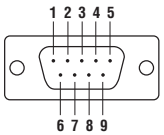
5-contact terminal block



NPort® 5210A (RS-232)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

DB9 male connector



Ordering Information

Available Models

NPort 5210A: 2-port RS-232 device server, 0 to 60°C operating temperature
NPort 5230A: 2-port RS-422/485 device server, 0 to 60°C operating temperature
NPort 5250A: 2-port RS-232/422/485 device server, 0 to 60°C operating temperature
NPort 5210A-T: 2-port RS-232 device server, -40 to 75°C operating temperature
NPort 5230A-T: 2-port RS-422/485 device server, -40 to 75°C operating temperature
NPort 5250A-T: 2-port RS-232/422/485 device server, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws
Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications

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 5200A device server
- 100 to 240 VAC power adapter (excluding T models)*
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

*The package includes one power adapter suitable for your region.

NPort® 5100 Series

1-port RS-232/422/485 serial device servers

- Small size for easy installation
- Real COM/TTY drivers for Windows and Linux
- Standard TCP/IP interface and versatile operation modes
- Easy-to-use Windows utility for configuring multiple device servers
- SNMP MIB-II for network management
- Configure by Telnet, web browser, or Windows utility
- Adjustable pull high/low resistor for RS-485 ports

Specifications

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

Serial Interface
Number of Ports: 1
Serial Standards:
NPort 5110: RS-232
NPort 5130: RS-422/485
NPort 5150: RS-232/422/485
Connector: DB9 male
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate:
NPort 5110: 110 bps to 230.4 kbps
NPort 5130/5150: 50 bps to 921.6 kbps

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

Software
Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, ARP, HTTP, SMTP
Configuration Options: Web Console, Serial Console (NPort 5110/5150 only), 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

Physical Characteristics
Housing: Metal
Weight: 340 g (0.75 lb)
Dimensions:
Without ears: 52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)
With ears: 75.2 x 80 x 22 mm (2.96 x 3.15 x 0.87 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:
NPort 5110: 128.7 mA @ 12 VDC
NPort 5130/5150: 200 mA @ 12 VDC

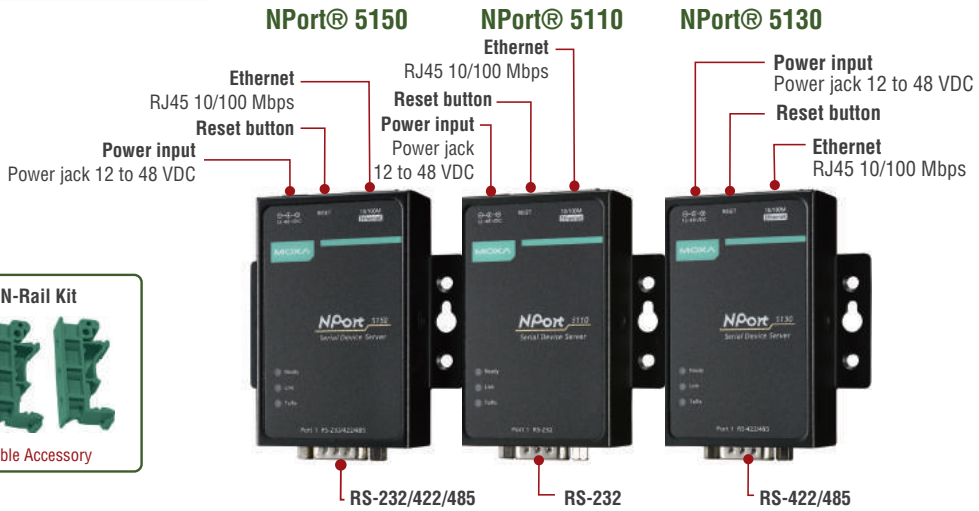
Standards and Certifications
Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
IEC 61000-4-8 PFMF
IEC 61000-4-11 DIPs

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

MTBF (mean time between failures)
Time:
NPort 5110: 3,126,448 hrs
NPort 5130: 2,836,863 hrs
NPort 5150: 2,736,202 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

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

Appearance

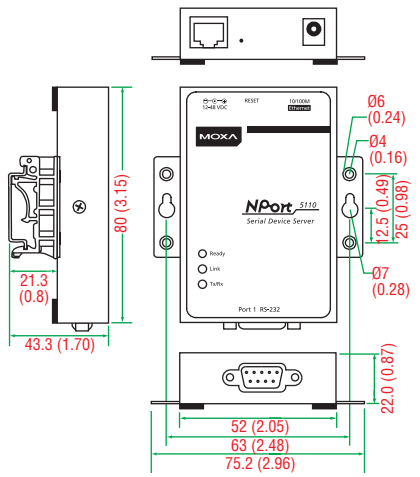


DK35A DIN-Rail Kit

Available Accessory

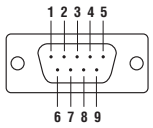
Dimensions

Unit: mm (inch)



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 5110: 1-port RS-232 device server, 0 to 55°C operating temperature
NPort 5130: 1-port RS-422/485 device server, 0 to 55°C operating temperature
NPort 5150: 1-port RS-232/422/485 device server, 0 to 55°C operating temperature
NPort 5110-T: 1-port RS-232 device server, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws
Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications
Note: One power cord suitable for your region is included in the product package. Additional power cords can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist

- 1 NPort 5100 device server
- 100 to 240 VAC standard operating temp. power adapter (excluding T models)*
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

*The package includes one power adapter suitable for your region.

NPort® 5200 Series

2-port RS-232/422/485 serial device servers

- Compact design for easy installation
- Socket modes: TCP server/TCP client/UDP
- Easy-to-use Windows utility for configuring multiple device servers
- Supports 10/100M Ethernet
- Patented ADDC® (Automatic Data Direction Control) for 2-wire and 4-wire RS-485
- SNMP MIB-II for network management

Specifications

Ethernet Interface

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

Serial Interface

Number of Ports: 2
Serial Standards:
NPort 5210: RS-232
NPort 5230: 1 RS-232 port, 1 RS-422/485 port
NPort 5232/5232I: RS-422/485
Connector:
NPort 5210: RJ45 (8 pins)
NPort 5230/5232/5232I: Terminal Block (5 contacts per port)
Serial Line Protection: 2 kV isolation protection (NPort 5232I/5232I-T)
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

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 (RS-232 only), DTR/DSR (NPort 5210 only), XON/XOFF
Baudrate: 110 bps to 230.4 kbps

Serial Signals

RS-232:
NPort 5210: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
NPort 5230: TxD, RxD, RTS, CTS, 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, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP
Configuration Options: Web Console, Serial Console (NPort 5210/5230 only), 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

Physical Characteristics

Housing: Metal
Weight:
NPort 5210: 340 g (0.75 lb)
NPort 5230/5232: 360 g (0.79 lb)
NPort 5232I: 380 g (0.84 lb)
Dimensions:
NPort 5210/5230/5232:
Without ears: 67 x 100.4 x 22 mm (2.64 x 3.95 x 0.87 in)
With ears: 90 x 100.4 x 22 mm (3.54 x 3.95 x 0.87 in)
NPort 5232I:
Without ears: 67 x 100.4 x 35 mm (2.64 x 3.95 x 1.37 in)
With ears: 90 x 100.4 x 35 mm (3.54 x 3.95 x 1.37 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:
NPort 5210: 325 mA @ 12 VDC
NPort 5230: 325 mA @ 12 VDC
NPort 5232: 280 mA @ 12 VDC
NPort 5232I: 365 mA @ 12 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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
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
Marine: DNV (excluding the NPort 5210)
Medical: (NPort 5210 only) EN 60601-1-2 Class B, EN55011

Reliability

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

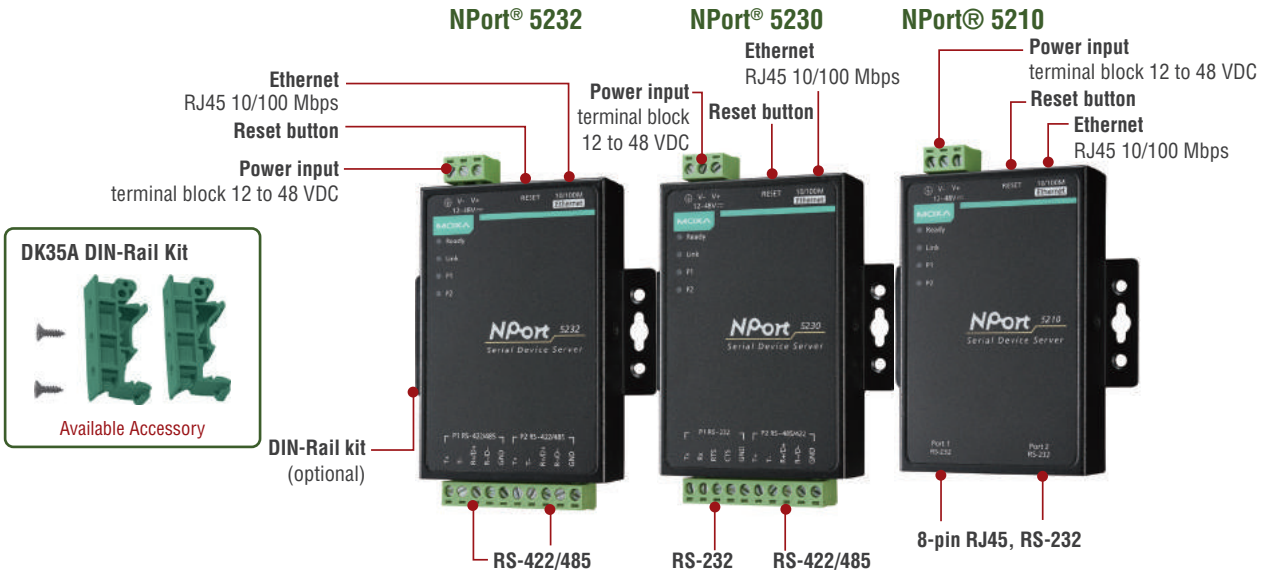
MTBF (mean time between failures)

Time:
NPort 5210: 381,342 hrs
NPort 5230: 377,937 hrs
NPort 5232/5232I: 309,383 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

Warranty

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

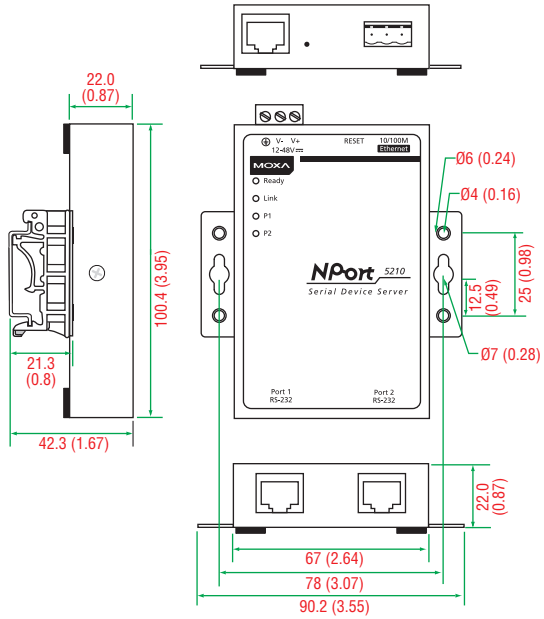
Appearance



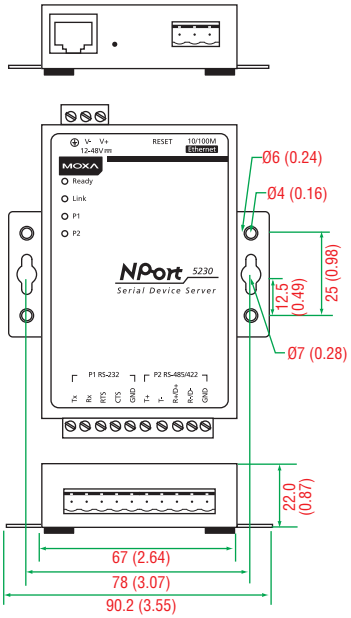
Dimensions

Unit: mm (inch)

NPort® 5210



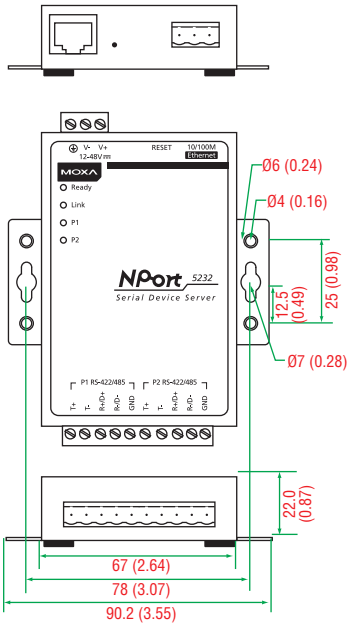
NPort® 5230



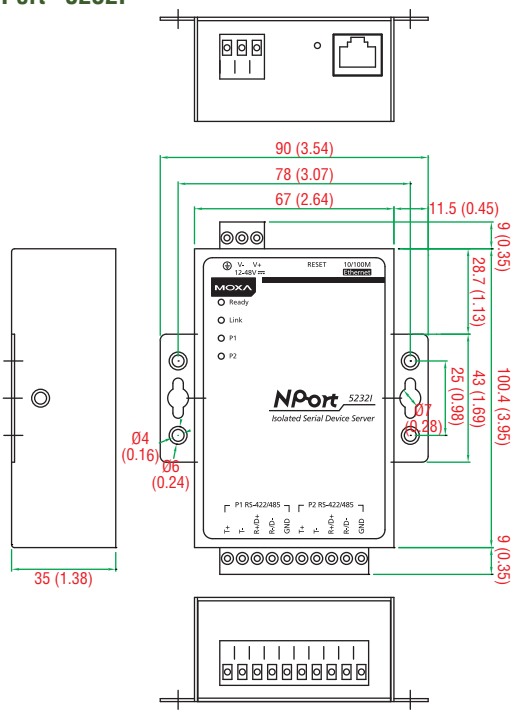
Dimensions

Unit: mm (inch)

NPort® 5232

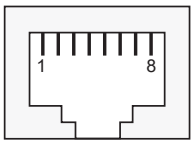


NPort® 5232I



Pin Assignment

8-pin RJ45 connector



NPort® 5210/5210-T (RS-232)

PIN	RS-232
1	DSR (in)
2	RTS (out)
3	GND
4	TxD (out)
5	RxD (in)
6	DCD (in)
7	CTS (in)
8	DTR (out)

Ordering Information

Available Models

NPort 5210: 2-port RS-232 device server, 0 to 55°C operating temperature
NPort 5230: 2-port device server with 1 RS-232 port and 1 RS-422/485 port, 0 to 55°C operating temperature
NPort 5232: 2-port RS-422/485 device server, 0 to 55°C operating temperature
NPort 5232I: 2-port RS-422/485 device server with 2 kV optical isolation, 0 to 55°C operating temperature
NPort 5210-T: 2-port RS-232 device server, -40 to 75°C operating temperature
NPort 5230-T: 2-port device server with 1 RS-232 port and 1 RS-422/485 port, -40 to 75°C operating temperature
NPort 5232-T: 2-port RS-422/485 device server, -40 to 75°C operating temperature
NPort 5232I-T: 2-port RS-422/485 device server with 2 kV optical isolation, -40 to 75°C operating temperature

Package Checklist

- 1 NPort 5200 device server
- 1 power wiring adapter: CBL-PJTB-10
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws
CBL-PJTB-10: Non-locking barrel plug to bare wires cable
Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications
Note: Additional power adapters can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

NPort® 5400 Series

4-port RS-232/422/485 serial device servers

- 10/100M auto-sensing Ethernet
- 4 serial ports supporting RS-232/422/485
- Socket modes: TCP server/TCP client/UDP/Real COM
- Configure via Telnet/Web/Windows utility
- SNMP MIB-II for network management
- 2 kV isolation protection for NPort 5430I/5450I/5450I-T
- -40 to 75°C operating temperature range (T model)

Network-Readiness for up to Four Serial Devices

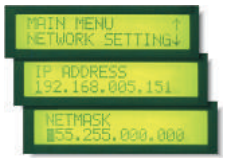
NPort® 5400 device servers can conveniently and transparently connect up to four serial devices to an Ethernet network, allowing you to network your existing serial devices with only basic configuration. Data transmission between the serial and Ethernet interfaces is bi-directional. By using NPort® device servers, you not only protect your current hardware investment, but also allow for future network expansion. You can both centralize the management of your serial devices and distribute management hosts over the network.

Independent Operation Mode for Each Serial Port

NPort® 5400 device servers can be used to connect different devices for remote data polling or event handling over a TCP/IP network. Each serial port on the NPort® 5400 operates independently to provide maximum versatility. For example, port 1 can operate in Driver mode, port 2 in TCP Server mode, and ports 3 and 4 in TCP Client mode.

User-friendly LCD Panel for Easy Installation

An LCD panel is built into the NPort® 5400's top panel, with four buttons for data input, configuration, and operation mode selection. The LCD panel displays the server name, serial number, and IP address, and it can be used to enter or modify parameters such as IP address, netmask, and gateway. (The LCD panel is not available on wide temperature models.)



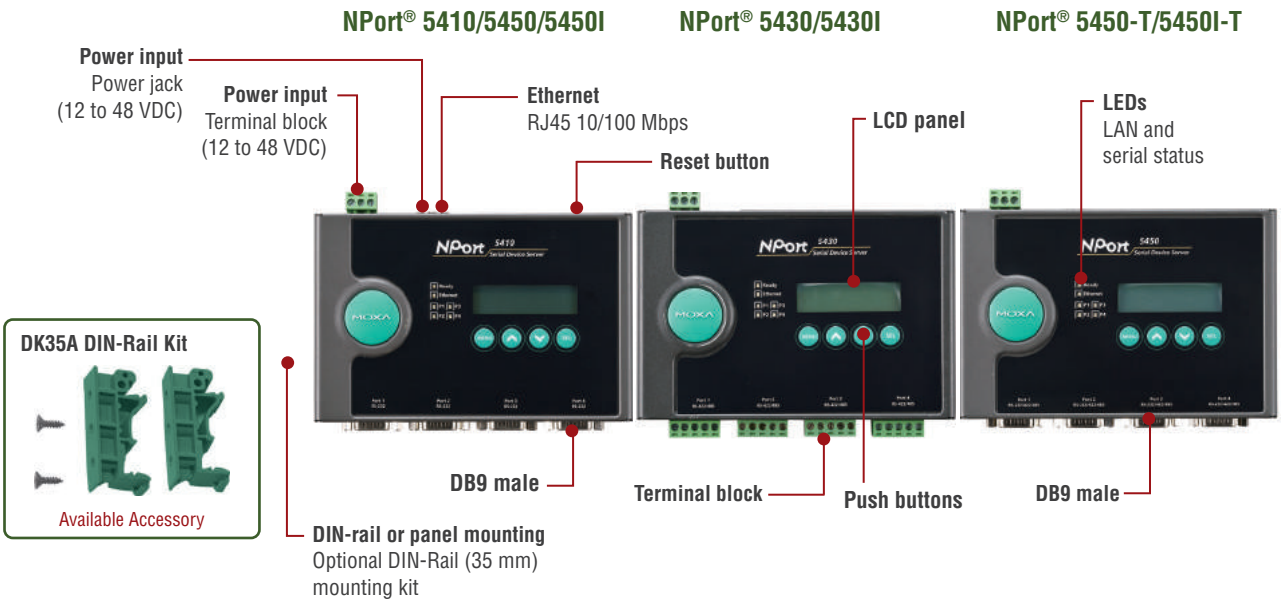
Dual DC Power Inputs

NPort® 5400 device servers support dual power sources by providing both a DC terminal block input and a DC power jack input. Providing two types of power inputs gives users greater flexibility for use with different applications.

Adjustable Termination and Pull High/Low Resistors

The NPort 5400 series provides adjustable termination and pull high/low resistors for RS-485 applications. In some critical environments, termination resistors may be needed to prevent the reflection of serial signals, and the pull high/low resistors may need adjusting to maintain the integrity of the electrical signal. Since no set of resistor values is universally compatible with all environments, the NPort® 5400 has four sets of DIP switches on the bottom panel to set the termination and pull high/low resistor values.

Appearance



Specifications

Ethernet Interface

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

Serial Interface

Number of Ports: 4
Serial Standards:
NPort 5410: RS-232
NPort 5430/5430I: RS-422/485 (software selectable)
NPort 5450/5450I/5450-T/5450I-T: RS-232/422/485 (software selectable)
Connector:
NPort 5410/5450/5450I/5450-T/5450I-T: DB9 male
NPort 5430/5430I: Terminal block
Serial Line Protection:
2 kV isolation protection (NPort 5430I/5450I/5450I-T)
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ
Terminator for RS-485: 120 Ω

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate: 50 bps to 921.6 kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, Rtelnet, ARP
Configuration Options: Web 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

Mini Screen with Push Buttons (for standard temp. models)

LCD Panel: Liquid Crystal Display on the case
Push Buttons: Four push buttons for convenient on-site configuration

Physical Characteristics

Housing: Metal
Weight: 740 g (1.63 lb)
Dimensions:
Without mounting kit: 158 x 103 x 33 mm (6.22 x 4.06 x 1.30 in)
With mounting kit: 181 x 103 x 33 mm (7.14 x 4.06 x 1.30 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:
NPort 5410: 350 mA @ 12 VDC
NPort 5430: 320 mA @ 12 VDC
NPort 5430I: 530 mA @ 12 VDC
NPort 5450/5450-T: 350 mA @ 12 VDC
NPort 5450I/5450I-T: 554 mA @ 12 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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

Marine: DNV (standard temp. models only)
Medical: EN 60601-1-2 Class B, EN 55011 (NPort 5410/5450/5450I only)

Reliability

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

MTBF (mean time between failures)

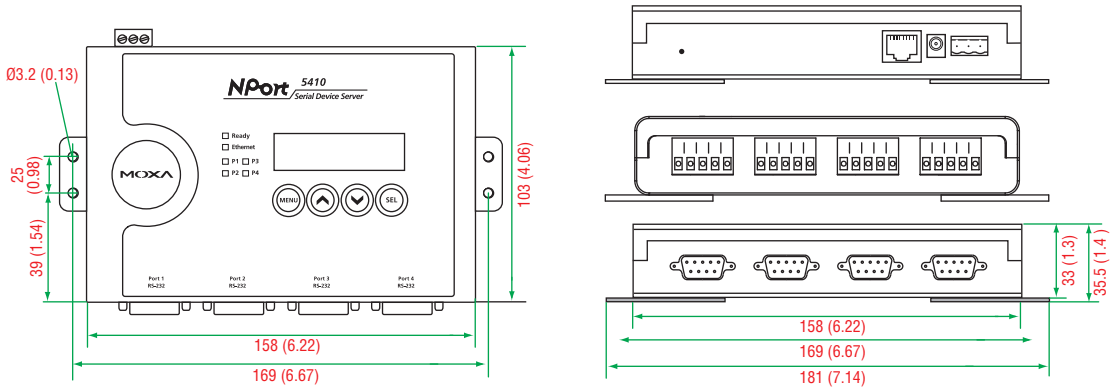
Time:
NPort 5410: 310,331 hrs
NPort 5430/5430I: 265,650 hrs
NPort 5450/5450I: 206,903 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

Warranty

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

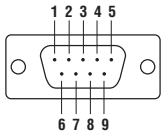
Dimensions

Unit: mm (inch)



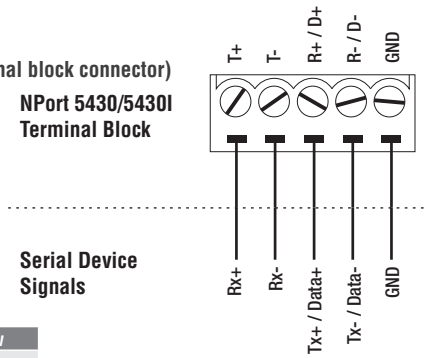
Pin Assignment

NPort® 5410
(RS-232, DB9 male connector)

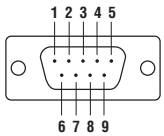


PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	–

NPort® 5430/5430I
(RS-422/485, terminal block connector)



NPort® 5450/5450I/5450-T/5450I-T
(RS-232/422/485, DB9 male connector)



PIN	RS-232	RS-422/RS-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 5410: 4-port RS-232 device server
NPort 5430: 4-port RS-422/485 device server
NPort 5430I: 4-port RS-422/485 device server with 2 kV isolation protection
NPort 5450: 4-port RS-232/422/485 device server
NPort 5450I: 4-port RS-232/422/485 device server with 2 kV isolation protection
NPort 5450-T: 4-port RS-232/422/485 device server, -40 to 75°C operating temperature (without LCM)
NPort 5450I-T: 4-port RS-232/422/485 device server with 2 kV isolation protection, -40 to 75°C operating temperature (without LCM)

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws
CBL-PJTB-10: Non-locking barrel plug to bare wires cable
Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications
Note: Additional power adapters can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist

- 1 NPort 5400 device server
- 1 power wiring adapter: CBL-PJTB-10
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

NPort® 5600 Series

8 and 16-port RS-232/422/485 rackmount serial device servers

- 8 or 16 serial ports supporting RS-232/422/485
- Standard 19-inch rackmount size
- 10/100M auto-sensing Ethernet
- Easy IP address configuration with LCD panel (excluding wide temperature models)
- Configure via Telnet/Web/Windows utility
- Socket modes: TCP server/TCP client/UDP/Real COM
- SNMP MIB-II for network management
- Universal high-voltage range: 100 to 240 VAC or 88 to 300 VDC
- Popular low-voltage ranges: ±48 VDC (20 to 72 VDC, -20 to -72 VDC)

Overview

With the NPort® 5600 rackmount series, you not only protect your current hardware investment, but also allow for future network expansion by centralizing the management of your serial devices and distributing management hosts over the network.

Network Readiness for up to 16 Serial Devices

Only basic configuration is needed with the NPort® 5600 to connect up to 16 serial devices to an Ethernet network.

19-inch Rackmount Device Server

NPort® 5600 device servers come with Tx/Rx LEDs for the serial ports on the front panel, and 8 or 16 RJ45 serial port connectors on the rear panel. This makes the NPort® 5600 device servers suitable for a standard 19-inch rackmount, allowing you to simplify operational, maintenance, and administrative tasks.

Real COM/TTY Ports

Real COM/TTY drivers are provided to make the serial ports on the NPort® 5600 recognizable as Real COM ports by Windows, or Real TTY ports by Linux. In addition to supporting basic data transmission and reception, the NPort® drivers also support the RTS, CTS, DTR, DSR, and DCD control signals.

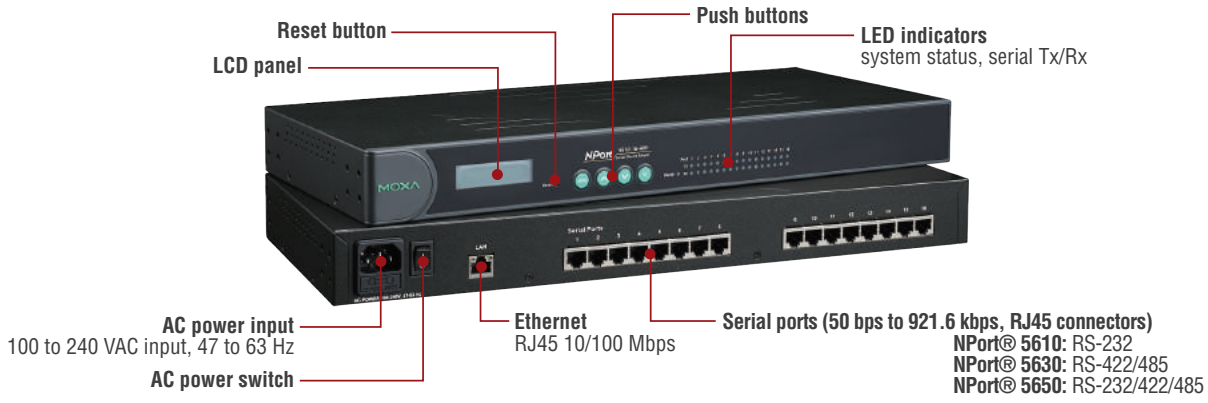
LED Indicators to Ease Your Maintenance Tasks

The System LED, serial Tx/Rx LEDs, and Ethernet LEDs (located on the RJ45 connector) provide a great tool for basic maintenance tasks and help engineers analyze problems in the field. The LEDs not only indicate current system and network status, but they also help field engineers monitor the status of attached serial devices.

Adjustable Termination and Pull High/Low Resistors

When using termination resistors to prevent serial signal reflection, it is important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. Since no set of resistor values is universally compatible for all environments, the NPort® 5650-8/16 has DIP switches on the bottom panel for setting the termination and pull high/low resistor values.

Appearance



Note: LCD panel and configuration buttons not available with wide-temp. models

Specifications

Ethernet Interface

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

Optical Fiber Interface (for -M-SC and -S-SC)

		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: 8 or 16
Serial Standards:
NPort 5610: RS-232
NPort 5630: RS-422/485
NPort 5650: RS-232/422/485
Connector: RJ45 (8 pins)
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ (NPort 5650-8/16)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: DSR/DTR and RTS/CTS (RS-232 only), XON/XOFF
Baudrate: 50 bps to 921.6 kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP, PPP, SLIP, RTelnet, RFC2217
Configuration Options: Web 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

Mini Screen with Push Buttons (for standard temp. models)

LCD Panel: Liquid Crystal Display on the case
Push Buttons: Four push buttons for convenient on-site configuration

Physical Characteristics

Housing: Metal
Weight:
NPort 5610-8: 3,340 g (7.36 lb)
NPort 5610-8-48V: 3,160 g (6.97 lb)
NPort 5630-8, 5650-8-S-SC, 5650-8-M-SC: 3,380 g (7.45 lb)
NPort 5650-8: 3,360 g (7.41 lb)
NPort 5610-16: 3,420 g (7.54 lb)
NPort 5610-16-48V: 3,260 g (7.19 lb)
NPort 5630-16: 3,400 g (7.50 lb)
NPort 5650-16: 3,460 g (7.63 lb)
NPort 5650-16-S-SC, 5650-16-M-SC: 3,440 g (7.58 lb)
NPort 5650-8-HV-T: 3,720 g (8.20 lb)
NPort 5650-16-HV-T: 3,820 g (8.42 lb)
Dimensions:
Without ears: 440 x 45 x 198 mm (17.32 x 1.77 x 7.80 in)
With ears: 480 x 45 x 198 mm (18.90 x 1.77 x 7.80 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)
High Voltage Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature:
Standard Models: -20 to 70°C (-4 to 158°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
High Voltage Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage:
NPort 5610/5630/5650: 100 to 240 VAC, 47 to 63 Hz
NPort 5610-48V: ±48 VDC (20 to 72 VDC, -20 to -72 VDC)
NPort 5650-HV: 110 VDC (88 to 300 VDC)
Input Current:
NPort 5610-8/16: 141 mA @ 100 VAC, 47 to 63 Hz
NPort 5630-8/16: 152 mA @ 100 VAC, 47 to 63 Hz
NPort 5610-8/16-48V: 135 mA @ 48 VDC
NPort 5650-8/16: 158 mA @ 100 VAC, 47 to 63 Hz
NPort 5650-8/16-S-SC: 164 mA @ 100 VAC, 47 to 63 Hz
NPort 5650-8/16-M-SC: 174 mA @ 100 VAC, 47 to 63 Hz
NPort 5650-8/16-HV: 152 mA @ 88 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
NPort 5650-8/16 Series:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2.5 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
NPort 5650-8/16-HV Series:
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: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m
IEC 61000-4-8 PFMF
Medical: EN 60601-1-2 Class B, EN 55011

Reliability

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

MTBF (mean time between failures)

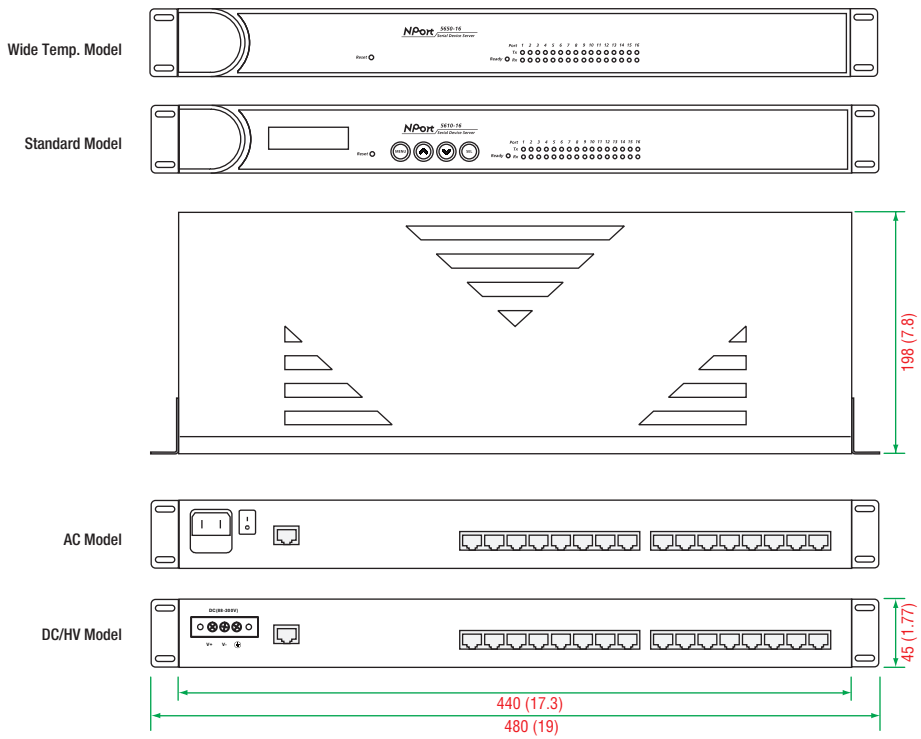
Time:
NPort 5610-8: 97,294 hrs
NPort 5610-16: 94,928 hrs
NPort 5610-8-48V: 96,758
NPort 5630-8: 118,405 hrs
NPort 5630-16: 91,483 hrs
NPort 5650-8: 117,584 hrs
NPort 5650-16: 104,767 hrs
NPort 5650-8-S-SC: 116,914 hrs
NPort 5650-8-M-SC: 116,914 hrs
NPort 5650-16-S-SC: 87,528 hrs
NPort 5650-16-M-SC: 87,528 hrs
NPort 5650-8-HV: 725,390 hrs
NPort 5650-16-HV: 531,264 hrs
NPort 5610-16-48V: 926,643 hrs
Standard:
NPort 5610-8/5610-16/5610-8-48V/NPort 5630-8/5630-16/5650-8/5650-16/5650-8-S-SC/5650-8-M-SC/5650-16-S-SC/5650-16-M-SC: MIL-HDBK-217F
NPort 5650-8-HV/5650-16-HV/5610-16-48V: Telcordia (Bellcore) Standard TR/SR

Warranty

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

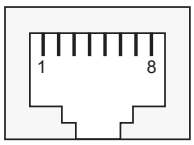
Dimensions

Unit: mm (inch)



Pin Assignment

(8-pin RJ45 connector)



NPort® 5610: RS-232

PIN	RS-232
1	DSR
2	RTS
3	GND
4	TXD
5	RxD
6	DCD
7	CTS
8	DTR

NPort® 5630: RS-422/485

PIN	RS-422/485-4w	RS-485-2w
1	–	–
2	–	–
3	TxD+	–
4	TxD-	–
5	RxD-	Data-
6	RxD+	Data+
7	GND	GND
8	–	–

NPort® 5650: RS-232/422/485

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

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Ordering Information

Available Models

NPort 5610-8: 8-port RS-232 rackmount device server with RJ45 connectors and 100-240 VAC power input
NPort 5610-8-48V: 8-port RS-232 rackmount device server with RJ45 connectors and ±48 VDC power input
NPort 5630-8: 8-port RS-422/485 rackmount device server with RJ45 connectors and 100-240 VAC power input
NPort 5650-8: 8-port RS-232/422/485 rackmount device server with RJ45 connectors and 100-240 VAC power input
NPort 5650-8-M-SC: 8-port RS-232/422/485 rackmount device server with multi-mode fiber (SC connector)
NPort 5650-8-S-SC: 8-port RS-232/422/485 rackmount device server with single-mode fiber (SC connector)
NPort 5650-8-T: 8-port RS-232/422/485 rackmount device server with RJ45 connectors and 100-240 VAC power input, -40 to 75°C operating temperatures
NPort 5650-8-HV-T: 8-port RS-232/422/485 to rackmount device server with RJ45 connectors and 88 to 300 VDC power input, -40 to 85°C operating temperature
NPort 5610-16: 16-port RS-232 rackmount device server with RJ45 connectors and 100-240 VAC power input
NPort 5610-16-48V: 16-port RS-232 rackmount device server with RJ45 connectors and ±48 VDC power input
NPort 5630-16: 16-port RS-422/485 rackmount device server with RJ45 connectors and 100-240 VAC power input
NPort 5650-16: 16-port RS-232/422/485 rackmount device server with RJ45 connectors and 100-240 VAC power input
NPort 5650-16-M-SC: 16-port RS-232/422/485 rackmount device server with multi-mode fiber (SC connector)
NPort 5650-16-S-SC: 16-port RS-232/422/485 rackmount device server with single-mode fiber (SC connector)
NPort 5650-16-T: 16-port RS-232/422/485 rackmount device server with RJ45 connectors and 100-240 VAC power input, -40 to 75°C operating temperatures
NPort 5650-16-HV-T: 16-port RS-232/422/485 to rackmount device server with RJ45 connectors and 88 to 300 VDC power input, -40 to 85°C operating temperature

Optional Accessories (can be purchased separately)

CBL-RJ45F25-150: 8-pin RJ45 to DB25 female cable, 150 cm
CBL-RJ45M25-150: 8-pin RJ45 to DB25 male cable, 150 cm
CBL-RJ45F9-150: 8-pin RJ45 to DB9 female cable, 150 cm
CBL-RJ45M9-150: 8-pin RJ45 to DB9 male cable, 150 cm
Note: One power cord suitable for your region is included in the product package. Additional power cords can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist

- 1 NPort 5600 device server
- 1 power cord (suitable for your region, AC models only)
- 1 DIN-rail/wall-mounting kit: WK-45-01
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Note: The package includes one power cord (AC models) suitable for your region.

NPort® 5600-8-DT Lite Series

8-port RS-232/422/485 serial device servers

- 8 serial ports supporting RS-232/422/485
- Compact desktop design
- 10/100M auto-sensing Ethernet
- Configure via Telnet/Web/Windows utility
- Socket modes: TCP server/TCP client/UDP/Real COM
- SNMP MIB-II for network management

Overview

NPort® 5600-8-DTL device servers can conveniently and transparently connect 8 serial devices to an Ethernet network, allowing you to network your existing serial devices with basic configurations. You can both centralize management of your serial devices and distribute management hosts over the network. The NPort® 5600-8-DTL device servers have a smaller form factor than our 19-inch models, making them a great choice for applications that need additional serial ports when mounting rails are not available.

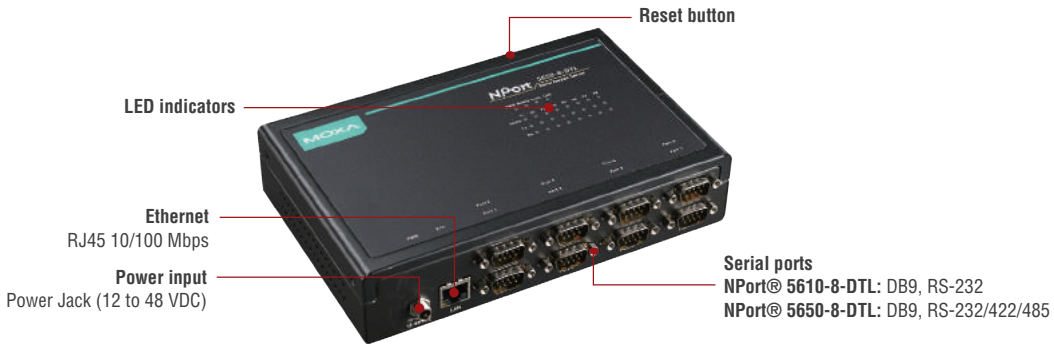
Convenient Design for RS-485 Applications

The NPort® 5650-8-DTL device servers support selectable 1 kΩ and 150 kΩ pull high/low resistors and a 120 Ω terminator. In some critical environments, termination resistors may be needed to prevent the reflection of serial signals. When using termination resistors, it is also important to set the pull high/low resistors correctly so that the electrical signal is not corrupted. Since no set of resistor values is universally compatible with all environments, NPort® 5600-8-DTL device servers use DIP switches to allow users to adjust termination and pull high/low resistor values manually for each serial port.

LED Indicators to Ease Your Maintenance Tasks

The System LED, Serial Tx/Rx LEDs, and Ethernet LEDs (located on the RJ45 connector) provide a great tool for basic maintenance tasks and help engineers analyze problems in the field. The NPort® 5600's LEDs not only indicate current system and network status, but they also help field engineers monitor the status of attached serial devices.

Appearance



Specifications

Ethernet Interface

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

Serial Interface

Number of Ports: 8
Serial Standards:
NPort 5610-8-DTL: RS-232
NPort 5650-8-DTL/5650I-8-DTL: RS-232/422/485
Connector: DB9 male
Serial Line Protection:
15 kV ESD protection for all signals
2 kV isolation protection (NPort 5650I-8-DTL only)
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Pull High/Low Resistor for RS-485: 1 kΩ, 150 kΩ
Terminator for RS-485: 120 Ω

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: DSR/DTR and RTS/CTS (RS-232 only), XON/XOFF
Baudrate: 50 bps to 921.6 kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTP, Rtelnet, ARP, RFC2217
Configuration Options: Web Console, Telnet Console, Serial 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

Physical Characteristics

Housing: Metal
Weight:
NPort 5610-8-DTL: 1,760 g (3.88 lb)
NPort 5650-8-DTL: 1,770 g (3.90 lb)
NPort 5650I-8-DTL: 1,850 g (4.08 lb)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
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:
NPort 5610-8-DTL: 340 mA @ 12 VDC
NPort 5650-8-DTL: 470 mA @ 12 VDC
NPort 5650I-8-DTL: 740 mA @ 12 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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: 2 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

Reliability

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

MTBF (mean time between failures)

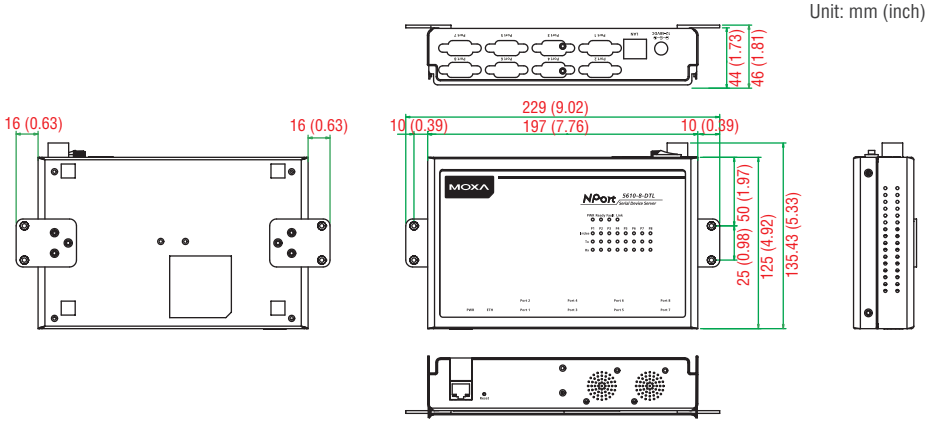
Time: NPort 5610-8-DTL: 953,388 hrs
NPort 5650-8-DTL: 740,457 hrs
NPort 5650I-8-DTL: 258,150 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

Warranty

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

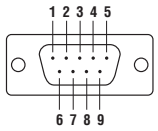
Dimensions

Unit: mm (inch)



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 5610-8-DTL: 8-port RS-232 desktop device server with DB9 male connectors, 0 to 60°C operating temperature
NPort 5650-8-DTL: 8-port RS-232/422/485 desktop device server with DB9 male connectors, 0 to 60°C operating temperature
NPort 5650I-8-DTL: 8-port RS-232/422/485 desktop device server with DB9 male connectors and 2 kV isolation, 0 to 60°C operating temperature
NPort 5610-8-DTL-T: 8-port RS-232 desktop device server with DB9 male connectors, -40 to 75°C operating temperature
NPort 5650-8-DTL-T: 8-port RS-232/422/485 desktop device server with DB9 male connectors, -40 to 75°C operating temperature
NPort 5650I-8-DTL-T: 8-port RS-232/422/485 desktop device server with DB9 male connectors and 2 kV isolation, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 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 female to terminal block adapter for RS-422/485 applications
WK-35-04: Wall-mounting kit, 2 plates with 6 screws
PWR-12200-DT-S1: Desktop power supply (requires power cord), 12 VDC 2 A, 100-240 VAC, 0 to 40°C operating temperature
Note: One power cord suitable for your region is included in the product package. Additional power cords can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist

- 1 NPort 5600-8-DTL device server
- 100 to 240 VAC power adapter (excluding T model): PWR-12200-DT-S1
- 1 Ethernet cable: CBL-RJ458P-100
- 1 wall-mounting kit: WK-35-04
- 1 power cord (suitable for your region)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Note: The package includes one power cord suitable for your region.

NPort® IA5000A Series

1, 2, and 4-port serial device servers for industrial automation

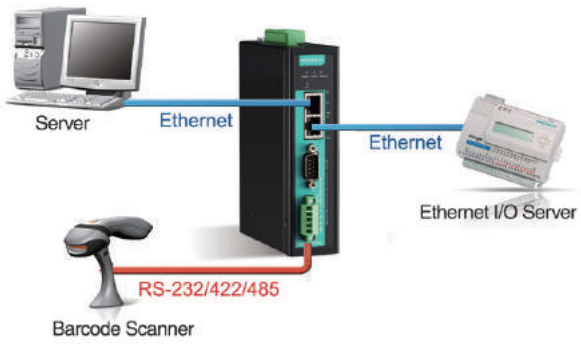
- Enhanced surge protection for LAN/serial/power
- 2 kV isolation for serial signals (isolation models)
- Screw-type terminal blocks for secure power/serial connections
- C1D2, ATEX, and IECEx certified for harsh industrial environments
- Cascading Ethernet ports for easy wiring
- Redundant DC power inputs
- Warning by relay output and email
- -40 to 75°C operating temperature range (T models)

Overview

The NPort IA5000A series device servers are designed for connecting industrial automation serial devices, such as PLCs, sensors, meters, motors, drives, barcode readers, and operator displays. The device servers are built solid with a metal housing, screw connectors, and provide full surge protection. The NPort IA5000A series device servers are extremely user-friendly, making simple and reliable serial-to-Ethernet solutions possible.

Cascading Ethernet Ports Make Wiring Easy (10/100BaseTX models only)

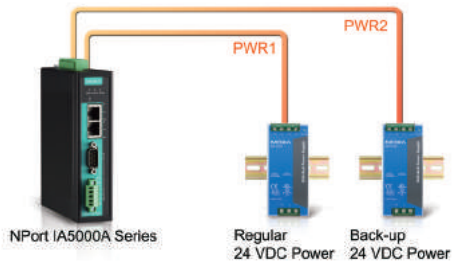
The NPort IA5000A series device servers each have two Ethernet ports that can be used as Ethernet switch ports. One port connects directly to the network or server, and the other port can be connected to either another NPort IA device server or another Ethernet device. The dual Ethernet ports help reduce wiring costs by eliminating the need to connect each device to a separate Ethernet switch.



Redundant Power Inputs

The NPort IA5000A series device servers have two power inputs that can be connected simultaneously to live DC power sources. If one power source fails, the other source takes over automatically. Redundant power inputs help ensure uninterrupted operation of your device server.

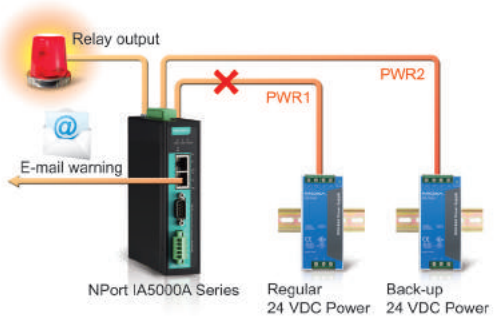
Dual Power Inputs



Relay Output Warning and E-mail Alerts

The built-in relay output can be used to alert administrators when the network is down, when power failure occurs, or when there is a change in the DCD or DSR serial signals. An e-mail warning can also be issued when an abnormality is detected. These functions are valuable tools that enable maintenance engineers to react promptly to emergency situations.

Power Failure Alarm



Surge Protection for Serial, LAN, and Power

Moxa's leading-edge surge immunity solution, which is applied to the NPort® IA5000A's serial, power, and Ethernet lines, is tested and proven compliant with IEC 61000-4-5. This advanced surge protection provides a robust serial-to-Ethernet solution that can protect electrical devices from voltage spikes and resist electrical interference, such as in oil, gas, and power automation applications.

Industrial-Grade Certification

To ensure safe and reliable operation in industrial environments, the NPort® IA5000A device servers have obtained various industrial certifications, including an IP30 rating for mechanical protection and UL 508 safety certification for industrial control equipment. In addition, these device servers are UL/cUL listed (for Class 1, Division 2, Groups A,B,C,D), ATEX Class 1 Zone 2, and IECEx compliant for use in hazardous locations.

Specifications

Ethernet Interface

Number of Ports: 2
Speed: 10/100 Mbps, auto MDI/MDIX
Connector: 8-pin RJ45
Magnetic Isolation Protection: 1.5 kV built-in
Ethernet Line Protection: 1 kV (level 2) surge protection

Serial Interface

Number of Ports:
NPort IA5150A: 1
NPort IA5250A: 2
NPort IA5450A: 4
Serial Standards: RS-232/422/485
Connector:
NPort IA5150A: DB9 for RS-232, terminal block for RS-422/485
NPort IA5250A/IA5450A: DB9 for RS-232/422/485
Serial Line Protection:
• 2 kV isolation protection for isolation models
• 1 kV (level 2) surge protection
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate: 50 to 921.6 kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP, HTTP, SMTP, SNTP, IGMP, ARP
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

Physical Characteristics

Housing: Metal
Weight:
NPort IA5150A: 475 g (1.05 lb)
NPort IA5250A: 485 g (1.07 lb)
NPort IA5450A: 560 g (1.23 lb)
Dimensions:
NPort IA5150A/IA5250A: 36 x 105 x 140 mm (1.42 x 4.13 x 5.51 in)
NPort IA5450A: 45.8 x 134 x 105 mm (1.8 x 5.28 x 4.13 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
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:
NPort IA5150A: 220 mA @ 12 VDC
NPort IA5150AI: 225 mA @ 12 VDC
NPort IA5250A: 250 mA @ 12 VDC
NPort IA5250AI: 290 mA @ 12 VDC
NPort IA5450A: 374 mA @ 12 VDC
NPort IA5450AI: 512 mA @ 12 VDC

Standards and Certifications

Safety: UL 508
Hazardous Location: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Class I Zone 2, IECEx
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
Freefall: IEC 60068-2-32
Vibration: IEC 60068-2-6
Shock: IEC 60068-2-27

Reliability

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

MTBF (mean time between failures)

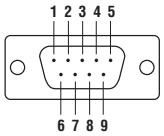
Time: 262,805 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

Warranty

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

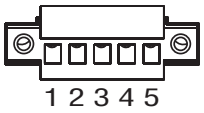
Pin Assignment

RS-232/422/485 DB9 male port



PIN	RS-232	RS-422/RS-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	–	–

RS-422/485 Terminal Block Wiring

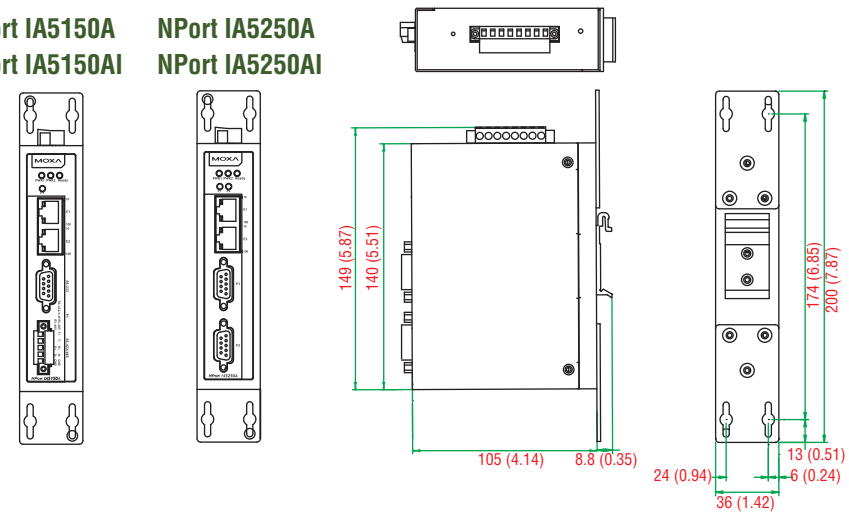


PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD+(B)	–
2	TxD-(A)	–
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND

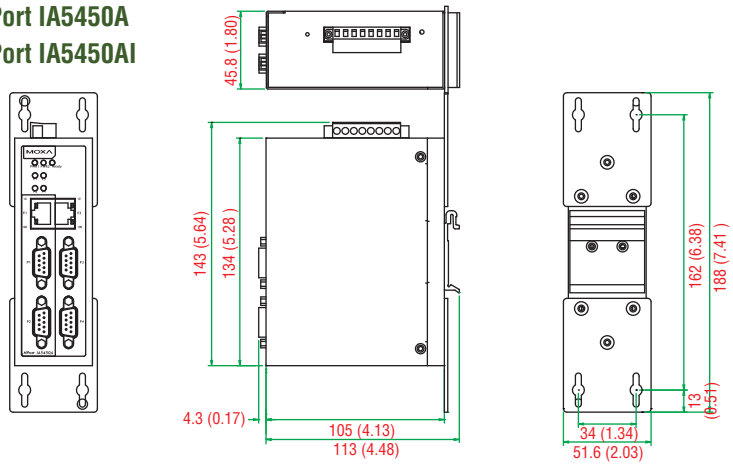
Dimensions

Unit: mm (inch)

NPort IA5150A NPort IA5150AI NPort IA5250A NPort IA5250AI



NPort IA5450A NPort IA5450AI



Ordering Information

Available Models

NPort IA5150A: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 0 to 60°C operating temperature
NPort IA5150AI: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, 0 to 60°C operating temperature
NPort IA5250A: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 0 to 60°C operating temperature
NPort IA5250AI: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, 0 to 60°C operating temperature
NPort IA5450A: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 0 to 60°C operating temperature
NPort IA5450AI: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation protection, 0 to 60°C operating temperature
NPort IA5150A-T: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, -40 to 75°C operating temperature
NPort IA5150AI-T: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, -40 to 75°C operating temperature
NPort IA5250A-T: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, -40 to 75°C operating temperature
NPort IA5250AI-T: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, -40 to 75°C operating temperature
NPort IA5450A-T: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, -40 to 75°C operating temperature
NPort IA5450AI-T: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation protection, -40 to 75°C operating temperature

IECEx Models

NPort IA5150A-IEX: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, IECEx, 0 to 60°C operating temperature
NPort IA5150AI-IEX: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, IECEx, 0 to 60°C operating temperature
NPort IA5250A-IEX: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, IECEx, 0 to 60°C operating temperature
NPort IA5250AI-IEX: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, IECEx, 0 to 60°C operating temperature
NPort IA5450A-IEX: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, IECEx, 0 to 60°C operating temperature
NPort IA5450AI-IEX: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation protection, IECEx, 0 to 60°C operating temperature
NPort IA5150A-T-IEX: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, IECEx, -40 to 75°C operating temperature
NPort IA5150AI-T-IEX: 1-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, IECEx, -40 to 75°C operating temperature
NPort IA5250A-T-IEX: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, IECEx, -40 to 75°C operating temperature
NPort IA5250AI-T-IEX: 2-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation, IECEx, -40 to 75°C operating temperature
NPort IA5450A-T-IEX: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, IECEx, -40 to 75°C operating temperature
NPort IA5450AI-T-IEX: 4-port RS-232/422/485 industrial automation device server with serial/LAN/power surge protection, two 10/100BaseT(X) ports with single IP, 2 kV isolation protection, IECEx, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications
WK-36-02: Wall-mounting kit for the NPort IA5150A/IA5250A
WK-51-01: Wall-mounting kit for the NPort IA5450A

Package Checklist

- 1 NPort IA5000A series device server
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

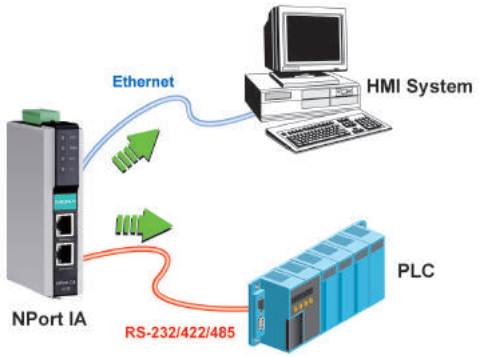
NPort® IA5000 Series

1 and 2-port serial device servers for industrial automation

- Socket modes: TCP server/TCP client/UDP
- Patented ADDC® (automatic data direction control) for 2-wire and 4-wire RS-485
- Cascading Ethernet ports for easy wiring (applies only to RJ45 connectors)
- Redundant DC power inputs
- Warning by relay output and e-mail
- 10/100BaseTX (RJ45) or 100BaseFX (single mode or multi-mode with SC connector)
- IP30-rated housing

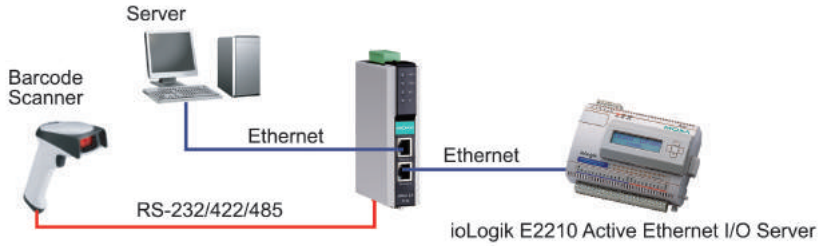
Overview

NPort® IA device servers provide easy and reliable serial-to-Ethernet connectivity for industrial automation applications. The device servers can connect any serial device to an Ethernet network, and to ensure compatibility with network software, they support a variety of port operation modes, including TCP Server, TCP Client, and UDP. The rock-solid reliability of the NPort® IA device servers makes them an ideal choice for establishing network access to RS-232/422/485 serial devices such as PLCs, sensors, meters, motors, drives, barcode readers, and operator displays. All models are housed in a compact, rugged housing that is DIN-rail mountable.



Cascading Ethernet Ports Make Wiring Easy (10/100BaseTX models only)

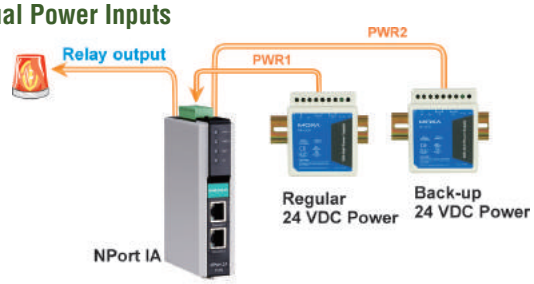
The NPort® IA5150 and IA5250 device servers each have two Ethernet ports that can be used as Ethernet switch ports. One port connects directly to the network or server, and the other port can be connected to another either NPort® IA device server or another Ethernet device. The dual Ethernet ports help reduce wiring costs by eliminating the need to connect each device to a separate Ethernet switch.



Redundant Power Inputs

The NPort® IA5000 device servers have two power inputs that can be connected simultaneously to live DC power sources. If one power source fails, the other source takes over automatically. Redundant power inputs help assure that your device server will operate nonstop.

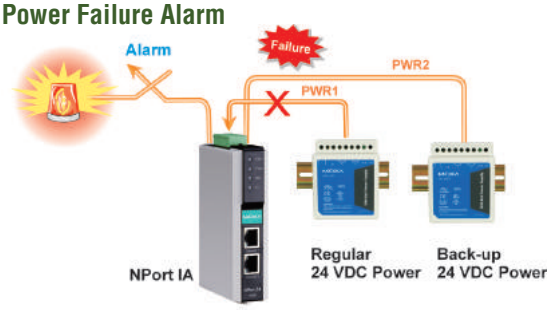
Dual Power Inputs



Relay Output Warning and E-mail Alerts

The built-in relay output can be used to alert administrators of problems with the Ethernet links or power inputs, or when there is a change in the DCD or DSR serial signals. The web console indicates which Ethernet link or power input has failed, or which serial signal has changed. An e-mail warning can also be issued when an exception is detected. These functions are valuable tools that enable maintenance engineers to react promptly to emergency situations.

Power Failure Alarm



Optical Fiber for Ethernet Communication

The NPort® IA5000 series includes 100BaseFX fiber models that support transmission distances up to 5 km for multi-mode models, and up to 40 km for single-mode models. Optical fiber is well-suited for industrial applications because it is immune to electromagnetic noise and interference. For environments that experience high ground loop voltages, fiber provides the best isolation protection, and because there is no danger of sparking, optical fiber is safer than copper wire to use in hazardous environments.

Industrial-Grade Certification

To ensure safe and reliable operation in industrial environments, the NPort® IA5000 device servers have obtained various industrial certifications, including an IP30 rating for mechanical protection, UL 508 safety certification for industrial control equipment, and explosion-safe certifications for hazardous locations. Certifications include UL/cUL Class 1 Division 2 Groups A, B, C, D, ATEX Class 1 Zone 2, and IECEx Zone 2.

Specifications

Ethernet Interface (NPort IA5150/5150I/5250)

Number of Ports: 2
Speed: 10/100 Mbps, auto MDI/MDIX
Connector: 8-pin RJ45
Magnetic Isolation Protection: 1.5 kV built-in

Optical Fiber Interface (-M-SC and -S-SC models)

		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:
NPort IA5150: 1
NPort IA5250: 2
Serial Standards: RS-232/422/485
Connector:
NPort IA5150: DB9 male for RS-232, terminal block for RS-422/485
NPort IA5250: DB9 male for RS-232/422/485

Serial Line Protection:
2 kV isolation protection (NPort IA5150I, NPort 5150I-M-SC, NPort 5150I-S-SC, NPort IA5250I)
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS and DTR/DSR (RS-232 only), XON/XOFF
Baudrate: 110 bps to 230.4 Kbps

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, Rtelnet, DNS, SNMP V1, HTTP, SMTP, SNTP, ARP
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, 2012 x64, Embedded CE 5.0/6.0, XP Embedded
Fixed TTY Drivers: SCO Unix, SCO OpenServer, UnixWare 7, UnixWare 2.1, SVR 4.2, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i
Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x

Physical Characteristics

Housing: Plastic, IP30 protection
Weight:
NPort IA5150: 360 g (0.79 lb)
NPort IA5250: 380 g (0.84 lb)
Dimensions: 29 x 89.2 x 118.5 mm (0.82 x 3.51 x 4.57 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:
NPort IA5150: 238 mA @ 12 VDC
NPort IA5150I: 257 mA @ 12 VDC
NPort IA5250: 238 mA @ 12 VDC
NPort IA5250I: 300 mA @ 12 VDC
NPort IA5150-S-SC: 328 mA @ 12 VDC
NPort IA5150I-S-SC: 333 mA @ 12 VDC
NPort IA5150-M-SC: 315 mA @ 12 VDC
NPort IA5150I-M-SC: 339 mA @ 12 VDC

Standards and Certifications

Safety: UL 508, UL 60950-1
Hazardous Location: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2, IECEx Zone 2
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
Freefall: IEC 60068-2-32
Vibration: IEC 60068-2-6
Marine: DNV
Shock: IEC 60068-2-27

Reliability

Alert Tools: Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
Water and Dust Proof: IP30

MTBF (mean time between failures)

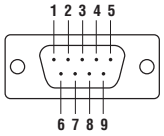
Time:
NPort IA5150 Series: 183,747 hrs
NPort IA5150I Series: 195,614 hrs
NPort IA5250 Series: 194,765 hrs
NPort IA5250I Series: 341,417 hrs
Standard:
NPort IA5150 Series/NPort IA5150I Series/NPort IA5250 Series: MIL-HDBK-217F
NPort IA5250I Series: Telcordia (Bellcore) Standard TR/SR

Warranty

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

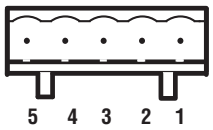
Pin Assignment

RS-232/422/485 DB9 male port



PIN	RS-232	RS-422/RS-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	–	–

RS-422/485 Terminal Block Wiring

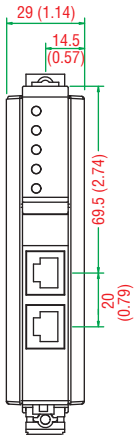


PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD+(B)	–
2	TxD-(A)	–
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND

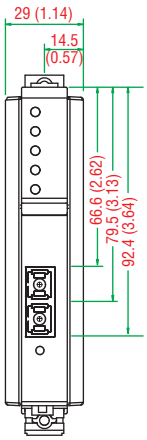
Dimensions

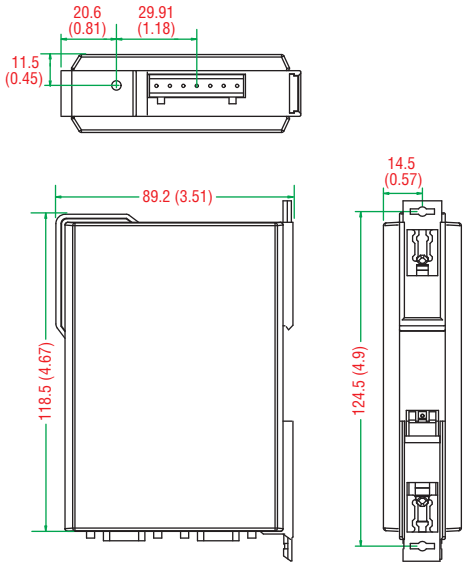
Unit: mm (inch)

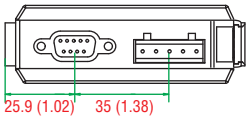
NPort IA5150
NPort IA5150I
NPort IA5250
NPort IA5250I



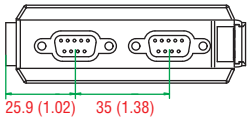
NPort IA5150-M-SC
NPort IA5150-S-SC
NPort IA5150I-M-SC
NPort IA5150I-S-SC







NPort IA5150
NPort IA5150I
NPort IA5150-M-SC
NPort IA5150-S-SC
NPort IA5150I-S-SC
NPort IA5150I-M-SC



NPort IA5250
NPort IA5250I

Ordering Information

Available Models

NPort IA5150: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 0 to 55°C operating temperature
NPort IA5150I: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, 0 to 55°C operating temperature
NPort IA5150-M-SC: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 0 to 55°C operating temperature
NPort IA5150I-M-SC: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, 0 to 55°C operating temperature
NPort IA5150-S-SC: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 0 to 55°C operating temperature
NPort IA5150I-S-SC: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, 0 to 55°C operating temperature
NPort IA5250: 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, 0 to 55°C operating temperature
NPort IA5250I: 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, 2 kV isolation protection, 0 to 55°C operating temperature
NPort IA5150-T: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, -40 to 75°C operating temperature
NPort IA5150I-T: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, -40 to 75°C operating temperature
NPort IA5150-M-SC-T: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, -40 to 75°C operating temperature
NPort IA5150I-M-SC-T: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, -40 to 75°C operating temperature
NPort IA5150-S-SC-T: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, -40 to 75°C operating temperature
NPort IA5150I-S-SC-T: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, -40 to 75°C operating temperature
NPort IA5250-T: 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, -40 to 75°C operating temperature
NPort IA5250I-T: 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, 2 kV isolation protection, -40 to 75°C operating temperature

IECEx Models

NPort IA5150-IEX: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, IECEx, 0 to 55°C operating temperature
NPort IA5150I-IEX: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, IECEx, 0 to 55°C operating temperature
NPort IA5150-M-SC-IEX: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, IECEx, 0 to 55°C operating temperature
NPort IA5150I-M-SC-IEX: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, IECEx, 0 to 55°C operating temperature
NPort IA5150-S-SC-IEX: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, IECEx, 0 to 55°C operating temperature
NPort IA5150I-S-SC-IEX: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, IECEx, 0 to 55°C operating temperature
NPort IA5250-IEX: 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, IECEx, 0 to 55°C operating temperature
NPort IA5150-T-IEX: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, IECEx, -40 to 75°C operating temperature
NPort IA5150I-T-IEX: 1 RS-232/422/485 port to 2 10/100BaseT(X) ports, 2 kV isolation protection, IECEx, -40 to 75°C operating temperature
NPort IA5150-M-SC-T-IEX: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, IECEx, -40 to 75°C operating temperature
NPort IA5150I-M-SC-T-IEX: 1 RS-232/422/485 port to 1 100BaseFX multi-mode port, SC, 2 kV isolation protection, IECEx, -40 to 75°C, IECEx operating temperature
NPort IA5150-S-SC-T-IEX: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, IECEx, -40 to 75°C operating temperature
NPort IA5150I-S-SC-T-IEX: 1 RS-232/422/485 port to 1 100BaseFX single-mode port, SC, 2 kV isolation protection, IECEx, -40 to 75°C operating temperature
NPort IA5250-T-IEX: 2 RS-232/422/485 ports to 2 10/100BaseT(X) ports, IECEx, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

Mini DB9F-to-TB: DB9 female to terminal block adapter for RS-422/485 applications

Package Checklist

- 1 NPort IA5000 series device server
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

NPort® W2150A/W2250A

1 and 2-port RS-232/422/485-to-WiFi device servers with wireless client

NPort® W2150A

NPort® W2250A

- Link any serial or Ethernet device to an IEEE 802.11a/b/g/n network
- 921.6 kbps baudrate for RS-232/422/485 transmissions
- Web-based configuration using built-in Ethernet or WLAN
- Enhanced surge protection for serial, LAN, and power
- Remote configuration with HTTPS, SSH
- Secure data access with WEP, WPA, WPA2
- Fast automatic wireless fast roaming
- Offline port buffering and serial data log
- Dual power inputs (1 screw-type power jack, 1 terminal block)
- Supports wireless clients

Overview

The NPort® W2150A and W2250A are the ideal choice for connecting your serial or Ethernet devices, such as PLCs, meters, and sensors, to a wireless LAN. Your communications software will be able to access the serial devices from anywhere over a wireless LAN. Moreover, the wireless device servers require fewer cables and are ideal for applications that involve difficult wiring situations. In Infrastructure Mode or Ad-Hoc Mode, the NPort® W2150A and NPort® W2250A can connect to Wi-Fi networks at offices and factories to allow users to move, or "roam," between several APs (Access Points), and offer an excellent solution for devices that are frequently moved from place to place.

802.11a/b/g/n Wireless Connectivity to Serial Devices

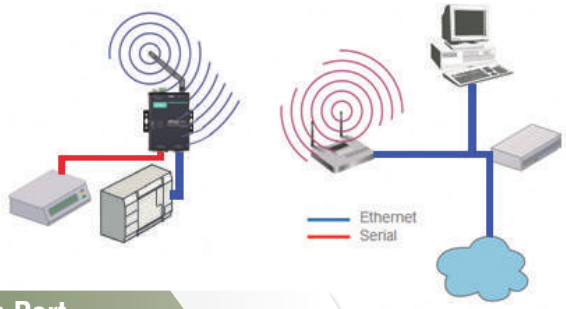
Wireless device servers require fewer cables and are ideal for applications that involve difficult wiring situations. In Infrastructure Mode or Ad-Hoc Mode, the NPort® W2150A and NPort® W2250A can communicate with any host computer through an access point, or with another NPort® W2150A or NPort® W2250A located up to 100 meters away.

Wireless Fast Roaming Function

Wi-Fi networks at offices and factories allow users to move, or "roam," between several APs (Access Points). Moxa's Fast Roaming function increases the roaming speed to unify AP channels and avoid wasting channel hopping time while roaming.

Wireless Client

Data can be seamlessly transferred between the serial line, LAN, and WAN, allowing the LAN and WLAN interfaces to be bridged together with one IP address.



Offline Port Buffering and Serial Data Log for Each Port

For mission-critical applications, data from the serial device must not be lost if the wireless connection goes down. The NPort® W2150A and NPort® W2250A are designed to continue operating if the wireless connection is disconnected temporarily. If the wireless connection is restraining, or if the connection fails, the serial data from the serial device will be queued in the built-in port buffer with over 10 MB of storage. As soon as the wireless connection returns to normal, the data stored in the buffer will be sent to its destination. In addition, a serial data log can be enabled to make troubleshooting easier.

The serial data log buffer for both the NPort® W2150A and NPort® W2250A is 64 KB per port.

Secure Remote Management and Configuration with SSH/HTTPS

Unauthorized access is one of the biggest headaches for system managers. In addition to IP filtering and password protection, the NPort® W2150A and NPort® W2250A also support SSH and HTTPS to provide protection from hackers. To transmit control messages securely, open the web console using a web browser that supports https (Internet Explorer, for example). You may also open the serial or Telnet console, such as PuTTY, using a terminal emulator that supports SSH.

Select "Any Baudrate" between 50 bps and 921.6 kbps

Most device servers only support a fixed number of serial baudrates. However, some applications require special baudrates, such as 250 kbps or 500 kbps. With the NPort® W2150A and NPort® W2250A, you can enter any baudrate between 50 and 921.6 kbps. If your device's baudrate is not a standard baudrate, select "other" from the drop-down list and then enter the baudrate.

Specifications

Ethernet Interface

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

WLAN Interface

Standard Compliance: 802.11a/b/g/n
Network Modes: Infrastructure, Ad-Hoc
Transmit Power:
802.11b:
Typ. 16 dBm ±1.5 dBm @ 1 Mbps,
Typ. 16 dBm ±1.5 dBm @ 11 Mbps
802.11a:
Typ. 15 dBm ±1.5 dBm @ 6 Mbps,
Typ. 14 dBm ±1.5 dBm @ 54 Mbps
802.11g:
Typ. 16 dBm ±1.5 dBm @ 6 Mbps,
Typ. 14 dBm ±1.5 dBm @ 54 Mbps
802.11n 2.4 GHz
Typ. 16 dBm ±1.5 dBm @ 6.5 Mbps,
Typ. 12 dBm ±1.5 dBm @ 72.2 Mbps
802.11n 5 GHz
Typ. 15 dBm ±1.5 dBm @ 6.5 Mbps,
Typ. 12 dBm ±1.5 dBm @ 150 Mbps
Receive Sensitivity:
802.11b:
-92 dBm @ 1 Mbps, -84 dBm @ 11 Mbps
802.11a:
-91 dBm @ 6 Mbps, -74 dBm @ 54 Mbps
802.11g:
-91 dBm @ 6 Mbps, -73 dBm @ 54 Mbps
802.11n 2.4 GHz
-89 dBm @ 6.5 Mbps (20 MHz), -71 dBm @ 72.2 Mbps (20 MHz)
802.11n 5 GHz
-89 dBm @ 6.5 Mbps (20 MHz), -71 dBm @ 72.2 Mbps (20 MHz)
-85 dBm @ 13.5 Mbps (40 MHz), -67 dBm @ 150 Mbps (40 MHz)
Radio Frequency Type: DSSS/OFDM
Transmission Rate:
802.11a: 54 Mbps
802.11b: 11 Mbps
802.11g: 6 to 54 Mbps
802.11n: 6.5 to 150 Mbps
Transmission Distance:
Up to 100 meters (in open areas)
Wireless Security:
• WEP: 64-bit/128-bit data encryption
• WPA, WPA2, 802.11i: Enterprise mode and Pre-Share Key (PSK) mode
• Encryption: 128-bit TKIP/AES-CCMP EAP-TLS, PEAP/GTC, PEAP/MD5, PEAP/MSCHAPV2, EAP-TTLS/PAP, EAP-TTLS/CHAP, EAP-TTLS/MSCHAP, EAP-TTLS/MSCHAPV2, EAP-TTLS/EAP-MSCHAPV2, EAP-TTLS/EAP-GTC, EAP-TTLS/EAP-MD5, LEAP
Antenna Connector: Reverse SMA

Serial Interface

Number of Ports:
NPort W2150A: 1
NPort W2250A: 2
Serial Standards: RS-232/422/485 (DB9 male connector)
Offline Port Buffering:
NPort W2150A: 20 MB
NPort W2250A: 10 MB
Serial Line Surge Protection: 1 kV (level 2)

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, XON/XOFF
Baudrate: 50 bps to 921.6 kbps
Serial Data Log: 64 KB

Serial Signals

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

Software

Network Protocols: ICMP, IPv4, TCP, UDP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, SNTP, SSH, HTTPS, ARP
Configuration Options: Web Console, Serial Console, Telnet Console, Windows Utility
Secure Configuration Options: HTTPS, SSH
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
Utilities: NPort Search Utility and NPort Windows Driver manager
Management: SNMP MIB-II

Physical Characteristics

Housing: Aluminum sheet metal (1 mm)
Weight:
NPort W2150A: 547 g (1.21 lb)
NPort W2250A: 557 g (1.23 lb)
Dimensions:
Without ears or antenna: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
With ears, without antenna: 100 x 111 x 26 mm (3.94 x 4.37 x 1.02 in)
Antenna Length: 109.79 mm (4.32 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 (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC
Input Current:
NPort W2150A: 179 mA @ 12 VDC
NPort W2250A: 200 mA @ 12 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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: 2 kV; Signal: 2 kV
IEC 61000-4-5 Surge: Power: 2 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
Radio: CE (ETSI EN 301 893, ETSI EN 300 328, ETSI EN 301 489-17, ETSI EN 301 489-1), ARIB RCR STD-33, ARIB STD-66

Reliability

Alert Tool: RTC (real-time clock)
Automatic Reboot Trigger: Built-in WDT (watchdog timer)

MTBF (mean time between failures)

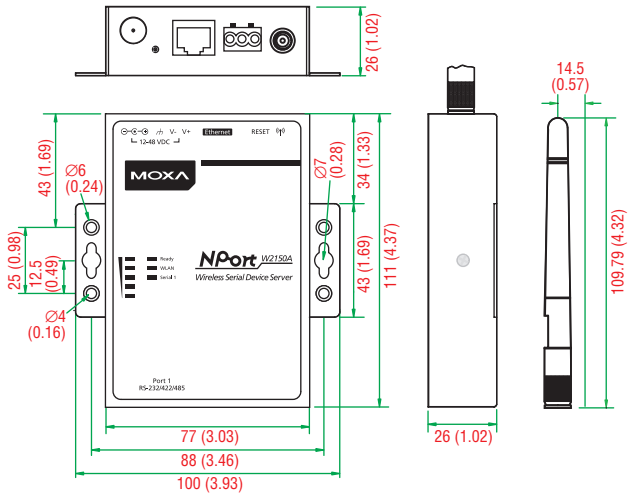
Time:
NPort W2150A: 383,187 hrs
NPort W2250A: 363,327 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

Warranty

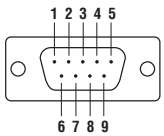
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Pin Assignment, DB9 Male



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	–	–
9	–	–	–

Ordering Information

Available Models

NPort W2150A: 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN (includes US/Euro/Japan/CN bands), antenna, 0 to 55°C operating temperature, includes power adapter
NPort W2250A: 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN (includes US/Euro/Japan/CN bands), antenna, 0 to 55°C operating temperature, includes power adapter
NPort W2150A-T: 1-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN (includes US/Euro/Japan/CN bands), -40 to 75°C operating temperature
NPort W2250A-T: 2-port RS-232/422/485 wireless device server with 802.11a/b/g WLAN (includes US/Euro/Japan/CN bands), -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 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 female to terminal block adapter for RS-422/485 applications
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 W2150A or NPort W2250A wireless device server
- 1 antenna 2.4/5GHz: ANT-WDB-ARM-02
- 100 to 240 VAC power adapter (excluding T models)*
- 1 Ethernet cable: CBL-RJ458P-100
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Note: The package includes one power adapter suitable for your region.

NPort® Z2150/Z3150 Series

1-port RS-232/422/485 to ZigBee converter or ZigBee-to-Ethernet gateway

NPort Z3150 NPort Z2150

- IEEE 802.15.4/ZigBee compliant
- Network topologies: Mesh/Star/Cluster tree
- 128-bit AES hardware encryption
- Enhanced surge protection for serial and power
- Dual DC power inputs (NPort Z3150 only)
- Easy-to-use configuration utility

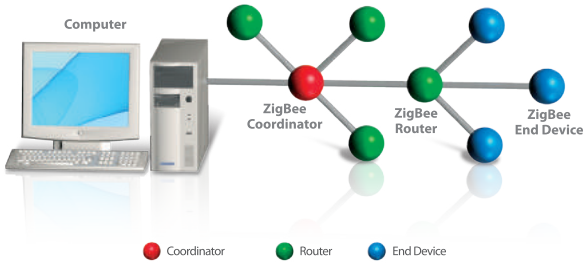
Overview

The NPort Z2150 and NPort Z3150 are IEEE 802.15.4/ZigBee compliant, providing a reliable wireless solution for serial-to-ZigBee networks requiring minimal wiring presence.

The NPort Z2150 can be configured as a ZigBee coordinator (ZC), a ZigBee router (ZR), or a ZigBee end device (ZED). Any serial device can be connected to the NPort Z2150 and exchange data via PAN. An user-friendly utility is provided to configure the device type and network settings in simple steps.

The NPort Z3150 was designed specifically to perform as a ZigBee Coordinator (ZC), providing nodes with an Ethernet interface to the ZigBee PAN. Internet connection ad network services are also provided via the ZigBee PAN. Remote users can monitor any ZigBee device in the PAN through the NPort Z3150.

The following figure shows a typical topology of a ZigBee network. The NPort Z3150 is the ZigBee coordinator (ZC) connected to numerous ZigBee routers (ZR) and the routers are connected to end devices(ZED).



Surge-Protected Serial and Power Lines

Surge, which is typically caused by high voltages that result from switching and lightning transients, is a common threat to all electrical devices. Moxa's leading-edge surge immunity solution, which is applied to the NPort Z2150/Z3150's serial and Ethernet lines, is tested and proven compliant with IEC 61000-4-5. This surge protection provides a robust solution that can protect electrical devices from voltage spikes and withstand electrically noisy environmental conditions.

Specifications

ZigBee Interface

RF Standard: 802.15.4/ZigBee compliant
Frequency Band: 2.4 GHz
RF Data Rate: 250 kbps
Rx sensitivity: -96 dBm
Tx Power: 4.5 dBm (Max)
Transmission Distance: Up tp 100 m (open space)
Antenna: 2 dBi
RF Channel: 16 channels
Device Type: Coordinator, Router (NPort Z2150 only), End Device (NPort Z2150 only)
Network Topology: Star, Mesh, Cluster tree
Security: 128-bit AES encryption algorithms

Ethernet Interface (NPort Z3150 only)

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

Hardware

DIP Switch: Console/Operation Mode
SW1: Pull high/low resister, Termination for RS-422/485.
Reset Button: Reset to default

Serial Interface

Number of Ports: 1
Serial Standards: RS-232/422/485
Connector: DB9 male
Serial Line Protection: 1 kV surge protection
RS-485 Data Direction Control: ADDC (Automatic Data Direction Control)

Serial Communication Parameters

Data Bits:
NPort Z2150: 8
NPort Z3150: 5, 6, 7, 8
Stop Bits: 1, 2

Parity:
NPort Z2150: None, Even, Odd
NPort Z3150: None, Even, Odd, Mark, Space
Flow Control:
NPort Z2150: RTS/CTS
NPort Z3150: RTS/CTS, XON/XOFF
Baudrate:
NPort 2150: 50 bps to 230.4 kbps
NPort 3150: 50 bps to 921.6 kbps

Serial Signals

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

Software

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
Configuration:
NPort Z2150: ZigBee Configuration Utility
NPort Z3150: Web Console
Firmware Upgrade:
NPort Z2150: ZigBee Configuration Utility
NPort Z3150: Windows Utility, Web Console

Physical Characteristics

Housing: Aluminum
Weight:
NPort Z2150: 340 g (0.75 lb)
NPort Z3150: 780 g (1.72 lb)
Dimensions:
NPort Z2150:
Without ears: 52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)
With ears: 75.2 x 80 x 22 mm (2.96 x 3.15 x 0.87 in)
NPort Z3150:
Without ears: 77 x 111 x 26 mm (3.33 x 4.37 x 1.02 in)
With ears: 100 x 111 x 26 mm (3.94 x 4.37 x 1.02 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% RH

Power Requirements

Input Voltage: 12 to 48 VDC
Input Current:
NPort Z2150: 45 mA @ 12 V
NPort Z3150: 120 mA @ 12 V
Connector: Power Jack with Screw, Terminal block (NPort Z3150 only)

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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
Radio: CE (ETSI EN 301 893, ETSI EN 300 328, ETSI EN 301 489-1-17, ETSI EN 301 489-1)

Reliability

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

MTBF (mean time between failures)

Time:
NPort Z2150: 2,542,774 hrs
NPort Z3150: 1,109,589 hrs
Standard: Telcordia (Bellcore) Standard TR/SR

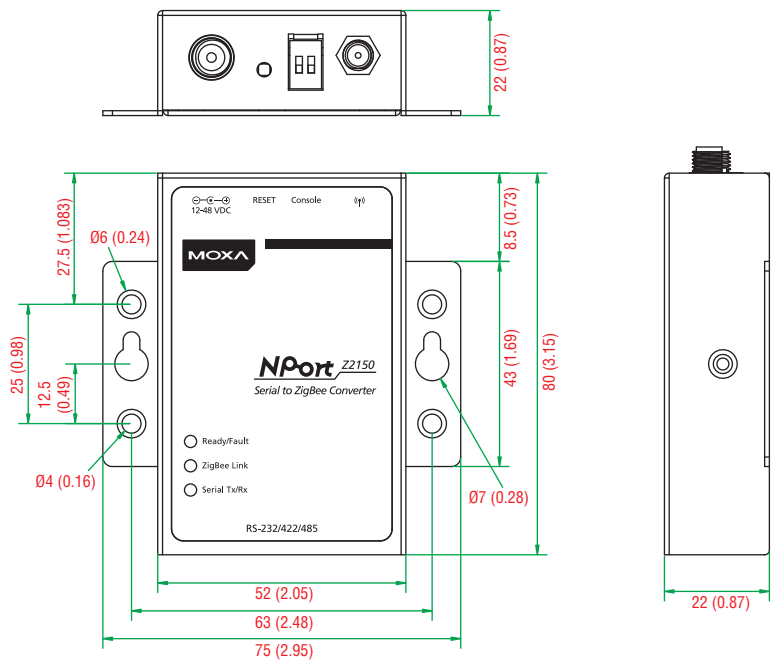
Warranty

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

Dimensions

Unit: mm (inch)

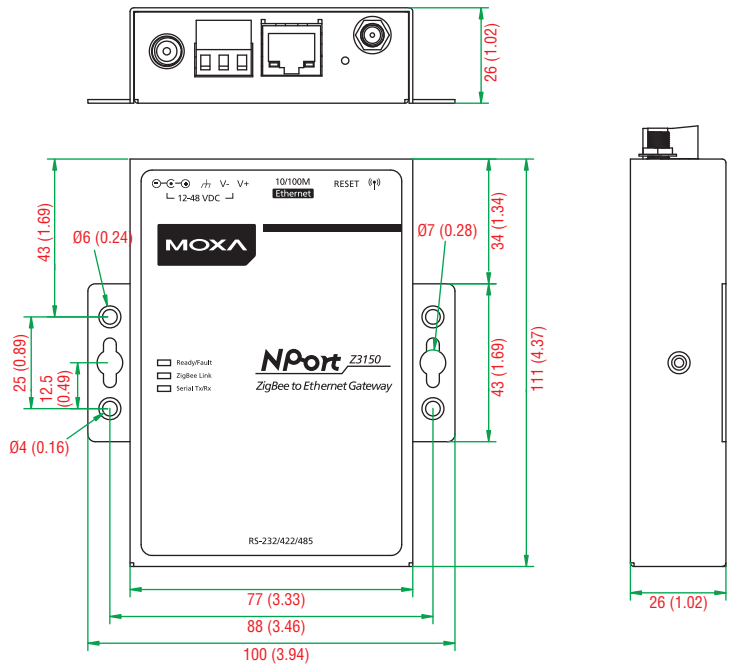
NPort® Z2150



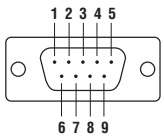
Dimensions

Unit: mm (inch)

NPort® Z3150



Pin Assignment



PIN	RS-232	RS-422/RS-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 Z2150: 1-port RS-232/422/485 serial-to-ZigBee converter with 802.15.4, 0 to 55°C operating temperature
NPort Z3150: 1-port ZigBee-to-Ethernet gateway, 0 to 55°C operating temperature
NPort Z2150-T: 1-port RS-232/422/485 serial-to-ZigBee converter with 802.15.4, -40 to 75°C operating temperature
NPort Z3150-T: 1-port ZigBee-to-Ethernet gateway, -40 to 75°C operating temperature

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 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 female to terminal block adapter for RS-422/485 applications
DB9F-to-TB Adapter: DB9 female to terminal block adapter for RS-422/485 applications
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 Z2150 or NPort Z3150
- 100 to 240 VAC power adapter (excluding T models)
- 1 2.4/5 GHz antenna: ANT-WDB-ARM-02
- Quick installation guide (printed)
- Documentation and software CD
- Warranty card

Note: The package includes one power adapter suitable for your region.

Power Accessory Selection Guide

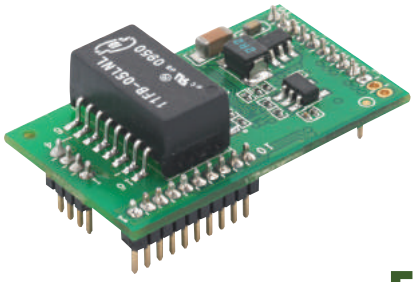
Barrel Plug Type		Locking Barrel Plug				
O/P		12 VDC 0.5 A, 100 to 240 VAC (Switch-Mode)				
Plug Type		US/JP	EU	AU	UK	CN
Appearance						
Model Name		PWR-12050-WPUSJP-S1	PWR-12050-WPEU-S1	PWR-12050-WPAU-S1	PWR-12050-WPUK-S1	PWR-12050-WPCN-S1
1 Port	NPort 5110	–	–	–	–	–
	NPort 5130	–	–	–	–	–
	NPort 5150	–	–	–	–	–
	NPort 5110A	✓	✓	✓	✓	✓
	NPort 5130A	✓	✓	✓	✓	✓
	NPort 5150A	✓	✓	✓	✓	✓
	DE-211	–	–	–	–	–
	DE-311	–	–	–	–	–
	NPort P5110A	✓	✓	✓	✓	✓
	NPort W2150A	✓	✓	✓	✓	✓
	NPort Z2150	✓	✓	✓	✓	✓
2 Ports	NPort 5210	–	–	–	–	–
	NPort 5230	–	–	–	–	–
	NPort 5232	–	–	–	–	–
	NPort 5232I	–	–	–	–	–
	NPort 5210A	✓	✓	✓	✓	✓
	NPort 5230A	✓	✓	✓	✓	✓
	NPort 5250A	✓	✓	✓	✓	✓
	NPort W2250A	✓	✓	✓	✓	✓
	NPort Z2250	✓	✓	✓	✓	✓

Barrel Plug Type		Non-Locking Barrel Plug				
O/P		12 VDC 0.5 A, 100 to 240 VAC (Switch-Mode)				
Plug Type		US/JP	EU	AU	UK	CN
Appearance						
Model Name		PWR-12050-WPUSJP-S2	PWR-12050-WPEU-S2	PWR-12050-WPAU-S2	PWR-12050-WPUK-S2	PWR-12050-WPCN-S2
1 Port	NPort 5110	✓	✓	✓	✓	✓
	NPort 5130	✓	✓	✓	✓	✓
	NPort 5150	✓	✓	✓	✓	✓
	NPort 5110A	–	–	–	–	–
	NPort 5130A	–	–	–	–	–
	NPort 5150A	–	–	–	–	–
	DE-211	✓	✓	✓	✓	✓
	DE-311	✓	✓	✓	✓	✓
	NPort P5110A	–	–	–	–	–
	NPort W2150A	–	–	–	–	–
	NPort Z2150	–	–	–	–	–
2 Ports	NPort 5210	✓	✓	✓	✓	✓
	NPort 5230	✓	✓	✓	✓	✓
	NPort 5232	✓	✓	✓	✓	✓
	NPort 5232I	✓	✓	✓	✓	✓
	NPort 5210A	–	–	–	–	–
	NPort 5230A	–	–	–	–	–
	NPort 5250A	–	–	–	–	–
	NPort W2250A	–	–	–	–	–
	NPort Z2250	–	–	–	–	–

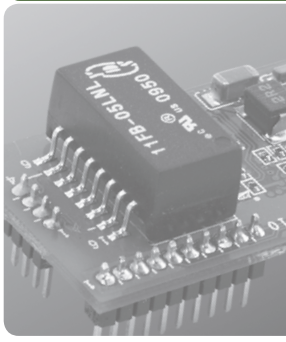
Power Accessory Selection Guide

Barrel Plug Type		Non-Locking Barrel Plug				
O/P		12 VDC 1.25/1.5 A, 100 to 240 VAC				
Plug Type		US/JP	EU	AU	UK	CN
Appearance						
Model Name		PWR-12125-USJP-S1	PWR-12150-EU-S2	PWR-12150-AU-S2	PWR-12150-UK-S2	PWR-12125-CN-S1
4 Ports	NPort 5410	✓	✓	✓	✓	✓
	NPort 5430	✓	✓	✓	✓	✓
	NPort 5430I	✓	✓	✓	✓	✓
	NPort 5450	✓	✓	✓	✓	✓
	NPort 5450I	✓	✓	✓	✓	✓
8 Ports	NPort 5610-8	–	–	–	–	–
	NPort 5630-8	–	–	–	–	–
	NPort 5650-8	–	–	–	–	–
	NPort 5650-8-M-SC	–	–	–	–	–
	NPort 5650-8-S-SC	–	–	–	–	–
	NPort 5610-8-DT	–	–	–	–	–
	NPort 5610-8-DT-J	–	–	–	–	–
	NPort 5650-8-DT	–	–	–	–	–
	NPort 5650-8-DT-J	–	–	–	–	–
	NPort 5650I-8-DT	–	–	–	–	–
	NPort 5610-8-DTL	–	–	–	–	–
	NPort 5650-8-DTL	–	–	–	–	–
	NPort 5650I-8-DTL	–	–	–	–	–
16 Ports	NPort 5610-16	–	–	–	–	–
	NPort 5630-16	–	–	–	–	–
	NPort 5650-16	–	–	–	–	–

Barrel Plug Type		Locking Barrel Plug						
O/P		12 VDC 2 A, 100 to 240 VAC (desktop type)	10A/250V Power Cord, 183 cm					
Plug Type		Must accompany with one power cord	US	JP	EU	AU	UK	CN
Appearance								
Model Name		PWR-12200-DT-S1	PWC-C13US-3B-183	PWC-C13JP-3B-183	PWC-C13EU-3B-183	PWC-C13AU-3B-183	PWC-C13UK-3B-183	PWC-C13CN-3B-183
4 Ports	NPort 5410	–	–	–	–	–	–	–
	NPort 5430	–	–	–	–	–	–	–
	NPort 5430I	–	–	–	–	–	–	–
	NPort 5450	–	–	–	–	–	–	–
	NPort 5450I	–	–	–	–	–	–	–
8 Ports	NPort 5610-8	–	✓	✓	✓	✓	✓	✓
	NPort 5630-8	–	✓	✓	✓	✓	✓	✓
	NPort 5650-8	–	✓	✓	✓	✓	✓	✓
	NPort 5650-8-M-SC	–	✓	✓	✓	✓	✓	✓
	NPort 5650-8-S-SC	–	✓	✓	✓	✓	✓	✓
	NPort 5610-8-DT	✓	✓	✓	✓	✓	✓	✓
	NPort 5610-8-DT-J	✓	✓	✓	✓	✓	✓	✓
	NPort 5650-8-DT	✓	✓	✓	✓	✓	✓	✓
	NPort 5650-8-DT-J	✓	✓	✓	✓	✓	✓	✓
	NPort 5650I-8-DT	✓	✓	✓	✓	✓	✓	✓
	NPort 5610-8-DTL	✓	✓	✓	✓	✓	✓	✓
	NPort 5650-8-DTL	✓	✓	✓	✓	✓	✓	✓
	NPort 5650I-8-DTL	✓	✓	✓	✓	✓	✓	✓
16 Ports	NPort 5610-16	–	✓	✓	✓	✓	✓	✓
	NPort 5630-16	–	✓	✓	✓	✓	✓	✓
	NPort 5650-16	–	✓	✓	✓	✓	✓	✓



Embedded Device Servers



Embedded Device Servers

	MiiNePort E2/E2-T MiiNePort E2-H/E2-H-T	MiiNePort E3/E3-T MiiNePort E3-H/E3-H-T	MiiNePort W1 MiiNePort W1-T
Form Factor			
Type	Drop-in module	Pin-header module	Drop-in module
Physical Characteristics			
Dimensions	29 x 17 x 12.6 mm (1.14 x 0.67 x 0.50 in)	35 x 52.5 x 18 mm (1.38 x 2.07 x 0.71 in)	44.4 x 44.4 x 9.7 mm (1.75 x 1.75 x 0.38 in)
Weight	5 g (0.01 lb)	12 g (0.03 lb)	15.35 g (0.03 lb)
Ethernet Interface			
10/100BaseT(X) Ports	1	1	1
Connector	4-pin pin header	RJ45	–
Magnetic Isolation Protection	1.5 kV	1.5 kV	–
WLAN Interface			
Standard Compliance	–	–	IEEE 802.11b/g
Radio Frequency Type	–	–	DSSS, CCK, OFDM
Wireless Security	–	–	AES, WEP, WPA, WPA2, PSK, 802.11i
Network Modes	–	–	Infrastructure mode (b/g), Ad-Hoc mode (b/g)
Serial Interface			
TTL Ports	1 (data port)	1 (data port)	1 (data port)
Serial Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark		Data Bits: 7, 8; Stop Bits: 1, 2; Parity: None, Even, Odd
Flow Control	RTS/CTS, DTR/DSR, XON/XOFF		RTS/CTS, XON/XOFF
Baudrate	MiiNePort E2: 50 bps to 230.4 kbps MiiNePort E2-H: 50 bps to 921.6 kbps (nonstandard baudrates supported)	MiiNePort E3: 50 bps to 230.4 kbps MiiNePort E3-H: 50 bps to 921.6 kbps (nonstandard baudrates supported)	50 bps - 921.6 kbps
Programmable GPIO Pins	4	4	8
Software			
Network Protocols	ICMP, ARP, IPv4, TCP, UDP, DHCP, HTTP, SNMP V1, SMTP, TFTP, Auto IP, Telnet, BOOTP		ICMP, IP, TCP, UDP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, SNTP, SSH, HTTPS, ARP
Configuration Options	Web/Serial/Telnet Console, Windows Search Utility		
Serial Command Mode	✓	✓	✓
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		
Operation Modes	TCP Server, TCP Client, UDP, Real COM, Ethernet Modem, RFC2217		Real COM, TCP Server, TCP Client, UDP, RFC2217
NetEZ Technology	EZPower, EZPage, SCM, AutoCFG, MCSC	EZPower, EZPage, SCM, AutoCFG	SCM
Environmental Limits			
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)		
Operating Temperature – Wide Temperature	-40 to 85°C (-40 to 185°F)		-40 to 75°C (-40 to 167°F)
Ambient Relative Humidity	5 to 95% (non-condensing)		
Storage Temperature (package included)	-40 to 60°C (-40 to 140°F)		
Power Requirement			
Input Voltage	3.3 to 5 VDC	3.3 to 5 VDC	3.3 to 5 VDC
Input Current	140 mA @ 3.3 VDC	157 mA @ 3.3 VDC	400 mA @ 3.3 VDC
Standards and Certifications			
Safety	–	–	UL 60950-1
EMC	EN 55022/24	EN 55022/24	EN 55022/24
EMI	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 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: 2 kV; Signal: 0.5 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	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: 2 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	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 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
Radio	–	–	EN 300 328, EN 301 489, EN 62311 (US), DSPR (Japan)
Reliability			
Watchdog Timer	✓	✓	✓
MTBF	Time: 5,696,350 hrs Standard: Telcordia (Bellcore) SR-332	Time: 3,608,031 hrs Standard: Telcordia (Bellcore) SR-332	Time: 441,378 hrs Standard: Telcordia (Bellcore) SR-332
Warranty	5 years (see www.moxa.com/warranty)		
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Embedded Device Servers Software Development Kit

		MiiNePort E2-SDK
Software		
OS		eCos
Software Development Tool		MiiNePort-IDE
Search/Upload Firmware Utility		Windows Search Utility
Wizard		Project/SNMP/CLI(Telnet)/SCM/User Configuration
Windows Real COM Drivers		Windows 98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/10 (x86/x64), 2012 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
Linux Real TTY Drivers		Linux kernel 2.4.x, 2.6.x, 3.x
Operation Modes		Real COM, Ethernet Modem
Serial/Ethernet Testing Tool		PComm Lite
Serial/Ethernet Sample Source Code		1. TCP Server Echo 2. TCP Server: Serial (single connection) 3. TCP Server: Serial (multiple connections) 4. TCP Client Echo 5. TCP Client: Serial (startup) 6. TCP Client: Serial (any character) 7. TCP Client: Serial (designated destination TCP/IP port from serial) 8. UDP echo 9. UDP-to-serial
Physical Characteristics		
Dimensions		29 x 22.8 x 14.5 mm (1.14 x 0.9 x 0.57 in)
Weight		3.16 g (0.01 lb)
Environmental Limits		
Operating Temperature	Standard Temperature	0 to 55°C (32 to 131°F)
Ambient Relative Humidity		5 to 95% (non-condensing)
Storage Temperature (package included)		-40 to 60°C (-40 to 140°F)
Power Requirements		
Input Voltage		3.3 to 5 VDC
Input Current		140 mA @ 3.3 VDC
Standards and Certifications		
Safety		–
EMC		EN 55022/24
EMI		CISPR 22, FCC Part 15B Class B
EMS		IEC 61000-4-2 ESD: Contact: 6 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: 2 kV; Signal: 0.5 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
Reliability		
Watchdog Timer		✓
MTBF		Time: 2,463,960 hrs Standard: Telcordia (Bellcore) TR/SR
Warranty		5 years (see www.moxa.com/warranty)
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Go Ethernet with Thumb-Sized Serial-to-Ethernet Solutions

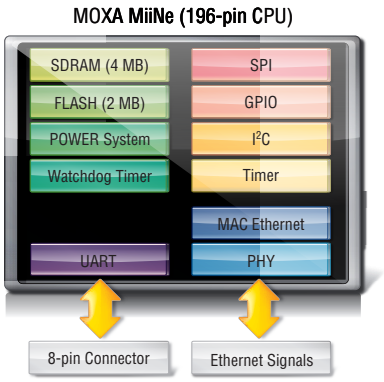
Are you concerned about cost, design flexibility, and power consumption? Moxa understands what you need! To serve this demand, Moxa developed the MiiNePort series family, the world's tiniest and most innovative embedded serial-to-Ethernet device server.

Moxa's MiiNePort series embedded device servers are designed for manufacturers who want to add sophisticated network connectivity to their serial devices with minimal integration effort.

The MiiNe is a Lean yet Powerful Serial-to-Ethernet Solution

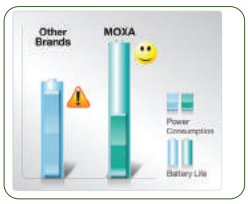
Moxa's second generation SoC, the MiiNe, was created to provide device manufacturers with a competitive embedded serial-to-Ethernet solution. The MiiNePort embedded device server, which uses the MiiNe for its SoC, is the world's tiniest embedded device server and has the lowest power consumption among similar products. The MiiNe SoC has the following features:

- Designed for 1 or 2-port serial-to-Ethernet applications
- Uses a 32-bit ARM core
- Uses Moxa's advanced UART technology
- Has 2 MB Flash and 4 MB SDRAM memory built in



Powered by the MiiNe, Moxa's 2nd generation SoC, the MiiNePort makes your device more powerful and cost-effective.

As the world's smallest serial-to-Ethernet module, the thumb-sized MiiNePort maximizes your design flexibility.



Want to minimize the power consumption of your device while maximizing its strength? The MiiNePort can help.

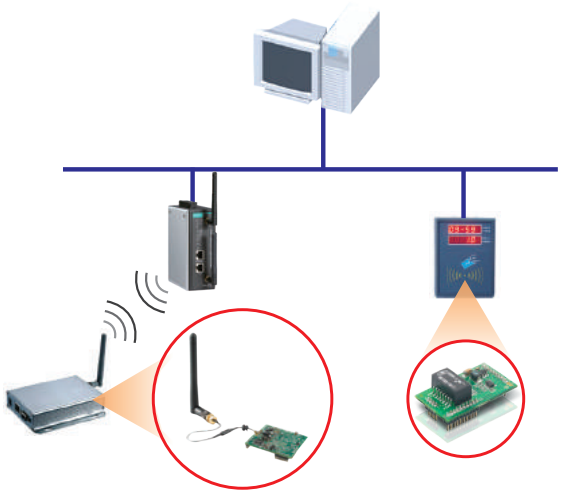
NetEZ™

Moxa's NetEZ technology gives serial device manufacturers a range of powerful tools for integrating Ethernet capability into serial devices.

Introduction to Embedded Device Servers

Embedded device servers give serial device manufacturers a cost-effective means of making serial devices network-ready. Moxa provides a wide range of embedded device servers with products available to provide either wired or wireless Ethernet communication capability. With Moxa's embedded device servers, device manufactures can easily turn their legacy serial devices into network devices with a minimum of investment and effort. In fact, since TCP/IP expertise is not required, time-to-market can be reduced to the three- to six-month range. Compared with other solutions on the market, Moxa's embedded device server products give serial device manufacturers ready access to a unique set of features:

- Different form factors for different installation types
- Versatile, ready-to-use operation modes
- Thumb-sized footprint minimizes overall device size
- Low power consumption maximizes device system stability
- NetEZ technology makes device manufacturers' job and life easier



Different form factors for different installation types

Drop-in Form Factor: Drop-in modules come with DIP pins or pin headers to make assembly easy. This kind of module has a smaller footprint and it is perfect for device manufacturers who have size concerns for their devices.

Moxa's Drop-in Modules: MiiNePort E2, MiiNePort W1.

Stand-alone Form Factor: Stand-alone modules come with pin headers and screw mounting holes for device manufacturers to connect and fix the modules to the device's mainboard. This kind of module has a bigger footprint compared to the drop-in form factor, but it still provides sufficient flexibility for placing the module in the device without making large changes to the device's original mainboard design.

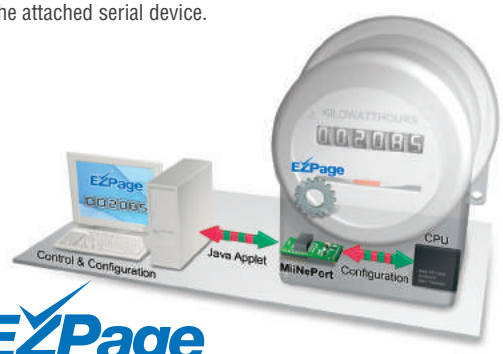
Moxa Stand-alone Modules: MiiNePort E3.

NetEZ Technology

NetEZ™ It's That Easy! SCM | AutoCFG | MCSC | EZPower | EZPage

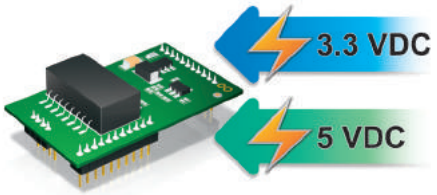
Moxa's NetEZ technology gives serial device manufacturers a range of powerful tools for integrating Ethernet capability into serial devices:

- **EZPage:** Need a module that allows direct communication with the attached serial device? Use the MiiNePort's EZPage Java Applet to create a visual web page for configuring and communicating with the attached serial device.



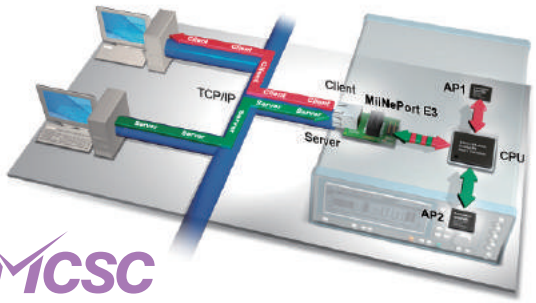
EZPage

- **EZPower:** Need a module that provides a versatile system power input voltage? Use the MiiNePort's EZPower to switch automatically between a 3.3 and 5 VDC system power input.



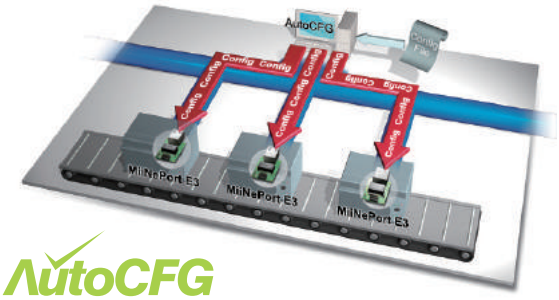
EZPower

- **MCSC:** Ever wanted your device to be a server and client at the same time? The MiiNePort's MCSC (Multi-channel Serial Communication) provides dual connections and dual channels for multitask applications.



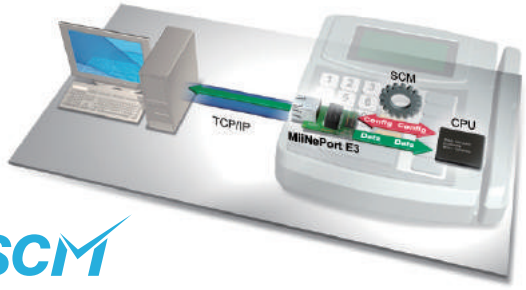
MCSC

- **AutoCFG:** Tired of spending a large amount of time and effort setting up a network? Not anymore! The MiiNePort's AutoCFG makes auto-configuration during manufacturing possible.



AutoCFG

- **SCM:** Need an easy tool to configure the network through serial communication inside the device? Try MiiNePort's friendly SCM (Serial Command Mode).

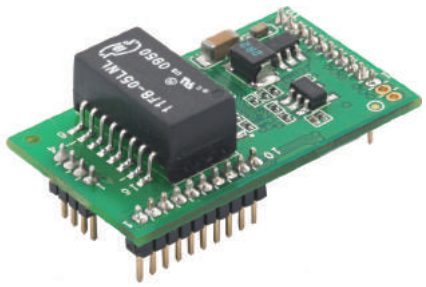


SCM

MiiNePort E2 Series

Award-winning Product
TAIWAN EXCELLENCE 2013

10/100 Mbps embedded serial device servers



- Smallest embedded device server available—only 29 x 17 x 12.6 mm
- EZPower for 3.3 to 5 VDC system power input supported
- Extremely low power consumption
- Uses the MiiNe, Moxa's second generation SoC
- Simple integration with NetEZ technology
- Operation versatility with Real COM/TCP/UDP/RFC2217/MCSC

Overview

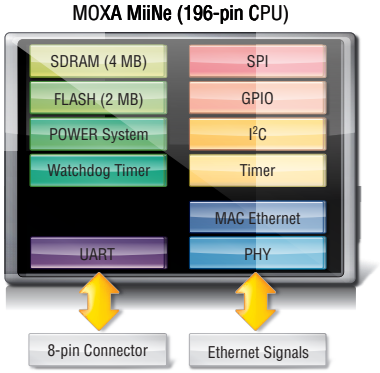
Moxa's MiiNePort E2 series embedded device servers are designed for manufacturers who want to add sophisticated network connectivity to their serial devices with minimal integration effort. The MiiNePort E2 is empowered by the MiiNe, Moxa's second generation SoC, which supports 10/100 Mbps Ethernet, delivers a serial baudrate of up to 921.6 kbps, offers a versatile selection of ready-to-use operation modes, and requires a minimal amount of power. With Moxa's innovative NetEZ technology, the MiiNePort E2 can convert any device with a standard serial interface to an Ethernet-enabled device. In addition, the MiiNePort E2 is the smallest embedded device server without an RJ45 connector, making it easy to fit into virtually any existing serial device.

The MiiNe—Moxa's 2nd Generation SoC

MiiNe The MiiNe was created to provide manufacturers with a competitive embedded serial-to-Ethernet solution. The MiiNePort E2, which uses the MiiNe for its SoC, is one of the world's tiniest embedded device servers and has the lowest power consumption among similar products. The MiiNe's features include:

- Cost-effective serial-to-Ethernet conversions
- ARM core
- Advanced UART technology
- Internal 2 MB Flash and 4 MB SDRAM memory

MOXA MiiNe (196-pin CPU)



Specifications

Form Factor
Type: Drop-in module
Dimensions: 29 x 17 x 12.6 mm (1.14 x 0.67 x 0.50 in)
Weight: 5 g (0.01 lb)

System Information
CPU: 32-bit ARM Core
RAM: 4 MB built in
Flash: 2 MB built in

Ethernet Interface
Number of Ports: 1
Speed: 10/100 Mbps, auto MDI/MDIX
Magnetic Isolation Protection: 1.5 kV built-in

Serial Interface
Number of Ports: 1
Transmission Format: Standard TTL

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:
MiiNePort E2: 50 bps to 230.4 kbps
MiiNePort E2-H: 50 bps to 921.6 kbps
Note: Non-standard baudrates supported

Serial Signals
TTL: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RST (reset circuit), GND

Digital I/O Pins
GPIO: 4 configurable I/O pins

Software

Network Protocols: ICMP, ARP, IPv4, TCP, UDP, DHCP, HTTP, SNMP V1, SMTP, TFTP, Auto IP, Telnet, BOOTP
Configuration Options: Web Console, Serial Console (Serial Command Mode), 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
Operation Modes: Real COM, TCP Server, TCP Client, UDP, Ethernet Modem, RFC2217, MCSC
NetEZ Function: EZPower, EZPage, SCM (Serial Command Mode), AutoCFG, MCSC (Multi-channel Serial Communication)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature (package included): -40 to 60°C (-40 to 140°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 3.3 to 5 VDC
Input Current: 157 mA @ 3.3 VDC

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
IEC 61000-4-2 ESD: Contact: 6 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 2 kV; Signal: 0.5 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
Vibration: IEC 60068-2-6, 5-25.7 Hz: ±15 mm; 25.7-500 Hz: 20g; 3 hours/axis
Shock: IEC 60068-2-27, 500g/2ms
Drop: IEC 60068-2-34
IEC 60068-2-32, ISTA-2A

Reliability

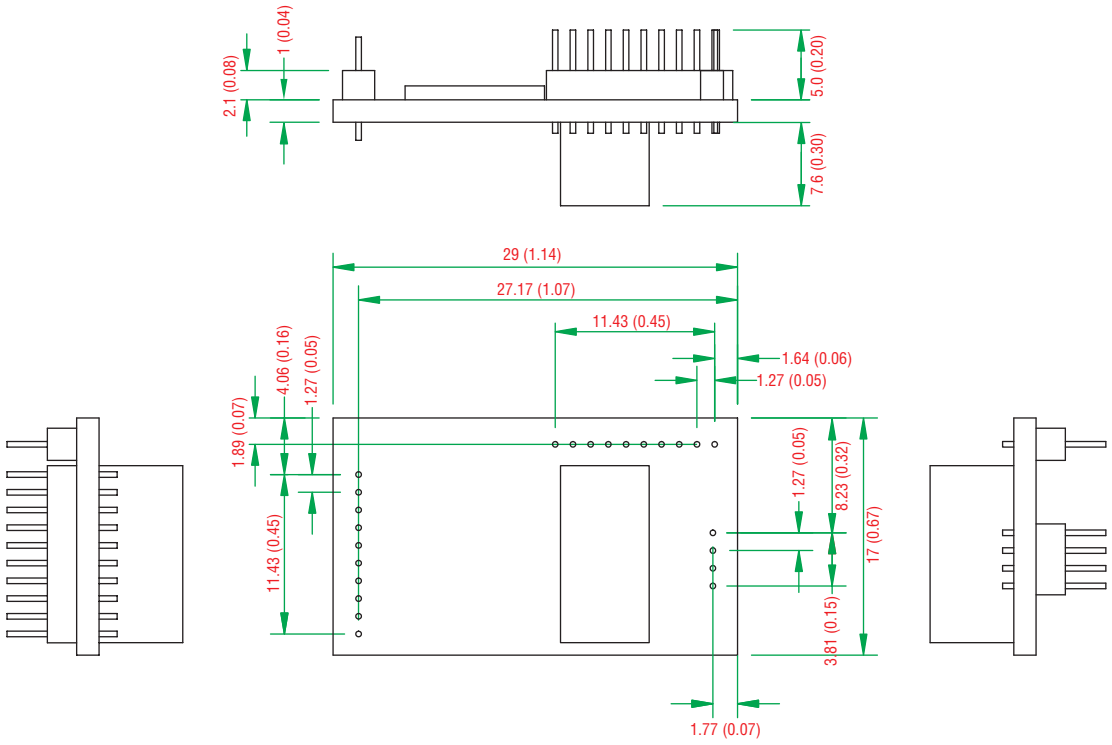
MTBF (mean time between failures):
Time: 5,696,350 hrs
Standard: Telcordia (Bellcore) SR-332

Warranty

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

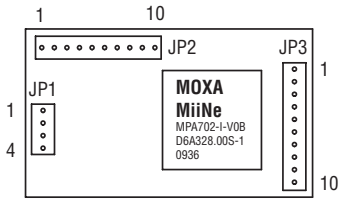
Dimensions

Unit: mm (inch)



Pin Assignment

JP1			JP2			JP3		
Pin	Signal Name	Function	Pin	Signal Name	Function	Pin	Signal Name	Function
1	Ethernet Tx+	Ethernet Transmit Data+	1	100M LED	Ethernet 100M LED	1	DIO0	Programmable Input/Output
2	Ethernet Tx-	Ethernet Transmit Data-	2	10M LED	Ethernet 10M LED	2	DIO2	Programmable Input/Output
3	Ethernet Rx+	Ethernet Receive Data+	3	LRXD	Receive Serial Data	3	DIO3	Programmable Input/Output
4	Ethernet Rx-	Ethernet Receive Data-	4	LTXD	Transmit Serial Data	4	DIO1	Programmable Input/Output
			5	LDCD	Data Carrier Detect	5	Reserved	N/A
			6	RS485_EN	RS-485 Enable	6	Reserved	N/A
			7	LRTS	Request To Send	7	SW_Reset	Reset to Factory Default
			8	LDTR	Data Terminal Ready	8	GND	Circuit Ground
			9	LDSR	Data Set Ready	9	Ready LED	System is Ready LED
			10	LCTS	Clear To Send	10	VCC	Power Supply



Ordering Information

Available Modules

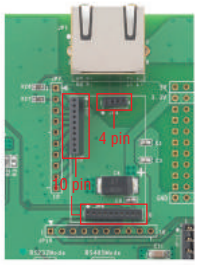
MiiNePort E2: Embedded device server for TTL devices, drop-in module, 10/100M without RJ45 connector, 50 bps to 230.4 kbps baudrate, 0 to 55°C operating temperature
MiiNePort E2-H: Embedded device server for TTL devices, drop-in module, 10/100M without RJ45 connector, 50 bps to 921.6 kbps baudrate, 0 to 55°C operating temperature
MiiNePort E2-T: Embedded device server for TTL devices, drop-in module, 10/100M without RJ45 connector, 50 bps to 230.4 kbps baudrate, -40 to 85°C operating temperature
MiiNePort E2-H-T: Embedded device server for TTL devices, drop-in module, 10/100M without RJ45 connector, 50 bps to 921.6 kbps baudrate, -40 to 85°C operating temperature

Available Starter Kits

MiiNePort E2-ST: Starter kit for the MiiNePort E2 Series, module included
MiiNePort E2-H-ST: Starter kit for the MiiNePort E2-H Series, module included

Optional Accessories (can be purchased separately)

PWR-12125-DT-S1: Desktop power supply (requires power cord), 12 VDC, 1.25 A, 100 to 240 VAC
PWC-C7US-2B-183: 10A/125V US power cord, 183 cm
PWC-C7EU-2B-183: 2.5A/250V Continental European (EU) power cord, 183 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-RJ458P-100: 8-pin RJ45 CAT5 Ethernet cable, 100 cm
Female Socket Connectors: Includes one 1x4 DIP, two 1x10 DIP



Female Socket Connectors

Package Checklist (modules)

- MiiNePort E2 module

Package Checklist (starter kits)

- MiiNePort E2 module
- MiiNePort E2 evaluation board
- Universal power adapter
- Power Cord: PWC-C7US-2B-183
- Power Cord: PWC-C7EU-2B-183
- Serial Cable: CBL-F9M9-150
- Ethernet Cable: CBL-RJ458P-100
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

MiiNePort E2-SDK

MiiNePort E2 software development kit

- Eclipse-based integrated software development tool
- Source level debugger
- Various serial-to-Ethernet sample codes
- Mass production tool for easy firmware upload
- Support Real COM mode operation functions

Overview

MiiNePort E2-SDK is a powerful and versatile software suite for proprietary firmware development on the MiiNePort E2. To expedite time-to-market, the MiiNePort E2-SDK provides comprehensive tools for development, testing, and mass production. The software development kit includes:

MiiNePort-IDE—integrated platform for development of serial-to-Ethernet firmware.

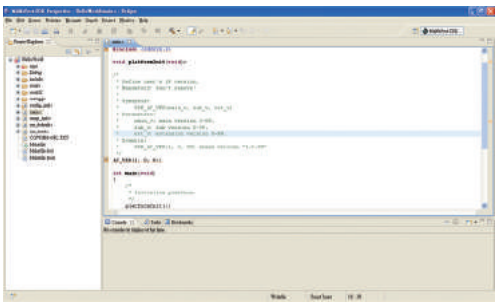
PComm Lite—software application for testing serial and TCP/IP communication/transmission.

Search Utility—search-and-update firmware utility for mass production of modules and serial devices through simultaneous multiple-unit configurations.

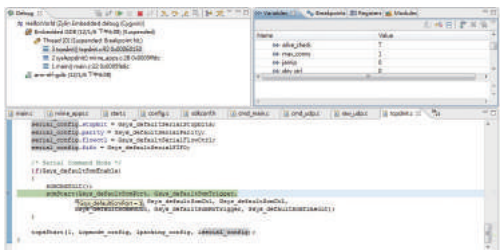
MiiNePort–IDE (Eclipse-based Software Development Tool)

The MiiNePort-IDE is an Eclipse-based platform which includes a powerful source code editor, C/C++ compiler, and source-level debugger tool. The MiiNePort-IDE also offers wizard assistance for step-by-step development of SNMP, Telnet, configuration, and application functions. In addition, serial-to-Ethernet sample codes are provided for reference to assist in firmware development. For complex operating modes, such as RealCOM and Ethernet modem, MiiNePort-IDE offers ready-to-run firmware with minimal configuration required.

Friendly Interface



Source-Level Debugging



Specifications

System Information

CPU: 32-bit ARM Core
RAM: 4 MB built in
Flash: 2 MB built in

Ethernet Interface

Number of Ports: 1
Speed: 10/100 Mbps, auto MDI/MDIX
Magnetic Isolation Protection: 1.5 kV built-in

Serial Interface
Number of Ports: 1
Transmission Format: Standard TTL

Digital I/O Pins
GPIO: 4 configurable I/O pins

Software
OS: eCos
Software Development Tool: MiiNePort-IDE
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
Operation Modes: Real COM, Ethernet Modem
Wizard: Project/SNMP/CLI(Telnet)/SCM/User Configuration
Serial/Ethernet Test Tool: PComm Lite (Serial/TCP Server/TCP Client)
Search/Upload Firmware Utility: NPort Search Utility

Serial to Ethernet Sample Source Code
(Integrated in MiiNePort-IDE):
1. TCP Server Echo
2. TCP Server to Serial (Single connection)
3. TCP Server to Serial (Multi-connection)
4. TCP Client Echo
5. TCP Client to Serial (Startup)
6. TCP Client to Serial (Any character)
7. TCP Client to Serial (Designed destination TCP/IP port from serial)
8. UDP echo
9. UDP to serial

Environmental Limits
Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature (package included): -40 to 60°C (-40 to 140°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

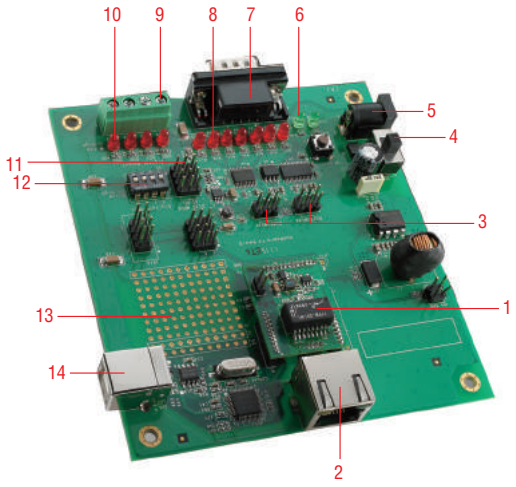
Power Requirements
Input Voltage: 3.3 to 5 VDC
Input Current: 140 mA @ 3.3 VDC

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
IEC 61000-4-2 ESD: Contact: 6 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 2 kV; Signal: 0.5 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
Drop: IEC 60068-2-34
IEC 60068-2-32, ISTA-2A

Reliability
MTBF (mean time between failures):
Time: 2,463,960 hrs
Standard: Telcordia (Bellcore) TR/SR

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

Hardware Evaluation Board



Number	Description
1	MiiNePort E2-SDK Module, 2 MB Flash and 4 MB RAM built in
2	10/100M Ethernet RJ45 Connector
3	Serial Interface Jumper
4	Power Switch
5	Power Jack, 12 to 48 VDC
6	Power & Ready LED
7	RS-232 DB9 Male Connector
8	Serial Port Status LED
9	Digital IO Terminal Block
10	Digital Output LED
11	Digital Input/Output Mode
12	Digital Input Switch
13	Circuit Pad
14	USB Type B Connector (Debug)

Ordering Information

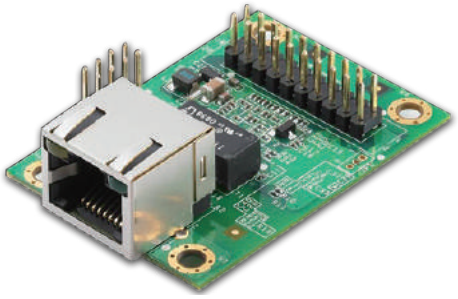
Available Modules
MiiNePort E2-SDK: Software development kit for the MiiNePort E2 Series, MiiNePort E2 module included
Note: For a list of applicable modules available for order, please refer to the MiiNePort E2 datasheet.

Optional Accessories (can be purchased separately)
PWR-12125-DT-S1: Desktop power supply (requires power cord), 12 VDC, 1.25 A, 100 to 240 VAC
PWC-C7US-2B-183: 10A/125V US power cord, 183 cm
PWC-C7EU-2B-183: 2.5A/250V Continental European (EU) power cord, 183 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-RJ458P-100: 8-pin RJ45 CAT5 Ethernet cable, 100 cm
CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm

Package Checklist
- MiiNePort E2-SDK module
- MiiNePort E2-SDK evaluation board
- Universal power adapter
- Power Cord: PWC-C7US-2B-183
- Power Cord: PWC-C7EU-2B-183
- USB Cable: CBL-USBA/B-100
- Serial Cable: CBL-F9M9-150
- Ethernet Cable: CBL-RJ458P-100
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

MiiNePort E3 Series

10/100 Mbps embedded serial device servers



- IEEE 802.3af compliant PoE pass-through
- Use Moxa's high quality and reliable second generation MiiNe SoC
- Versatile choice of operation modes fulfill specific application requirements
- Green design with extremely low power consumption
- MiiNePort NetEZ Technology makes integration incredibly easy
- Highly compact embedded device module

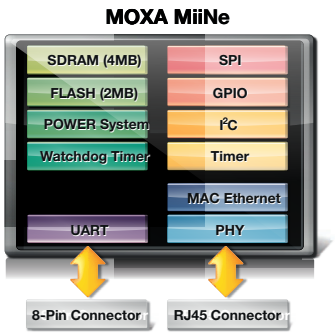
Overview

Moxa's MiiNePort E3 series embedded device servers are designed for manufacturers who want to add sophisticated network connectivity to their serial devices with minimal integration effort. The MiiNePort E3 is empowered by the MiiNe, Moxa's second generation SoC, which supports 10/100 Mbps Ethernet, up to 921.6 kbps serial baudrate, a versatile selection of ready-to-use operation modes, and requires only a small amount of power. By using Moxa's innovative NetEZ technology, the MiiNePort E3 can be used to convert any device with a standard serial interface to an Ethernet-enabled device in no time. In addition, the MiiNePort E3 is a compact embedded device server with an RJ45 connector, making it easy to fit into virtually any existing serial device.

The MiiNe—Moxa's 2nd Generation SoC

MiiNe The MiiNe was created to provide manufacturers with a competitive embedded serial-to-Ethernet solution. The MiiNePort E3, which uses the MiiNe for its SoC, is a compact embedded device server that has the lowest power consumption among similar products. The MiiNe has the following features:

- Designed for serial-to-Ethernet applications
- Uses an ARM core
- Uses Moxa's own advanced UART technology
- 2 MB Flash and 4 MB SDRAM memory built in



Specifications

Form Factor
Type: Pin header module
Dimensions: 35 x 52.5 x 18 mm (1.38 x 2.07 x 0.71 in)
Weight: 12 g (0.03 lb)

System Information
CPU: 32-bit ARM Core
RAM: 4 MB built in
Flash: 2 MB built in

Ethernet Interface
Number of Ports: 1
Speed: 10/100 Mbps, auto MDI/MDIX
Connector: RJ45 (magnetic)
Magnetic Isolation Protection: 1.5 kV built-in
LEDs: 10BASE-T & 100BASE-TX Link Activity
PoE Pass-through: 802.3af compliant

Serial Interface
Number of Ports: 1
Transmission Format: Standard TTL

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:
MiiNePort E3: 50 bps to 230.4 kbps
MiiNePort E3-H: 50 bps to 921.6 kbps
Note: Non-standard baudrates supported

Serial Signals
TTL: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RST (reset circuit), GND

Digital I/O Pins

GPIO: 4 configurable I/O pins

Software

Network Protocols: ICMP, ARP, IPv4, TCP, UDP, DHCP, HTTP, SNMP V1, SMTP, TFTP, Auto IP, Telnet, BOOTP
Configuration Options: Web Console, Serial Console (Serial Command Mode), 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
Operation Modes: Real COM, TCP Server, TCP Client, UDP, Ethernet Modem, RFC2217
NetEZ Function: EZPower, EZPage, SCM (Serial Command Mode), AutoCFG

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature (package included): -40 to 60°C (-40 to 140°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 3.3 to 5 VDC
Input Current: 157 mA @ 3.3 VDC

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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 2 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
Vibration: IEC 60068-2-6, 5-25.7 Hz: ±15 mm; 25.7-500 Hz: 20g; 3 hours/axis
Shock: IEC 60068-2-27, 500g/2ms
Drop: IEC 60068-2-34
IEC 60068-2-32, ISTA-2A

Reliability

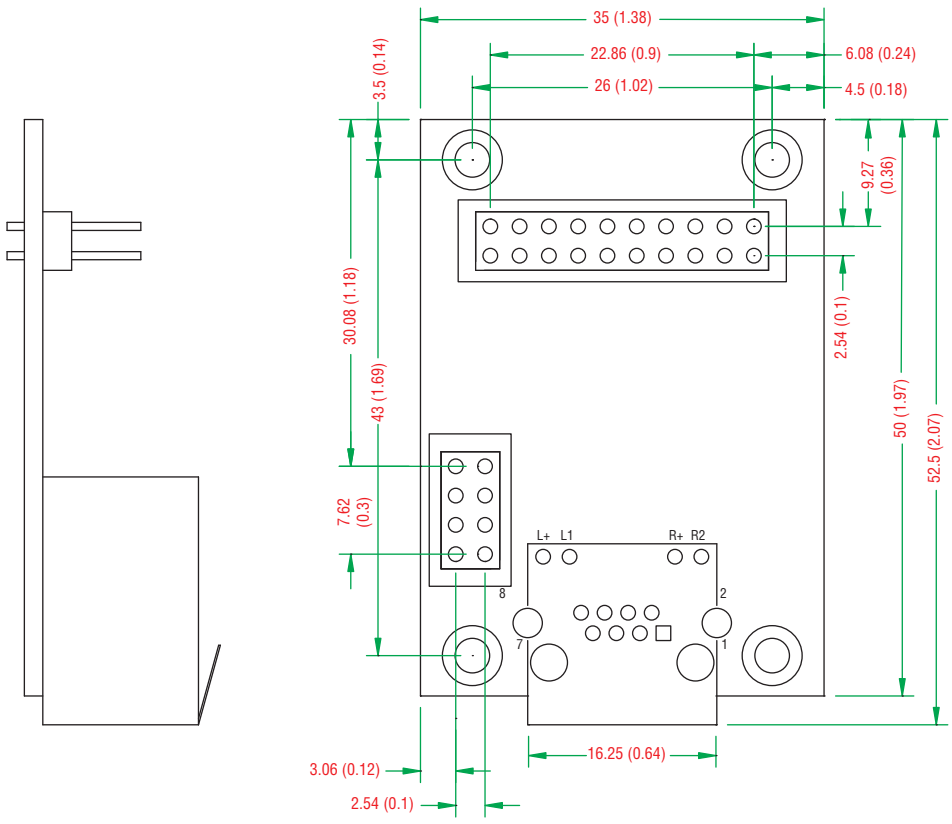
MTBF (mean time between failures):
Time: 3,608,031 hrs
Standard: Telcordia (Bellcore) TR/SR

Warranty

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

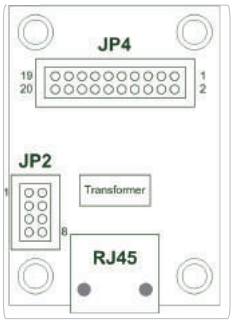
Dimensions

Unit: mm (inch)



Pin Assignment

Ethernet Pins (JP2)			Serial Pins and Power Pins (JP4)					
Pin	Signal Name	Function	Pin	Signal Name	Function	Pin	Signal Name	Function
1	Reserve	N/A	1	Serial Rx	Receive Serial Data	11	DTR	Data Terminal Ready
2	Reserve	N/A	2	Ready LED	System To Ready LED	12	Reserve	N/A
3	Reserve	N/A	3	Serial Tx	Transmit Serial Data	13	LDSR	Data Set Ready
4	Reserve	N/A	4	GPIO	Programmable I/O	14	Reserve	N/A
5	POE signal pair 1	PoE Power from Tx signal	5	LDCD	Data Carrier Detect	15	LCTS	Clear To Send
6	POE spare pair 1	PoE Power from RJ45 4, 5 pin	6	GPIO	Programmable I/O	16	SW_Reset	Reset to factory default
7	POE signal pair 2	PoE Power from Rx signal	7	RS485_ EN0	RS-485 Enable	17	Reserve	N/A
8	POE spare pair 2	PoE Power from RJ45 7, 8 pin	8	GPIO	Programmable I/O	18	Reserve	N/A
			9	LRTS	Request To Send	19	GND	Circuit Ground
			10	GPIO	Programmable I/O	20	VCC	Power Supply



Ordering Information

Available Modules

MiiNePort E3: Embedded device server for TTL devices, pin header module, 10/100M with RJ45 connector, 50 bps to 230.4 kbps baudrate, 0 to 55°C operating temperature
MiiNePort E3-H: Embedded device server for TTL devices, pin header module, 10/100M with RJ45 connector, 50 bps to 921.6 kbps baudrate, 0 to 55°C operating temperature
MiiNePort E3-T: Embedded device server for TTL devices, pin header module, 10/100M with RJ45 connector, 50 bps to 230.4 kbps baudrate, -40 to 85°C operating temperature
MiiNePort E3-H-T: Embedded device server for TTL devices, pin header module, 10/100M with RJ45 connector, 50 bps to 921.6 kbps baudrate, -40 to 85°C operating temperature

Available Starter Kits

MiiNePort E3-ST: Starter kit for the MiiNePort E3 Series, module included
MiiNePort E3-H-ST: Starter kit for the MiiNePort E3-H Series, module included

Optional Accessories (can be purchased separately)

PWR-12125-DT-S1: Desktop power supply (requires power cord), 12 VDC, 1.25 A, 100 to 240 VAC
PWC-C7US-2B-183: 10A/125V US power cord, 183 cm
PWC-C7EU-2B-183: 2.5A/250V Continental European (EU) power cord, 183 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-RJ458P-100: 8-pin RJ45 CAT5 Ethernet cable, 100 cm
Assembly Pack: 8 screws and 4 spacers
8-pin Straight Cable: For connecting module and evaluation board
20-pin Straight Cable: For connecting module and evaluation board

Package Checklist (modules)

- MiiNePort E3 module

Package Checklist (starter kits)

- MiiNePort E3 module
- MiiNePort E3 evaluation board
- Universal power adapter
- Power Cord: PWC-C7US-2B-183
- Power Cord: PWC-C7EU-2B-183
- Serial Cable: CBL-F9M9-150
- Ethernet Cable: CBL-RJ458P-100
- Assembly pack (8 screws & 4 spacers)
- 8-pin straight cable (connect module and evaluation board)
- 20-pin straight cable (connect module and evaluation board)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

MiiNePort W1 Series

Wireless LAN embedded serial device servers

Antenna ordered separately

- IEEE 802.11 b/g compatible
- AES, WEP 64/128-bit, WPA, WPA2, PSK, 802.11i security support
- Low power consumption (1.18W)
- 1 serial port, up to 921.6 kbps
- 1 Ethernet port, 10/100 Mbps
- HTTPS/SSH support for configuration
- Fast roaming to enhance connection reliability

Overview

The MiiNePort W1 series provides serial to IEEE 802.11 b/g embedded wireless solution with compact size and ultra low power consumption features. Numerous operation modes are designed to fulfill the requirements of embedded module application. Complete driver support reduces software redesign effort and accelerate time to market.

Specifications

Form Factor
Type: Drop-in module
Dimensions: 44.4 x 44.4 x 9.7 mm (1.75 x 1.75 x 0.38 in)
Weight: 15.35 g (0.03 lb)

System Information
CPU: 32-bit ARM Core
RAM: 64 MB built in
Flash: 16 MB built in

Ethernet Interface
Number of Ports: 1
Speed: 10/100 Mbps, auto MDI/MDIX

WLAN Interface
Standard Compliance: IEEE 802.11b/g
Network Modes: Infrastructure mode (b/g), Ad-Hoc mode (b/g)
Spread Spectrum Technology: DSSS, CCK, OFDM
Transmit Power:
IEEE 802.11b: 16 dBm (typical)
IEEE 802.11g: 14 dBm (typical)
Receive Sensitivity: -71 dBm (Min)
Transmission Rate:
IEEE 802.11b: 11 Mbps
IEEE 802.11g: 54 Mbps
Transmission Distance:
Up to 100 meters (in open areas)
Wireless Security:
AES, WEP 64/128-bit, WPA, WPA2, PSK, 802.11i

Serial Interface
Number of Ports: 1
Serial Standards: TTL

Serial Communication Parameters
Data Bits: 7, 8
Stop Bits: 1, 2
Parity: None, Even, Odd
Flow Control: RTS/CTS, XON/XOFF
Baudrate: 50 bps to 921.6 kbps

Serial Signals
TTL: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Digital I/O Pins
GPIO: 8 configurable I/O pins

Software
Network Protocols: ICMP, ARP, IPv4, TCP, UDP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, SNTP, SSH, HTTPS
Configuration Options: Web Console, Serial Console (Serial Command Mode), 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
Operation Modes: Real COM, TCP Server, TCP Client, UDP, RFC2217

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 (package included): -40 to 60°C (-40 to 140°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 3.3 to 5 VDC
Input Current: 400 mA @ 3.3 VDC

Standards and Certifications

Safety: UL 60950-1, EN 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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
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
Vibration: IEC 60068-2-6, 5-25.7 Hz: ±15 mm; 25.7-500 Hz: 20g; 3 hours/axis
Shock: IEC 60068-2-27, 500g/2ms
Radio: EN 300 328, EN 301 489, EN62311 (US), DSPR (Japan)
Drop: IEC 60068-2-34
IEC 60068-2-32, ISTA-2A

Reliability

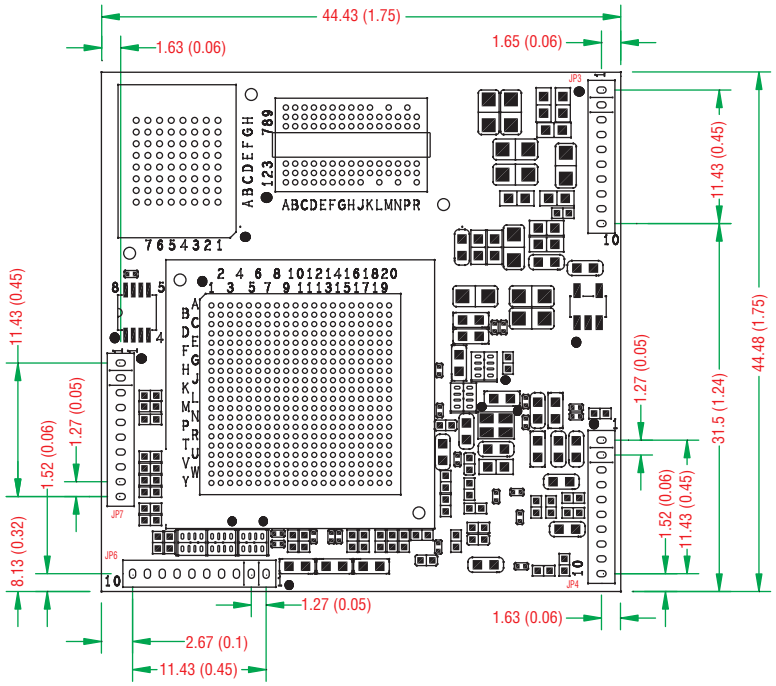
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
MTBF (mean time between failures):
Time: 441,378 hrs
Standard: Telcordia (Bellcore) TR/SR

Warranty

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

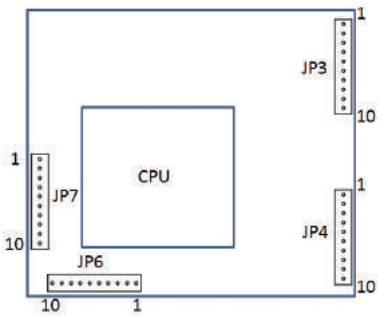
Dimensions

Unit: mm (inch)



Pin Assignment

Pin	JP3	JP4	JP6	JP7
1	N.C.	Eth_10M_LED	PIO0	LTXD0
2	N.C.	Eth_100M_LED	PIO1	LRTS0
3	N.C.	Eth_Rx+	PIO2	LDTR0
4	RDY_LED	Eth_Rx-	PIO3	LRXD0
5	FLT_LED	Eth_center_tap	PIO4	LCTS0
6	HW_RESET	Eth_center_tap	PIO5	LDSR0
7	SW_RESET	Eth_Tx+	PIO6	LDCD0
8	WLAN_Link	Eth_Tx-	PIO7	N.C.
9	Vin	GND	LTXD1	LCTS1
10	Vin	GND	LRTS1	LRXD1



Ordering Information

Available Modules

MiiNePort W1: Embedded wireless device module supporting IEEE 802.11 b/g, 0 to 55°C operating temperature (internal antenna not included)
MiiNePort W1-T: Embedded wireless device module supporting IEEE 802.11 b/g, -40 to 75°C operating temperature (internal antenna not included)

Available Starter Kits

MiiNePort W1-ST: Starter kit for MiiNePort W1, module included

Optional Accessories (can be purchased separately)

PWR-12050-WPUSJP-S2: Non-locking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC with US/JP plug, 0 to 40°C
PWR-12050-WPEU-S2: Non-locking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC with Continental European (EU) plug, 0 to 40°C
PWR-12050-WPUK-S2: Non-locking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC with United Kingdom (UK) plug, 0 to 40°C
PWR-12150-CN-S1: Non-locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC with China (CN) plug, 0 to 40°C
PWR-12050-WPAU-S2: Non-locking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC with Australian (AU) plug, 0 to 40°C
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-RJ458P-100: 8-pin RJ45 CAT5 Ethernet cable, 100 cm
ANT-WDB-ARM-02: 2.4/5 GHz, dual-band omnidirectional antenna, 2 dBi, R-SMA (male), Dipole
CRF-MHF/SMA(M)-14.2: Mini1.13 cable, MHF to RP-SMA (female), 0.14 meters

ANT-WDB-ARM-02

CRF-MHF/SMA(M)-14.2

Package Checklist (modules)

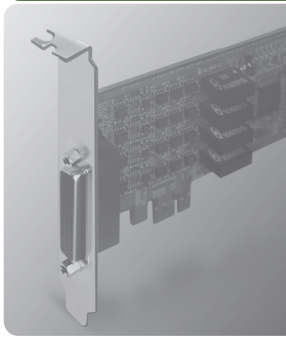
- MiiNePort W1 series wireless module (Antenna ordered separately)

Package Checklist (starter kits)

- 1 MiiNePort W1 series wireless module
- MiiNePort W1 evaluation board
- Antenna: ANT-WDB-ARM-02
- Antenna: CRF-MHF/SMA(M)-14.2
- Serial Cable: CBL-F9M9-150
- Ethernet Cable: CBL-RJ458P-100
- 100 to 240 VAC power adapter (excluding T models)*
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

*The package includes one power adapter suitable for your region.

Multiport Serial Boards



PCI Express Serial Boards

	C320Turbo/PCIEL	CP-118EL-A	CP-168EL-A	CP-114EL	CP-114EL-I	CP-104EL-A	CP-102E
Hardware							
Comm. Controller	16C550C compatible						
Bus	PCI Express x1						
Connector	DB25 female	VHDCI 68		DB44 female			DB9 male
Serial Interface							
RS-232 Ports	32	–	8	–	–	4	2
RS-422/485 Ports	–	–	–	–	–	–	–
RS-232/422/485 Ports	–	8	–	4	4	–	–
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark						
Flow Control	RTS/CTS, XON/XOFF						
Baudrate	50 bps to 460.8 kbps	50 bps to 921.6 kbps					
Electrical Isolation	–	–	–	–	2 kV	–	–
Driver Support							
Windows 95/98/ME/NT	–	–	–	–	–	–	–
Windows 2000	✓	✓	✓	✓	✓	✓	✓
Windows XP/2003/Vista (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 2008 (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 7 (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 8/8.1(x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 10 (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 2008 R2/2012/2012 R2 (x64)	✓	✓	✓	✓	✓	✓	✓
Windows CE 5.0	–	–	–	–	–	–	–
Windows CE 6.0	–	–	–	–	–	–	–
Windows XP Embedded	–	✓	✓	✓	✓	✓	✓
DOS	–	✓	✓	✓	✓	✓	✓
Linux 2.4.x, 2.6.x, 3.x	✓	✓	✓	✓	✓	✓	✓
FreeBSD 4/5	–	✓	✓	✓	✓	✓	✓
QNX 4.25	–	–	–	–	–	–	–
QNX 6	–	✓	✓	✓	✓	✓	✓
SCO Open Server	–	✓	✓	✓	✓	✓	✓
UnixWare 7	–	✓	✓	✓	✓	✓	✓
Environmental Limits							
Dimensions	67 x 135 mm (2.64 x 5.32 in)	68.9 x 88 mm (2.71 x 3.46 in)	64.42 x 102 mm (2.54 x 4.02 in)	67.21 x 103 mm (2.69 x 4.06 in)	67.21 x 135 mm (2.69 x 5.31 in)	67.21 x 103 mm (2.65 x 4.06 in)	85.04 x 100 mm (3.40 x 4.00 in)
Operating Temperature	0 to 55°C (32 to 131°F)						
Storage Temperature	-20 to 85°C (-4 to 185°F)						
Ambient Relative Humidity	5 to 95% (non-condensing)						
Standards and Certifications							
EMC	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24
EMI	CISPR 22, FCC Part 15B Class A	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, 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 IEC 61000-4-5 Surge: Power: 2 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	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: 2 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					
Reliability							
MTBF	Time: 2,937,578 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 1,359,482 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 2,351,336 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 2,347,197 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 603,671 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 3,601,447 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 4,947,552 hrs Standard: Telcordia (Bellcore) TR/SR
Warranty	5 years (see www.moxa.com/warranty)						
Page	12-14	12-16	12-20	12-22	12-22	12-26	12-28

PCI Express Serial Boards

	CP-102EL	CP-132EL	CP-132EL-I	CP-116E-A	CP-118E-A-I	CP-138E-A-I	CP-134EL-A-I
Hardware							
Comm. Controller	16C550C compatible			16C550C compatible			
Bus	PCI Express x1			PCI Express x1			
Connector	DB25 female			VHDCI 68	DB78 Female	DB78 Female	DB44 Female
Serial Interface							
RS-232 Ports	2	–	–	–	–	–	–
RS-422/485 Ports	–	2	2	–	–	8	4
RS-232/422/485 Ports	–	–	–	16	8	–	–
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark			Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark			
Flow Control	RTS/CTS, XON/XOFF	XON/XOFF		RTS/CTS, XON/XOFF			
Baudrate	50 bps to 460.8 kbps			50 bps to 921.6 kbps			
Electrical Isolation	–	–	2 kV	–	2 kV	2 kV	2 kV
Driver Support							
Windows 95/98/ME/NT	–	–	–	–	–	–	–
Windows 2000	✓	✓	✓	✓	✓	✓	✓
Windows XP/2003/Vista (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 2008 (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 7 (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 8/8.1(x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 10 (x86/x64)	✓	✓	✓	✓	✓	✓	✓
Windows 2008 R2/2012/2012 R2 (x64)	✓	✓	✓	✓	✓	✓	✓
Windows CE 5.0	–	–	–	✓	✓	✓	✓
Windows CE 6.0	–	–	–	✓	✓	✓	✓
Windows XP Embedded	✓	✓	✓	✓	✓	✓	✓
DOS	✓	✓	✓	–	–	–	–
Linux 2.4.x, 2.6.x, 3.x	✓	✓	✓	✓	✓	✓	✓
FreeBSD 4/5	–	–	–	–	–	–	–
QNX 4.25	–	–	–	–	–	–	–
QNX 6	✓	✓	✓	✓	✓	✓	✓
SCO Open Server	✓	✓	✓	✓	✓	✓	✓
UnixWare 7	✓	✓	✓	✓	✓	✓	✓
Solaris 10	–	–	–	✓	✓	✓	✓
Environmental Limits							
Dimensions	67.21 x 101.97 mm (2.65 x 4.08 in)	67.21 x 101.97 mm (2.65 x 4.08 in)	67.21 x 103.97 mm (2.65 x 4.16 in)	97.9 x 88.9 mm (3.86 x 3.50 in)	109.5 x 130 mm (4.31 x 5.11 in)		67.2 x 103 mm (2.69 x 4.06 in)
Operating Temperature	0 to 55°C (32 to 131°F)						
Storage Temperature	-20 to 85°C (-4 to 185°F)						
Ambient Relative Humidity	5 to 95% (non-condensing)						
Standards and Certifications							
EMC	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24
EMI	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B
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: 2 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			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 IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 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	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: 2 kV; Signal: 4 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		
Reliability							
MTBF	Time: 4,947,552 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 4,147,133 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 1,681,099 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 310,993 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 390,883 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 221,331 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 431,064 hrs Standard: Telcordia (Bellcore) TR/SR
Warranty	5 years (see www.moxa.com/warranty)						
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Universal PCI Serial Boards

	C320Turbo/PCI	C218Turbo/PCI	CP-118U CP-118U-T	CP-138U CP-138U-T	CP-118U-I CP-118U-I-T	CP-138U-I CP-138U-I-T	CP-168U CP-168U-T	CP-114UL CP-114UL-T	CP-114UL-I CP-114UL-I-T	CP-104UL CP-104UL-T
Hardware										
Comm. Controller	MU860 (16C550C compatible)									
Bus	32-bit Universal PCI									
Connector	DB25 female	DB62 female			DB78 female		DB62 female	DB44 female		
Serial Interface										
RS-232 Ports	32	8	–	–	–	–	8	–	–	4
RS-422/485 Ports	–	–	–	8	–	8	–	–	–	–
RS-232/422/485 Ports	–	–	8	–	8	–	–	4	4	–
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark									
Flow Control	–	–	RTS/CTS, XON/XOFF				RTS/CTS, XON/XOFF			
Baudrate	50 bps - 460.8 kbps	50 bps - 921.6 kbps								
Electrical Isolation	–	–	–	–	2 kV	2 kV	–	–	2 kV	–
Driver Support										
Windows 95/98/ME/NT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2000	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows XP/2003/Vista (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2008 (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 7 (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 8/8.1 (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 10 (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2008 R2/2012/2012 R2 (x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows CE 5.0	–	–	✓	✓	✓	✓	✓	✓	✓	✓
Windows CE 6.0	–	–	✓	✓	✓	✓	✓	✓	✓	✓
Windows XP Embedded	–	–	✓	✓	✓	✓	✓	✓	✓	✓
DOS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux 2.4.x, 2.6.x, 3.x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FreeBSD 4/5	–	–	✓	✓	✓	✓	✓	✓	✓	✓
QNX 4.25	✓	✓	–	–	–	–	–	–	–	–
QNX 6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCO Open Server	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UnixWare 7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environmental Limits										
Dimensions	101.34 x 121.86 mm (3.99 x 4.80 in)	105 x 180 mm (4.13 x 7.09 in)	82 x 135 mm (3.22 x 5.31 in)	82 x 135 mm (3.22 x 5.31 in)	105 x 133 mm (4.13 x 5.23 in)	105 x 133 mm (4.13 x 5.23 in)	82 x 120 mm (3.22 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)	64.4 x 130 mm (2.53 x 5.12 in)	64.4 x 120 mm (2.53 x 4.72 in)
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)		0 to 55°C (32 to 131°F)							
Operating Temperature – Wide Temperature	–		-40 to 60°C (-40 to 140°F)							
Storage Temperature	-20 to 85°C (-4 to 185°F)		-40 to 60°C (-40 to 140°F)							
Ambient Relative Humidity	5 to 95% (non-condensing)		5 to 95% (non-condensing)							
Standards and Certifications										
EMC	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24
EMI	CISPR 22, FCC Part 15B Class A	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B
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 IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11	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 IEC 61000-4-5 Surge: Power: 2 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	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 61000-4-2 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		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 61000-4-2 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: 2 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	
Reliability										
MTBF	Time: 305,270 hrs Standard: MIL-HDBK-217F	Time: 303,325 hrs Standard: MIL-HDBK-217F	Time: 1,073,385 hrs Standard: Telcordia (Bellcore) SR-332	Time: 1,147,210 hrs Standard: Telcordia (Bellcore) SR-332	Time: 350,975 hrs Standard: Telcordia (Bellcore) SR-332	Time: 370,390 hrs Standard: Telcordia (Bellcore) SR-332	Time: 280,854 hrs Standard: Telcordia	Time: 114,223 hrs Standard: Telcordia (Bellcore) SR-332		Time: 558,961 hrs Standard: MIL-HDBK-217F
Warranty	5 years (see www.moxa.com/warranty)									
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Universal PCI Serial Boards

	CP-104JU CP-104JU-T	CP-134U CP-134U-T	CP-134U-I CP-134U-I-T	CP-112UL CP-112UL-T	CP-112UL-I CP-112UL-I-T	CP-102U CP-102U-T	CP-102UL CP-102UL-T	CP-132UL CP-132UL-T	CP-132UL-I CP-132UL-I-T	POS-104UL POS-104UL-T
Hardware										
Comm. Controller	MU860 (16C550C compatible)									
Bus	32-bit Universal PCI									
Connector	RJ45 x 4	DB44 female		DB25 female		DB9 male x 2	DB25 female			DB44 female
Serial Interface										
RS-232 Ports	4	–	–	–	–	2	2	–	–	4
RS-422/485 Ports	–	4	4	–	–	–	–	2	2	–
RS-232/422/485 Ports	–	–	–	2	2	–	–	–	–	–
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark									
Flow Control	RTS/CTS, XON/XOFF							XON/XOFF		RTS/CTS, XON/XOFF
Baudrate	50 bps to 921.6 kbps									
Electrical Isolation	–	–	2 kV	–	2 kV	–	–	–	2 kV	–
Driver Support										
Windows 95/98/ME/NT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2000	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows XP/2003/Vista (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2008 (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 7 (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 8/8.1(x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 10 (x86/x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2008 R2/2012/2012 R2 (x64)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows CE 5.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows CE 6.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows XP Embedded	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOS	✓	✓	✓	–	–	✓	✓	✓	✓	✓
Linux 2.4.x, 2.6.x, 3.x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FreeBSD 4/5	✓	✓	✓	–	–	✓	✓	✓	✓	✓
QNX 4.25	–	–	–	–	–	–	–	–	–	–
QNX 6	✓	✓	✓	–	–	✓	✓	✓	✓	✓
SCO Open Server	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UnixWare 7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Environmental Limits										
Dimensions	83 x 120 mm (3.27 x 4.72 in)	82.5 x 120 mm (3.24 x 4.72 in)	115 x 120 mm (4.52 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)	80 x 120 mm (3.15 x 4.72 in)	64.5 x 120 mm (2.53 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)									
Operating Temperature – Wide Temperature	-40 to 85°C (-40 to 185°F)									
Storage Temperature	-40 to 85°C (-40 to 185°F)									
Ambient Relative Humidity	5 to 95% (non-condensing)									
Standards and Certifications										
EMC	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24, EN 61000-6-2/-6-4
EMI	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B
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 61000-4-2 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: 2 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		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 61000-4-2 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: 2 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			IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11
Reliability										
MTBF	Time: 571,627 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 480,209 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 360,732 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 219,971 hrs Standard: Telcordia (Bellcore) SR-332		Time: 574,050 hrs Standard: MIL-HDBK-217F	Time: 576,401 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 1,647,832 hrs Standard: Telcordia (Bellcore) SR-332		Time: 2,124,022 hrs Standard: Telcordia (Bellcore) TR/SR
Warranty	5 years (see www.moxa.com/warranty)									
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ISA Serial Boards




	C168H/C168HS	C104H/C104HS	CI-134/CI-134I/CI-134IS	CI-132/CI-132I/CI-132IS
Hardware				
Comm. Controller	16C550C compatible			
Bus	16-bit ISA			
Connector	DB62 female	DB37 female	DB37 female	DB9 male x 2
Serial Interface				
RS-232 Ports	8	4	–	–
RS-422/485 Ports	–	–	4	2
RS-232/422/485 Ports	–	–	–	–
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark			
Flow Control	–	–	–	–
Baudrate	50 bps to 921.6 kbps			
Electrical Isolation	–	–	– / 2 kV / 2 kV	– / 2 kV / 2 kV
Driver Support				
Windows 95/98/ME/NT	✓	✓	✓	✓
Windows 2000	✓	✓	✓	✓
Windows XP/2003/Vista (x86)	✓	✓	✓	✓
Windows 2008 (x86)	✓	✓	✓	✓
Windows 7 (x86)	✓	✓	✓	✓
Windows 8/8.1 (x86)	✓	✓	✓	✓
Windows 10 (x86)	✓	✓	✓	✓
Windows CE 5.0	–	–	–	–
Windows CE 6.0	–	–	–	–
Windows XP Embedded	✓	✓	✓	✓
DOS	✓	✓	✓	✓
Linux 2.4.x, 2.6.x, 3.x	✓	✓	✓	✓
FreeBSD 4/5	✓	✓	✓	✓
QNX 4.25	✓	✓	✓	✓
QNX 6	✓	✓	✓	✓
SCO Open Server	✓	✓	✓	✓
UnixWare 7	✓	✓	✓	✓
Environmental Limits				
Dimensions	93 x 157 mm (3.66 x 6.18 in)	83 x 157 mm (3.27 x 6.18 in)	CI-134: 85 x 160 mm (3.35 x 6.30 in) CI-134I/IS: 110 x 180 mm (4.33 x 7.09 in)	CI-132: 75 x 157 mm (2.95 x 6.18 in) CI-132I/IS: 105 x 157 mm (4.13 x 6.18 in)
Operating Temperature	0 to 55°C (32 to 131°F)			
Storage Temperature	-20 to 85°C (-4 to 185°F)			
Ambient Relative Humidity	5 to 95% (non-condensing)			
Standards and Certifications				
EMC	EN 55022/24	EN 55022/24	EN 55022/24	EN 55022/24
EMI	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B
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: 2 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		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Signal: 2 kV	
Reliability				
MTBF	Time: 601,501 hrs Standard: MIL-HDBK-217F	Time: 629,545 hrs Standard: MIL-HDBK-217F	Time: 424,655 hrs Standard: Telcordia (Bellcore) TR/SR	Time: 441,015 hrs Standard: Telcordia (Bellcore) TR/SR
Warranty	5 years (see www.moxa.com/warranty)			
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CAN Interface Boards/Modules

	CP-602U-I CP-602U-I-T	CP-602E-I CP-602E-I-T	CB-602I CB-602I-T
Hardware			
CAN Controller	NXP SJA1000		
CAN Transceiver	PCA82C251		
Bus	32-bit Universal PCI	PCI Express x1	PC/104-Plus bus
Connector	DB9 male x 2	DB9 male x 2	20-pin
CAN Interface			
CAN Specification	CAN 2.0 A/B		
Signal Support	CAN _H, CAN_L, GND		
Ports	2		
Transfer Rate	1 Mbps		
Max Number of Boards per PC	4		
Electrical Isolation	2 kV		
Termination Resistors	120 ohm (selected by jumper)		
Driver Support			
Windows 2000	✓	✓	✓
Windows XP/2003/Vista (x86/x64)	✓	✓	✓
Windows 2008 (x86/x64)	✓	✓	✓
Windows 7 (x86/x64)	✓	✓	✓
Windows 8/8.1 (x86/x64)	✓	✓	✓
Windows 2008 R2/2012/2012 R2 (x64)	✓	✓	✓
Visual Basic Library	✓	✓	✓
C/C++ Library	✓	✓	✓
Environmental Limits			
Dimensions	80 x 120 mm (3.15 x 4.72 in)	85 x 100 mm (3.35 x 3.94 in)	90.2 x 95.9 mm (3.55 x 3.78 in)
Operating Temperature – Standard Temperature	0 to 55°C (32 to 131°F)		
Operating Temperature – Wide Temperature	-40 to 85°C (-40 to 185°F)		
Storage Temperature	-40 to 85°C (-40 to 185°F)		
Ambient Relative Humidity	5 to 95% (non-condensing)		
Standards and Certifications			
EMC	EN 55022/24	EN 55022/24	EN 55022/24
EMI	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B	CISPR 22, FCC Part 15B Class B
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: 2 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	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 IEC 61000-4-5 Surge: Power: 2 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	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 IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 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
Reliability			
MTBF	Time: 1,989,990 hrs Standard: Telcordia (Bellcore) SR-332	Time: 4,645,502 hrs Standard: Telcordia (Bellcore) SR-332	Time: 248,563 hrs Standard: Telcordia (Bellcore) SR-332
Warranty	5 years (see www.moxa.com/warranty)		
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The Basics of RS-232/422/485

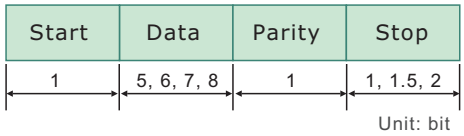
RS-232—the most common and easy-to-use communication interface

The RS-232 serial interface was developed to connect a computer to common peripherals such as modems, overhead projectors, and the sensors and actuators used for industrial automation applications. Despite its limited 15 m transmission distance, RS-232 is low cost and easy-to-wire, making it the first choice for many applications.

RS-232 establishes full-duplex (2-way) communication, with signals represented by voltage levels measured with respect to a system common ground (power or logic ground). The "idle" state (MARK) is negative with respect to the common ground, and the "active" state (SPACE) is positive with respect to the common ground.

RS-232 Data Format

Start bit: 1 bit
Data bits: 5, 6, 7, or 8 bits
Parity: None, Odd, Even, Space, Mark
Stop bits: 1, 1.5 (if data bits = 5), or 2 bits



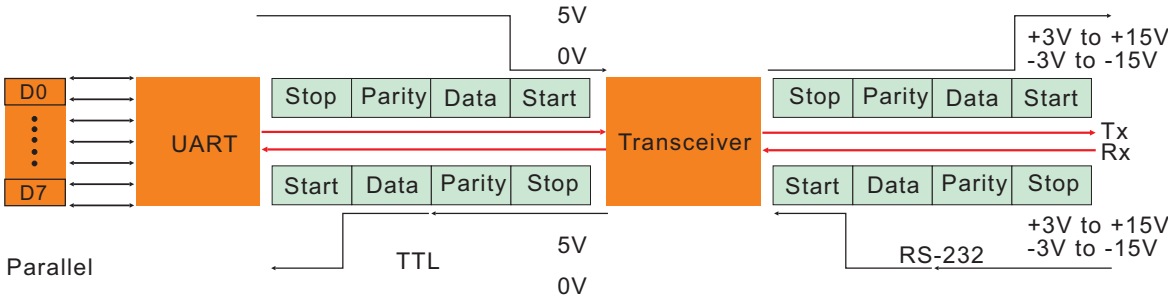
RS-232 Specifications

Standard	Connection Type	Operation Mode	Drivers per Line	Receivers per Line	Max. Cable Length	Max. Data Rate
EIA RS-232	Point-to-point	Single-ended	1	1	50 ft (15 m)	921.6 kbps

RS-232 Signal Definition

The general relationship between the UART, TTL signal, transceiver, and RS-232 signal is illustrated in the following figure. UART is short for "universal asynchronous receiver transmitter," and TTL stands for "transistor-to-transistor logic." The UART, which is located on the serial board and stands between the computer's CPU and the transceiver, transmits signals at 0 and 5 volts. The RS-232 transceiver converts the signal voltage to +3V to +15V, and -3V to -15V.

TxD	Transmit Data
RxD	Receive Data
RTS	Request to Send
CTS	Clear to Send
DTR	Data Terminal Ready
DSR	Data Set Ready
DCD	Data Carrier Detect
GND	Ground



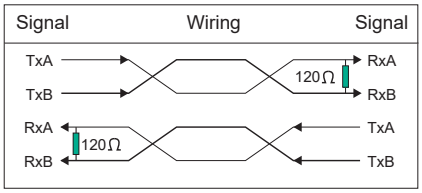
RS-422/485—tailor-made for industrial applications

Many of the devices used in today's industrial environments are designed for the RS-422 and RS-485 interfaces, both of which use "differential transmission" to "subtract out" external electronic and electromagnetic disturbances. For this reason, RS-422/485 can be used to transmit data up to 1.2 km. In addition to the need for long distance and multi-drop transmission, many industrial applications also require isolation, proper housing, heavy-duty wiring, a reliable power supply, and over-surge protection.

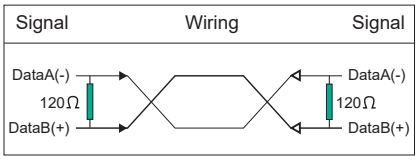
Differential Transmission

The RS-422 and RS-485 protocols use differential transmission to achieve high-speed data transmission (up to 10 Mbps) over distances up to 4,000 feet (1.22 km). Differential transmission works by splitting each signal into two separate wires with opposite voltage states. The signals are subtracted at the receiving end, making this type of wiring configuration well-suited for noisy environments.

RS-422 Wiring



RS-485 Wiring



RS-422 vs. RS-485

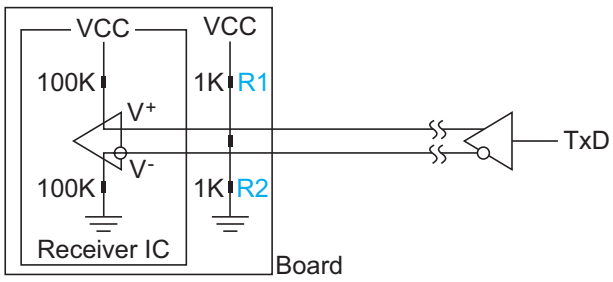
Standard	Connection Type	Operation Mode	Drivers per Line	Receivers per Line	Max. Cable Length	Max. Data Rate
EIA RS-422	Full-duplex, Point-to-point	Differential	1	10	4000 ft (1.22 km)	1 Mbps
EIA RS-485	Half-duplex, Multi-drop	Differential	32	31	4000 ft (1.22 km)	1 Mbps

Multi-drop Networks

RS-485 was designed for applications that require connecting multiple devices to a single data line. An RS-485 multi-drop network uses a balanced transmission system that can accept up to 32 devices on the same data line. This is achieved with tri-state drivers that are controlled by a programmable handshake line to ensure that only one device acts as a driver at any given time.

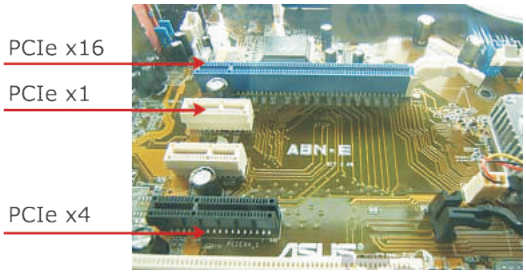
Termination

In order to prevent signal reflection, termination resistors are used to match the impedance of the receive and transmit nodes. The resistance needed to match the characteristic impedance is specified by the cable manufacturer. The most common value is 120 ohms.



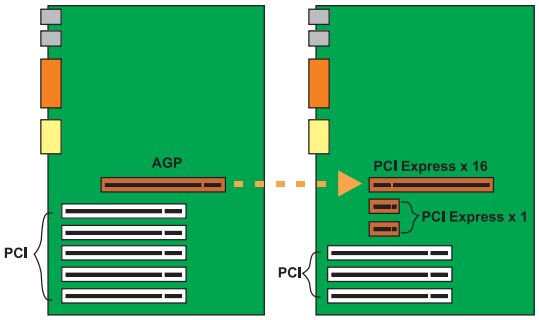
Introduction to PCI Express

The PCI Express serial interface is capable of transmitting data at 2.5 Gbps. This extremely high rate of data transmission is achieved by transmitting data bit-by-bit over "lanes" that consist of 2 pairs of wires (2 wires for transmitting and 2 wires for receiving). A single connection can achieve a burst mode transmission speed of 320 Mbps.



PCI Express to replace PCI, PCI-X, and AGP

The older PCI specification is based on a multi-drop parallel bus design. PCI Express, which will eventually replace PCI, PCI-X, and AGP, is a brand new I/O technology defined by the PCI-SIG. The PCI-SIG's stated goal is to create a unified standard that can handle a wide range of tasks.



Moxa's PCI Express Boards Fit Any PCI Express Slot

Multiple lanes are combined to create a PCI Express link, with the number of lanes used to label the connection by writing x1, x2, x4, x12, x16, or x32. Note that each lane uses 4 wires (e.g., a PCI Express x1 board uses 4 wires, and a PCI Express x16 board uses 64 wires). It should come as no surprise then that different-sized connections use different-sized slots. However, the beauty of the PCI Express design is that a PCI Express board can be installed in larger slots. This means that you can install Moxa's PCI Express x1 boards in any PCI Express slot.

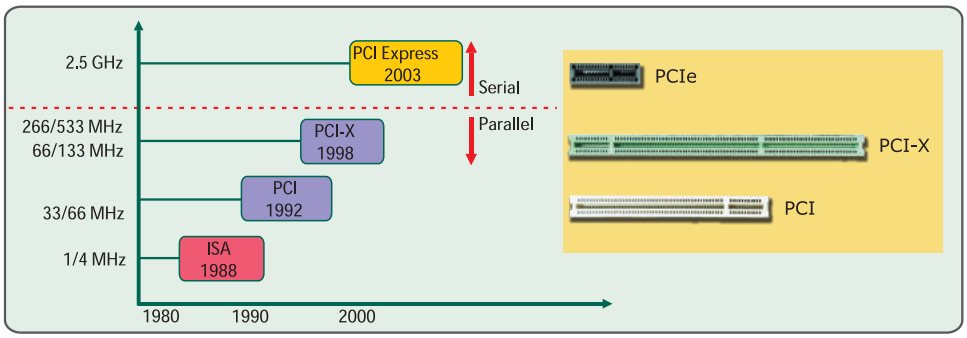
The difference between PCI and PCI Express

PCI Express is a serial interface that allows point-to-point connections between devices. This differs from the older PCI bus specification that uses a shared, parallel bus architecture.

Bus Trend

ISA → PCI → PCI-X → PCI Express (PCIe)

Bus Transmission Speeds

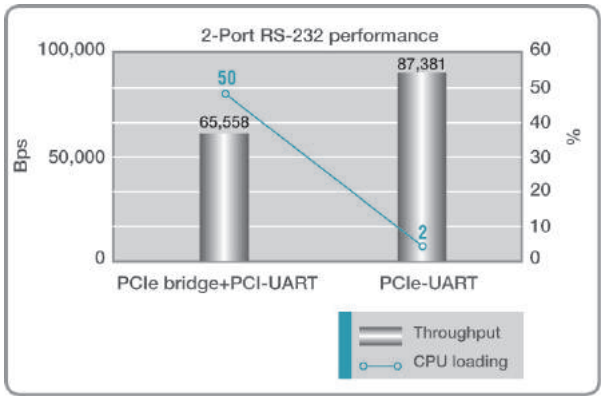


Another World First: Moxa Launches the "One-chip" PCI Express Board

For more than 25 years, Moxa has dedicated a large percentage of its R&D effort to the design of multiport serial boards, and this effort has paid off once again to the benefit of end-users around the world. Moxa's new "one-chip" PCI Express boards stand high above the crowd compared with other PCI Express boards on the market today. In fact, Moxa is the first manufacturer in the world to use an advanced one-chip PCIe-UART chip, which combines the PCIe bridge and UART on the same chip. The one-chip PCIe boards are designed for a longer MTBF and greater performance with baudrates up to 921.6 kbps. Moreover, instead of requiring users to open up the computer to set DIP switches and jumpers manually, one-chip PCIe provides a convenient software solution for configuring the serial interface and termination resistors, giving users the benefit of easy maintenance.

One-chip Solution Optimizes CPU Performance

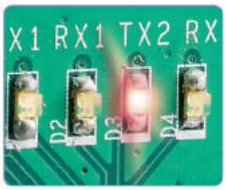
One-chip PCIe features a 33% higher throughput and decreases CPU load by 48%, outperforming traditional boards that use separate chips for the PCIe bridge and UART.



DIP Switchless and Jumperless Design

With this PCIe-UART, you can configure the serial interface and termination resistor by software instead of using a DIP switch and jumper. The absence of a DIP switch and jumper also makes these one-chip PCIe boards more user-friendly and easier to maintain since there is no need to open up the computer to adjust the settings manually. Furthermore, the one-chip design reduces manufacturing time and costs since fewer components are required.

Onboard LEDs for Easy Maintenance



Moxa's multiport serial boards have onboard LEDs to clearly indicate data transmit/receive status. This is very helpful for users, especially since troubleshooting can be done without opening up the computer.

Drivers Galore

Moxa's PCI Express boards support a wide range of drivers for desktop solutions (Windows 2000, XP/Vista/7/8/8.1/10 x86/x64) and server solutions (Windows 2003/2008/2012, with certification). Moreover, we also provide drivers for Linux, SCO Open Server 5/6, QNX 6, Windows XP Embedded, UnixWare 7.

CP-116E-A

16-port RS-232/422/485 PCI Express board with 4 kV surge protection

- PCI Express x1 compliant
- Serial communication speed up to 921.6 kbps
- 128-byte FIFO and on-chip H/W, S/W flow control
- Variety of connection cables and boxes available for RS-232/422/485
- Drivers provided for the latest versions of Windows, Linux, and Unix
- Easy maintenance with on-board LED display and management software

PComm Lite

Overview

The CP-116E-A is a smart PCI Express multiport serial board designed for POS and ATM applications, and for use by industrial automation system manufacturers and system integrators. The CP-116E-A is compatible with all popular operating systems, and each of its 8 serial ports supports data rates of up to 921.6 kbps and provides full modem control signals, ensuring compatibility with a wide range of serial peripherals. In addition, the CP-116E-A works with PCI Express x1, allowing the board to be installed in any PCI Express slot.

Intelligent RS-485 for Easy Installation and Troubleshooting (Patent Pending)

Setting up an RS-485 network is relatively straightforward. The challenge comes when the power is turned on and the devices connected to the network start transmitting and receiving data. In most cases, engineers will need to further tune the system by configuring pull high/low resistors and terminators at strategic points along the network. Moxa's new Intelligent RS-485 technology supports two essential features to make it easy: (1) One-Click Installation automatically analyzes the network topology and then adjusts terminators and pull high/low resistors. (2) One-Click Troubleshooting tells you what to change to make a deficient network viable.

Specifications

Hardware
Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: VHDCI 68

Serial Interface
Number of Ports: 16
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4

Serial Line Protection
Surge Protection: 4 kV

Performance
Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics
Dimensions: 97.9 x 88.9 mm (3.86 x 3.50 in)

Driver Support
Windows: Windows 2000/XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64)
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10 (x86/x64)
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 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

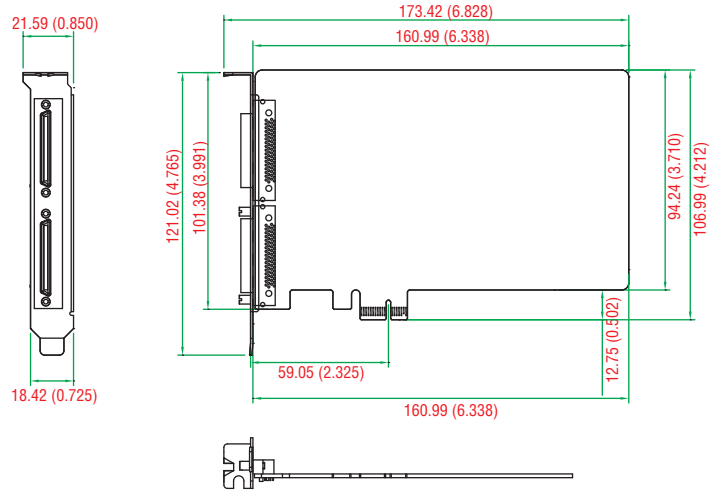
MTBF (mean time between failures)
Time: 310,993 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements
Input Current: 2,733 mA @ 3.3 VDC

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models
CP-116E-A: 16-port RS-232/422/485 PCI Express board w/ 4 kV surge protection

Connection Options (can be purchased separately)
CBL-M68M9x8-100: SCSI VHDCI 68 to 8 x DB9-M cable, 100 cm
CBL-M68M25x8-100: SCSI VHDCI 68 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)
OPT8-M9+: VHDCI 68 to 8 x DB9-M connection box
OPT8B+: VHDCI 68 to 8 x DB25-M connection box
OPT8A+: VHDCI 68 to 8 x DB25-F connection box
OPT8-RJ45+: VHDCI 68 to 8 x RJ45 (8-pin) connection box
OPT8S+: VHDCI 68 to 8 x DB25-F connection box w/ surge protection

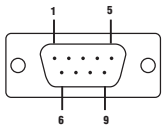
Package Checklist
- 1 CP-116E-A board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

OPT8-M9+
DB9 male x 8 (150 cm cable)

CBL-M68M9x8-100
DB9 male x 8 (100 cm cable)

PIN	RS-232	RS-422/RS-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

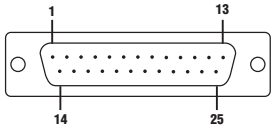


OPT8B+
DB25 male x 8 (150 cm cable)

CBL-M68M25x8-100
DB25 male x 8, (100 cm cable)

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

DB25 male

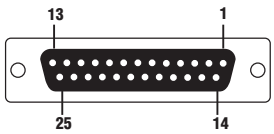


OPT8A+
DB25 female x 8 (150 cm cable)

OPT8S+
DB25 female x 8 (150 cm cable)

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

DB25 female



C320Turbo (PCI Express)

8 to 32-port intelligent PCI Express serial board

- PCI Express x 1 compliant
- Low profile form factor fits small-sized PCs
- Supports 128 high-performance serial ports per system
- Dramatically decreases host CPU load
- Modular design makes port expansion easy
- Monitor transmission status with LEDs on the module and two 7-segment displays
- Drivers provided for a broad selection of operating systems
- 460.8 kbps maximum baudrate

PComm Lite

Overview

The intelligent C320Turbo PCI Express serial board is an expandable and versatile COM/TTY solution for RS-232/RS-422 applications that require connecting up to 128 serial devices to one computer. The C320Turbo's on-board CPU and large dual-port memory alleviate the load of host system resources when performance and scalability are critical for large-scale systems.

Specifications

Hardware
Comm. Controller: 16C550C or compatible x 8
Bus: PCI Express x 1
Connector: DB25 female
Processor: TI DSP TMS320BC52PJ
Memory: 512 KB

Serial Interface
Number of Ports: 32 per control board (max.)
Serial Standards: RS-232 (RS-422 available with desktop option)
Max. No. of Boards per PC: 4

Performance
Baudrate: 50 bps to 460.8 kbps

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND

Physical Characteristics
Dimensions: 135 x 67 mm (5.32 x 2.64 in)

Driver Support
Windows: 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), DOS
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 55°C (-4 to 131°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, 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
IEC 61000-4-5 Surge: Power: 2 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

MTBF (mean time between failures)
Time: 2,937,578 hrs
Standard: Telcordia (Bellcore) TR/SR

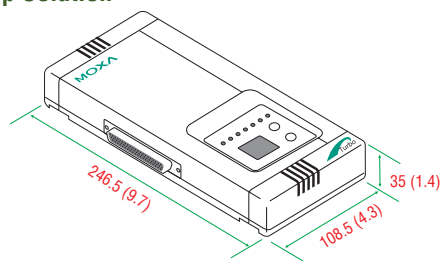
Power Requirements
Input Current: 1,160 mA @ 3.3 VDC

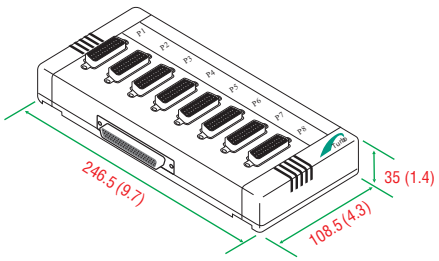
Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

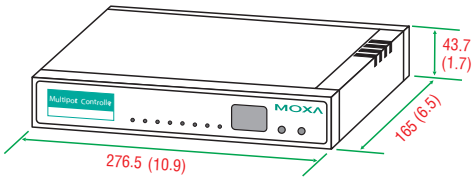
Unit: mm (inch)

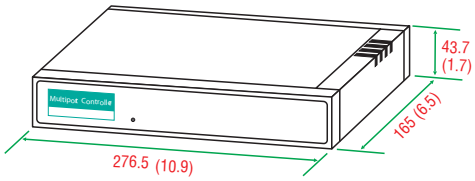
Desktop Solution





Rackmount Solution





	C32010T/PCIEL	C32030T	C32045T	C32047T	C32061T
Dimensions	67 x 135 mm (2.64 x 5.32 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)
Weight	80 g (0.18 lb)	425 g (0.94 lb)	500 g (1.11 lb)	485 g (1.07 lb)	488 g (1.08 lb)
Input Current	1.16 A @ 3.3 VDC	0.59 A @ +5 VDC	0.28 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.28 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.485 A @ +5 VDC

	C32065T	C32071T	C32080T	C32081T	C32082T	C32083T
Dimensions	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)
Weight	525 g (1.16 lb)	525 g (1.16 lb)	1,020 g (2.25 lb)	1,120 g (2.47 lb)	920 g (2.03 lb)	1,000 g (2.21 lb)
Input Current	1.32 A @ +5 VDC	0.28 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.88 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	1.22 A @ +5 VDC 0.19 A @ +12 VDC 0.12 A @ -12 VDC	0.34 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.67 A @ +5 VDC 0.19 A @ +12 VDC

Ordering Information

Available Models

Control Boards (must choose one)
C32010T/PCIEL: PCI Express board

External Modules
Rackmount Option
Basic Modules (must choose one)
C32080T: 8 RS-232 ports, 10-pin RJ45 connectors
C32081T: 16-port, RS-232, 10-pin RJ45

Expansion Modules (optional)
C32082T: 8 RS-232 ports, 10-pin RJ45 connectors
C32083T: 16 RS-232 ports, 10-pin RJ45 connectors
• Long-range Extension Kit (optional)
C32050T: Includes the following items
• 2-meter DB25-M to DB25-F 10-wire cable (generally used for set-up)
• 90 to 240 VAC switching power adapter (0 to 30°C operating temperature)
NOTE: Build your own DB25-M to DB25-F 10-wire cable for connecting up to 100 meters.

Desktop Option
• CPU module
• One or more UART modules (32 ports maximum per board)
Rackmount Option
• Basic module
• Zero or more expansion modules (32 ports maximum per board)

Connection Cable (required)
C32020T: 2 meter DB25-M to DB25-F cable with 25 pins for short-range usage

Desktop Option
CPU Module (required)
C32030T: Connects directly to one UART module
8-port UART Modules (choose at least one)
C32045T: RS-232, DB25-F connectors
C32047T: RS-232, DB25-M connectors
C32071T: RS-232, DB25-F connectors
C32061T: RS-422, DB25-F connectors
C32065T: RS-422, DB25-F connectors (2 kV electrical isolation)

Package Checklist

- 1 C320Turbo/PCI board
- Power cable
- SATA to 4-pin IDE power cable
- Low-profile braket
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CP-118EL-A

8-port RS-232/422/485 PCI Express serial board

PComm Lite

- PCI Express x1 compliant
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Choose from a wide range of connection cables and boxes
- Low profile form factor fits small-sized PCs
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux

Overview

The CP-118EL-A is a smart, 8-port PCI Express board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 8 serial ports can be configured independently for RS-232, RS-422, or RS-485 (either 2-wire or 4-wire), and the ports supports a superfast 921.6 kbps baudrate. The CP-118EL-A provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and its PCI Express "x1" classification allows it to be installed in any PCI Express slot.

Smaller Form Factor

The CP-118EL-A is a low-profile board that is compatible with any PCI Express slot. The board requires only a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-118EL-A board is no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: VHDCI 68

Serial Interface

Number of Ports: 8
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions: 68.9 x 88 mm (2.71 x 3.46 in)

Driver Support

Windows: 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), DOS
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)

Time: 1,359,482 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

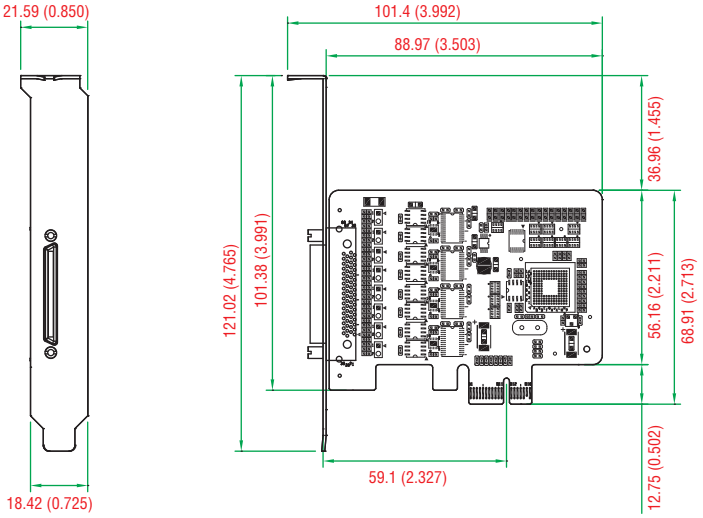
Input Current: 1,285 mA @ 3.3 VDC

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

CP-118EL-A: 8-port RS-232/422/485 low profile PCI Express x1 serial board

Connection Options (can be purchased separately)

Low Profile Bracket: Bracket for VHDCI connector (1490000008000)
CBL-M68M9x8-100: SCSI VHDCI 68 to 8 x DB9-M cable, 100 cm
CBL-M68M25x8-100: SCSI VHDCI 68 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)

OPT8-M9+: VHDCI 68 to 8 x DB9-M connection box
OPT8B+: VHDCI 68 to 8 x DB25-M connection box
OPT8A+: VHDCI 68 to 8 x DB25-F connection box
OPT8-RJ45+: VHDCI 68 to 8 x RJ45 (8-pin) connection box
OPT8S+: VHDCI 68 to 8 x DB25-F connection box w/ surge protection

Package Checklist

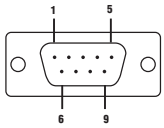
- 1 CP-118EL-A board
- Low profile bracket
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

OPT8-M9+
DB9 male x 8 (150 cm cable)

CBL-M68M9x8-100
DB9 male x 8 (100 cm cable)

PIN	RS-232	RS-422/RS-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

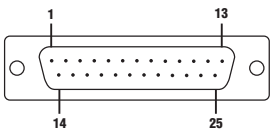


OPT8B+
DB25 male x 8 (150 cm cable)

CBL-M68M25x8-100
DB25 male x 8, (100 cm cable)

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

DB25 male

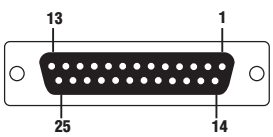


OPT8A+
DB25 female x 8 (150 cm cable)

OPT8S+
DB25 female x 8 (150 cm cable)

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

DB25 female



CP-118E-A-I/138E-A-I

8-port 3-in-1, RS-422/485 PCI Express board with 4 kV surge protection and 2 kV electrical isolation

CP-118E-A-I

CP-138E-A-I

- PCI Express x1 compliant
- Serial communication speed up to 921.6 kbps
- 128-byte FIFO and on-chip S/W flow control
- Variety of connection cables and boxes available for RS-232/422/485
- Drivers provided for the latest versions of Windows, Linux, and Unix
- Easy maintenance with on-board LED display and management software

Overview

The CP-118E-A-I and CP-138E-A-I are smart PCI Express multiport serial boards designed for POS and ATM applications, and for use by industrial automation system manufacturers and system integrators. The CP-118E-A-I and CP-138E-A-I are compatible with all popular operating systems, and each of their 8 serial ports supports data rates of up to 921.6 kbps and provide full modem control signals, ensuring compatibility with a wide range of serial peripherals. In addition, the CP-118E-A-I and CP-138E-A-I work with PCI Express x1, allowing the boards to be installed in any PCI Express slot.

Intelligent RS-485 for Easy Installation and Troubleshooting (Patent Pending)

Setting up an RS-485 network is relatively straightforward. The challenge comes when the power is turned on and the devices connected to the network start transmitting and receiving data. In most cases, engineers will need to further tune the system by configuring pull high/low resistors and terminators at strategic points along the network. Moxa's new Intelligent RS-485 technology supports two essential features to make it easy: (1) One-Click Installation automatically analyzes the network topology and then adjusts terminators and pull high/low resistors. (2) One-Click Troubleshooting tells you what to change to make a deficient network viable.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: DB78 female

Serial Interface

Number of Ports: 8
Serial Standards:
CP-118E-A-I: RS-232/422/485
CP-138E-A-I: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Surge Protection: 4 kV
Electrical Isolation: 2 kV

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions: 109.5 x 130 mm (4.31 x 5.11 in)

Driver Support

Windows: Windows 2000/XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64)
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10 (x86/x64)
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 kV; Signal: 4 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

MTBF (mean time between failures)

Time:
CP-118E-A-I: 390,883 hrs
CP-138E-A-I: 221,331 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CP-118E-A-I: 2,356 mA @ 3.3 VDC
CP-138E-A-I: 2,356 mA @ 3.3 VDC

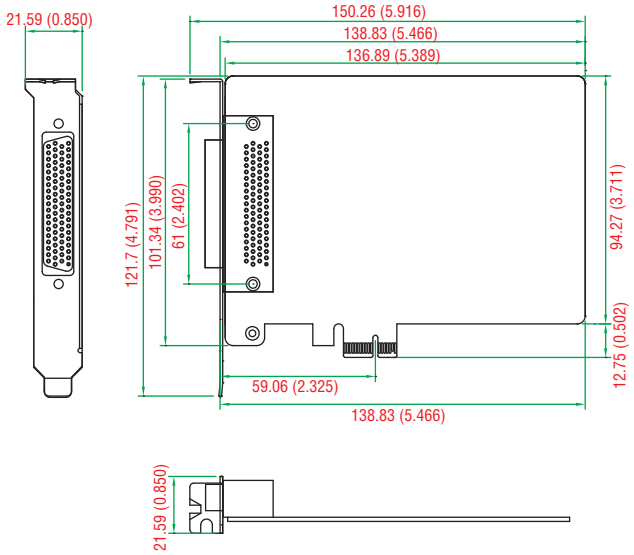
Warranty

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

Dimensions

Unit: mm (inch)

CP-118E-A-I/CP-138E-A-I



Ordering Information

Available Models

CP-118E-A-I: 8-port RS-232/422/485 PCI Express x1 serial board w/ surge protection and electrical isolation
CP-138E-A-I: 8-port RS-422/485 PCI Express Smart x1 serial board w/ surge protection and electrical isolation

Connection Options (can be purchased separately)

CBL-M68M9x8-100: SCSI VHDCI 68 to 8 x DB9-M cable, 100 cm
CBL-M68M25x8-100: SCSI VHDCI 68 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)

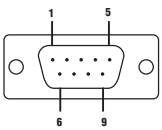
OPT8-M9+: VHDCI 68 to 8 x DB9-M connection box
OPT8B+: VHDCI 68 to 8 x DB25-M connection box
OPT8A+: VHDCI 68 to 8 x DB25-F connection box
OPT8-RJ45+: VHDCI 68 to 8 x RJ45 (8-pin) connection box
OPT8S+: VHDCI 68 to 8 x DB25-F connection box w/ surge protection

Package Checklist

- 1 CP-118E-A-I or CP-138E-A-I board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

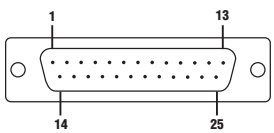
CBL-M78M9x8-100

DB9 male



CBL-M78M25x8-100

DB25 male



CP-168EL-A

8-port RS-232 PCI Express serial board

PComm Lite

- PCI Express x1 compliant
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Choose from a wide range of connection cables and boxes
- Low profile form factor fits small-sized PCs
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux

Overview

The CP-168EL-A is a smart, 8-port PCI Express board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 8 RS-232 serial ports supports a super fast 921.6 kbps baudrate. The CP-168EL-A provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and its PCI Express "x1" classification allows it to be installed in any PCI Express slot.

Smaller Form Factor

The CP-168EL-A is a low-profile board that is compatible with any PCI Express slot. The board requires only a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-168EL-A board is no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware
Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: VHDCI 68

Serial Interface
Number of Ports: 8
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Performance
Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics
Dimensions: 64.42 x 102 mm (2.54 x 4.02 in)

Driver Support
Windows: 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), DOS
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

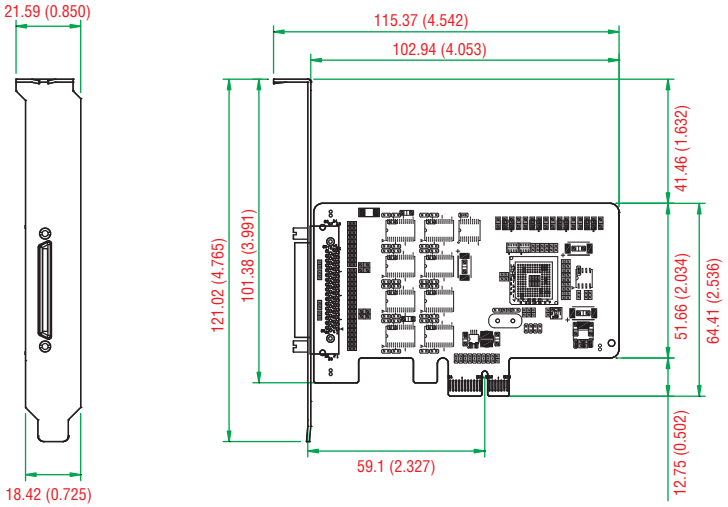
MTBF (mean time between failures)
Time: 2,351,336 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements
Input Current: 1,225 mA @ 3.3 VDC

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

CP-168EL-A: 8-port RS-232 low profile PCI Express x1 serial board

Connection Options (can be purchased separately)

Low Profile Bracket: Bracket for VHDCI connector (1490000008000)
CBL-M68M9x8-100: SCSI VHDCI 68 to 8 x DB9-M cable, 100 cm
CBL-M68M25x8-100: SCSI VHDCI 68 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)

OPT8-M9+: VHDCI 68 to 8 x DB9-M connection box
OPT8B+: VHDCI 68 to 8 x DB25-M connection box
OPT8A+: VHDCI 68 to 8 x DB25-F connection box
OPT8-RJ45+: VHDCI 68 to 8 x RJ45 (8-pin) connection box
OPT8S+: VHDCI 68 to 8 x DB25-F connection box w/ surge protection

Package Checklist

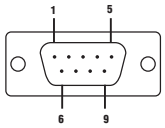
- 1 CP-168EL-A board
- Low profile bracket
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

OPT8-M9+
DB9 male x 8 (150 cm cable)

CBL-M68M9x8-100
DB9 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
1	DCD	5	GND
2	RxD	6	DSR
3	TxD	7	RTS
4	DTR	8	CTS

DB9 male

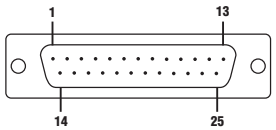


OPT8B+
DB25 male x 8 (150 cm cable)

CBL-M68M25x8-100
DB25 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
2	TxD	6	DSR
3	RxD	7	GND
4	RTS	8	DCD
5	CTS	20	DTR

DB25 male

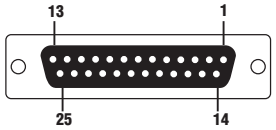


OPT8A+
DB25 female x 8, 150 cm cable

OPT8S+
DB25 female x 8 (150 cm cable)

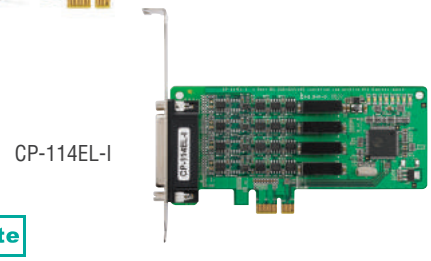
PIN	RS-232	PIN	RS-232
2	RxD	6	DTR
3	TxD	7	GND
4	CTS	8	DCD
5	RTS	20	DSR

DB25 female



CP-114EL/EL-I

4-port RS-232/422/485 PCI Express boards with optional 2 kV isolation



PComm Lite

- PCI Express x1 compliant
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Low profile form factor fits small-sized PCs
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux

Overview

The CP-114EL and CP-114EL-I are smart, 4-port PCI Express boards designed for POS and ATM applications. The boards are a top choice of industrial automation engineers and system integrators, and support many different operating systems, including Windows and Linux. In addition, each of the boards' 4 RS-232/422/485 serial ports supports a super fast 921.6 kbps baudrate. The CP-114EL and CP-114EL-I provide full modem control signals to ensure compatibility with a wide range of serial peripherals, and their PCI Express "x1" classification allows the boards to be installed in any PCI Express slot.

Smaller Form Factor

The CP-114EL and CP-114EL-I are low profile boards that are compatible with any PCI Express slot. The boards require only a 3.3 VDC power supply, which means that the boards fit any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-114EL/EL-I boards are no exception. Reliable Windows and Linux drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Electrical Isolation: 2 kV (CP-114EL-I only)

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions:
CP-114EL: 67.21 x 103 mm (2.65 x 4.06 in)
CP-114EL-I: 67.21 x 135 mm (2.65 x 5.31 in)

Driver Support

Windows: 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), DOS
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)

Time:
CP-114EL: 2,347,197 hrs
CP-114EL-I: 603,671 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CP-114EL: 835 mA @ 3.3 VDC
CP-114EL-I: 1,170 mA @ 3.3 VDC

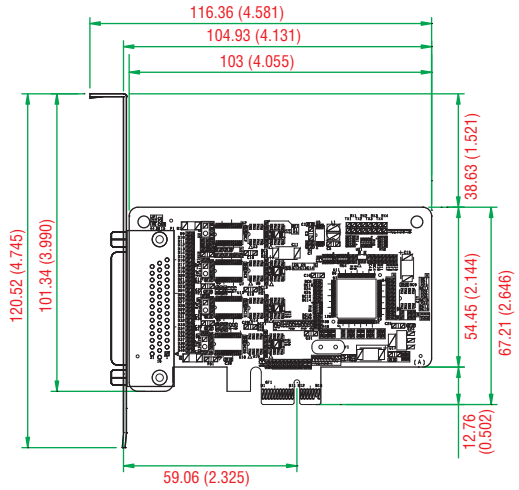
Warranty

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

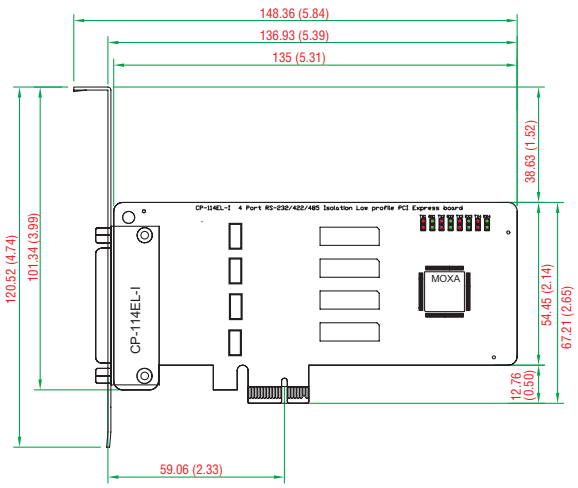
Dimensions

Unit: mm (inch)

CP-114EL



CP-114EL-I



Ordering Information

Available Models

CP-114EL: 4-port RS-232/422/485 low profile PCI Express x1 serial board
CP-114EL-I: 4-port RS-232/422/485 low profile PCI Express x1 serial board with electrical isolation
CP-114EL-DB9M: 4-port RS-232/422/485 low profile PCI Express x1 serial board (CBL-M44M9x4-50 cable included)
CP-114EL-DB25M: 4-port RS-232/422/485 low profile PCI Express x1 serial board (CBL-M44M25x4-50 cable included)
CP-114EL-I-DB9M: 4-port RS-232/422/485 low profile PCI Express x1 serial board with electrical isolation (CBL-M44M9x4-50 cable included)
CP-114EL-I-DB25M: 4-port RS-232/422/485 low profile PCI Express x1 serial board with electrical isolation (CBL-M44M25x4-50 cable included)

Package Checklist

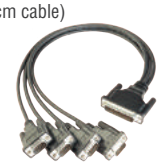
- 1 CP-114EL or CP-114EL-I board
- Low profile bracket
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Connection Options (can be purchased separately)

Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M44M9x4-50: M44 to 4 x DB9-M cable, 50 cm
CBL-M44M25x4-50: M44 to 4 x DB25-M cable, 50 cm

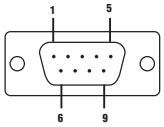
CBL-M44M9x4-50

DB44 male to DB9 male x 4 (50 cm cable)



PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD–(A)	TxD–(A)	–
2	RxD	TxD+(B)	TxD+(B)	–
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD–(A)	RxD–(A)	Data–(A)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
9	–	–	–	–

DB9 male

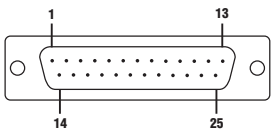


CBL-M44M25x4-50

DB44 male to DB25 male x 4 (50 cm cable)

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	TxD+(B)	–
4	RTS	–	–	–
5	CTS	–	–	–
6	DSR	–	–	–
7	GND	GND	GND	GND
8	DCD	TxD–(A)	TxD–(A)	–
20	DTR	RxD–(A)	RxD–(A)	Data–(A)
22	–	–	–	–

DB25 male



CP-134EL-A-I

4-port RS-422/485 PCI Express board with 4 kV surge and 2 kV electrical isolation

- PCI Express x1 compliant
- Serial communication speed up to 921.6 kbps
- 128-byte FIFO and on-chip S/W flow control
- Variety of connection cables and boxes available for RS-232/422/485
- Drivers provided for the latest versions of Windows, Linux, and Unix
- Easy maintenance with on-board LED display and management software

PComm Lite

Overview

The CP-134EL-A-I is a smart PCI Express multiport serial board designed for POS and ATM applications, and for use by industrial automation system manufacturers and system integrators. The CP-134EL-A-I is compatible with all popular operating systems, and each of its 8 serial ports supports data rates of up to 921.6 kbps and provides full modem control signals, ensuring compatibility with a wide range of serial peripherals. In addition, the CP-134EL-A-I works with PCI Express x1, allowing the board to be installed in any PCI Express slot.

Intelligent RS-485 for Easy Installation and Troubleshooting (Patent Pending)

Setting up an RS-485 network is relatively straightforward. The challenge comes when the power is turned on and the devices connected to the network start transmitting and receiving data. In most cases, engineers will need to further tune the system by configuring pull high/low resistors and terminators at strategic points along the network. Moxa's new Intelligent RS-485 technology supports two essential features to make it easy: (1) One-Click Installation automatically analyzes the network topology and then adjusts terminators and pull high/low resistors. (2) One-Click Troubleshooting tells you what to change to make a deficient network viable.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Surge Protection: 4 kV
Electrical Isolation: 2 kV

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions: 67.21 x 103 mm (2.65 x 4.06 in)

Driver Support

Windows: Windows 2000/XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64)
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10 (x86/x64)
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 kV; Signal: 4 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

MTBF (mean time between failures)

Time: 433,077 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

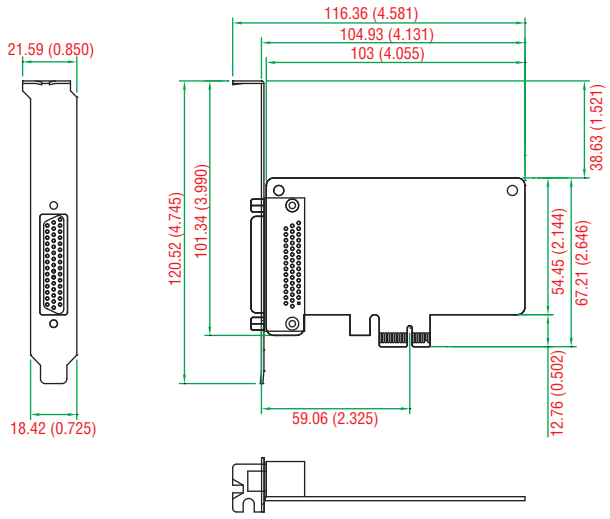
Input Current: 3,414 mA @ 3.3 VDC

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

CP-134EL-A-I: 4-port RS-422/485 low profile PCI Express x1 serial board w/ surge protection and electrical isolation
CP-134EL-A-I-DB9M: 4-port RS-422/485 low profile PCI Express x1 serial board w/ surge protection and electrical isolation, CBL-M44M9x4-50 cable included
CP-134EL-A-I-DB25M: 4-port RS-422/485 low profile PCI Express x1 serial board w/ surge protection and electrical isolation, CBL-M44M25x4-50 cable included

Connection Options (can be purchased separately)

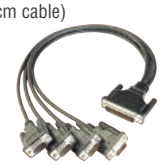
Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M44M9x4-50: M44 to 4 x DB9-M cable, 50 cm
CBL-M44M25x4-50: M44 to 4 x DB25-M cable, 50 cm

Package Checklist

- 1 CP-134EL-A-I board
- Low profile bracket
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

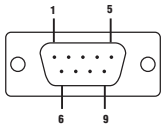
CBL-M44M9x4-50

DB44 male to DB9 male x 4 (50 cm cable)



PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD–(A)	TxD–(A)	–
2	RxD	TxD+(B)	TxD+(B)	–
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD–(A)	RxD–(A)	Data–(A)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
9	–	–	–	–

DB9 male

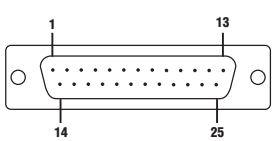


CBL-M44M25x4-50

DB44 male to DB25 male x 4 (50 cm cable)

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	TxD+(B)	–
4	RTS	–	–	–
5	CTS	–	–	–
6	DSR	–	–	–
7	GND	GND	GND	GND
8	DCD	TxD–(A)	TxD–(A)	–
20	DTR	RxD–(A)	RxD–(A)	Data–(A)
22	–	–	–	–

DB25 male



CP-104EL-A

4-port RS-232 PCI Express serial board

- PCI Express x1 compliant
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Low profile form factor fits small-sized PCs
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Easy maintenance with on-board LEDs and management software

PComm Lite

Overview

The CP-104EL-A is a smart, 4-port PCI Express board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 4 RS-232 serial ports supports a super fast 921.6 kbps baudrate. The CP-104EL-A provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and its PCI Express "x1" classification allows it to be installed in any PCI Express slot.

Smaller Form Factor

The CP-104EL-A is a low-profile board that is compatible with any PCI Express slot. The board requires only a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-104EL-A board is no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware
Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: DB44 female

Serial Interface
Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Performance
Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics
Dimensions: 67.21 x 103 mm (2.65 x 4.06 in)

Driver Support
Windows: 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), DOS
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B

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: 2 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

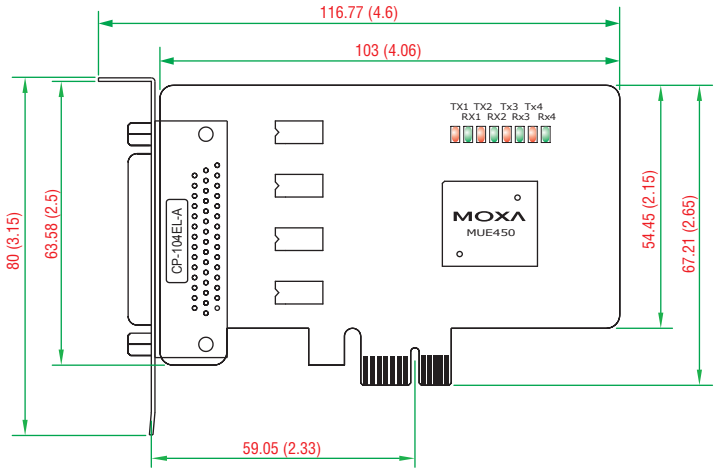
MTBF (mean time between failures)
Time: 3,601,447 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements
Input Current: 805 mA @ 3.3 VDC

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models
CP-104EL-A-DB9M: 4-port RS-232 PCI low profile Express x1 serial board (CBL-M44M9x4-50 cable included)
CP-104EL-A-DB25M: 4-port RS-232 low profile PCI Express x1 serial board (CBL-M44M25x4-50 cable included)

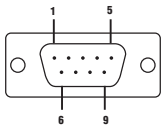
Connection Options (can be purchased separately)
Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M44M9x4-50: M44 to 4 x DB9-M cable, 50 cm
CBL-M44M25x4-50: M44 to 4 x DB25-M cable, 50 cm

Package Checklist
- 1 CP-104EL-A board
- Low profile bracket
- 1 connection cable
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CBL-M44M9x4-50
DB44 male to DB9 male x 4 (50 cm cable)

PIN	RS-232	PIN	RS-232
1	DCD	5	GND
2	RxD	6	DSR
3	TxD	7	RTS
4	DTR	8	CTS

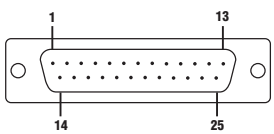
DB9 male



CBL-M44M25x4-50
DB44 male to DB25 male x 4 (50 cm cable)

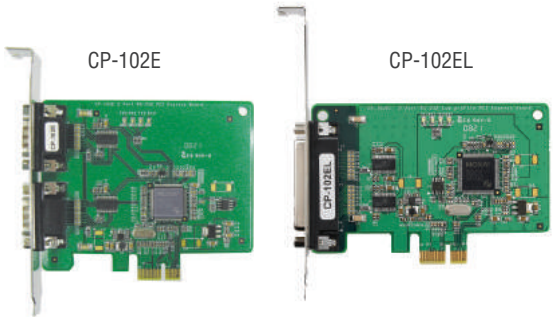
PIN	RS-232	PIN	RS-232
2	TxD	6	DSR
3	RxD	7	GND
4	RTS	8	DCD
5	CTS	20	DTR

DB25 male



CP-102E/EL

2-port RS-232 PCI Express boards



- PCI Express x1 compliant
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Low profile form factor fits small-sized PCs
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux

PComm Lite

Overview

The CP-102E and low-profile CP-102EL are 2-port PCI Express boards designed for POS and ATM applications. Moxa's PCI Express boards are a top choice of industrial automation engineers and system integrators, particularly since the boards support many different operating systems, including Windows and Linux. The CP-102E/EL's 2 RS-232 serial ports support a superfast 921.6 kbps baudrate and provide full modem control signals to ensure compatibility with a wide range of serial peripherals. In addition, the boards' x1 classification allows them to be installed in any PCI Express slot.

Smaller Form Factor

The CP-102EL is a low-profile board that is compatible with any PCI Express slot. The CP-102EL board only requires a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-102E/EL boards are no exception. Reliable Windows and Linux drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration applications.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x 1
Connector: CP-102E: DB9 male x 2
CP-102EL: DB25 female

Serial Interface

Number of Ports: 2
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics

Dimensions:
CP-102E: 85.04 x 100 mm (3.35 x 3.94 in)
CP-102EL: 67.21 x 100 mm (2.65 x 3.94 in)

Driver Support

Windows: 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), DOS
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CP-102E: CISPR 22, FCC Part 15B Class A
CP-102EL: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)

Time: 4,947,552 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CP-102E: 520 mA @ 3.3 VDC
CP-102EL: 552 mA @ 3.3 VDC

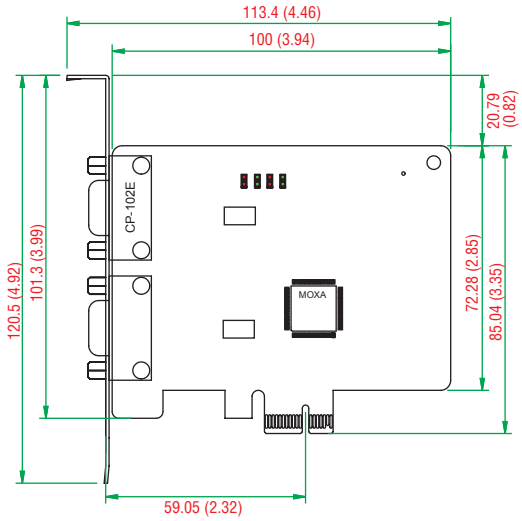
Warranty

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

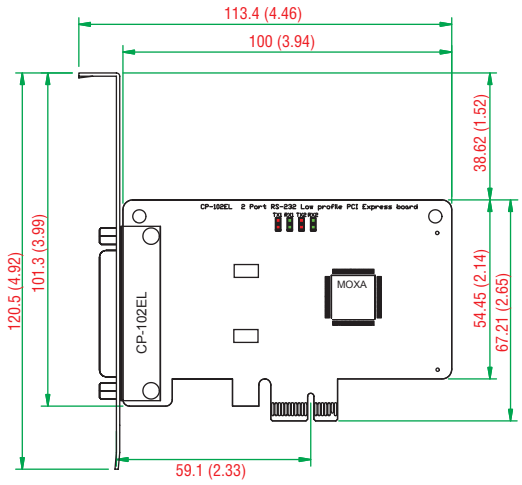
Dimensions

Unit: mm (inch)

CP-102E



CP-102EL



Ordering Information

Available Models

CP-102E: 2-port RS-232 PCI Express x1 serial board
CP-102EL-DB9M: 2-port RS-232 low profile PCI Express serial board (CBL-M25M9x2-50 cable included)

Connection Options (can be purchased separately)

Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M25M9x2-50: M25 to 2 x DB9-M cable, 50 cm

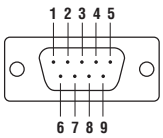
Package Checklist

- 1 CP-102E or CP-102EL board
- Low profile bracket (CP-102EL only)
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CBL-M25M9x2-50
DB25 male to DB9 male x 2 (50 cm cable)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



CP-132EL/EL-I

2-port RS-422/485 PCI Express boards with optional 2 kV isolation

CP-132EL

CP-132EL-I

- PCI Express x1 compliant
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip S/W flow control
- Low profile form factor fits small-sized PCs
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux

PComm Lite

Overview

The CP-132EL and CP-132EL-I are 2-port PCI Express boards designed for industrial automation applications that require a long distance, multipoint, PC-based data acquisition solution.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-132EL/EL-I boards have 2 RS-422/485 serial ports, each of which can achieve data rates up to 921.6 kbps. In RS-485 mode, the boards can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, choose the CP-132EL-I model, which comes with 2 kV electrical isolation protection to prevent equipment damage.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-132EL/EL-I boards are no exception. Reliable Windows and Linux drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: DB25 female

Serial Interface

Number of Ports: 2
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Electrical Isolation: 2 kV (CP-132EL-I only)

Performance

Baudrate: 50 bps to 921.6 kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: XON/XOFF

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions:
CP-132EL: 67.21 x 101.97 mm (2.65 x 4.08 in)
CP-132EL-I: 67.21 x 103.97 mm (2.65 x 4.16 in)

Driver Support

Windows: 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), DOS
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)

Time:
CP-132EL: 4,147,133 hrs
CP-132EL-I: 1,681,099 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CP-132EL: 548 mA @ 3.3 VDC
CP-132EL-I: 636 mA @ 3.3 VDC

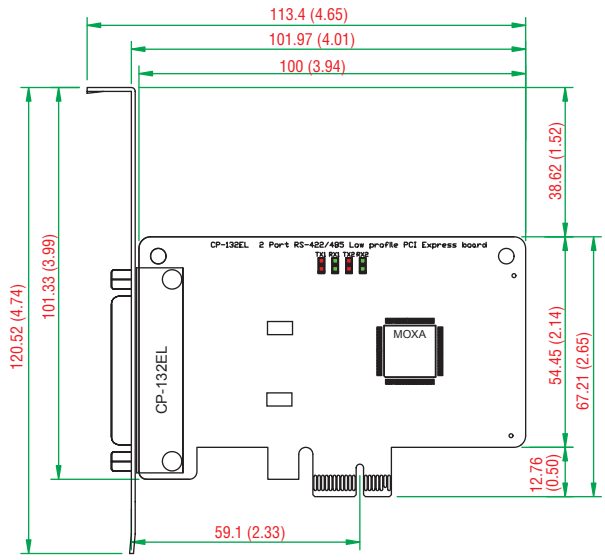
Warranty

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

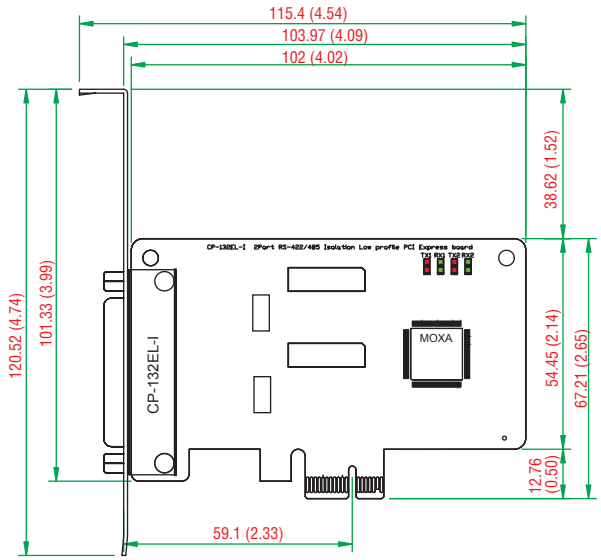
Dimensions

Unit: mm (inch)

CP-132EL



CP-132EL-I



Ordering Information

Available Models

CP-132EL-DB9M: 2-port RS-422/485 low profile PCI Express x1 serial board (CBL-M25M9x2-50 cable included)
CP-132EL-I-DB9M: 2-port RS-422/485 low profile PCI Express x1 serial board with electrical isolation (CBL-M25M9x2-50 cable included)

Connection Options (can be purchased separately)

Low Profile Bracket: Bracket for DB44 connector (3095010000007)
CBL-M25M9x2-50: M25 to 2 x DB9-M cable, 50 cm

Package Checklist

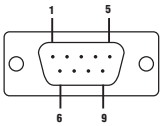
- 1 CP-132EL or CP-132EL-I board
- Low profile bracket
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CBL-M25M9x2-50

DB25 male to DB9 male x 2 (50 cm cable)

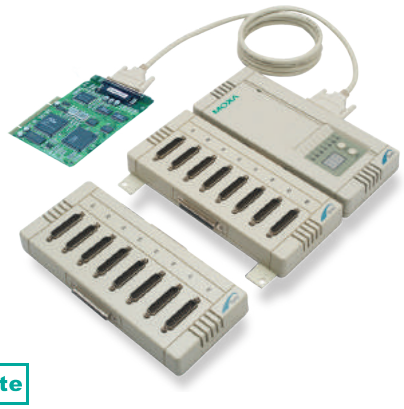
PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD–(A)	–
2	TxD+(B)	–
3	RxD+(B)	Data+(B)
4	RxD–(A)	Data–(A)
5	GND	GND
6	–	–
7	–	–
8	–	–

DB9 male



C320Turbo Series

8 to 32-port intelligent RS-232 Universal PCI serial boards



- Supports 128 high-performance serial ports per system
- Dramatically decreases host CPU load
- Modular design makes port expansion easy
- Monitor transmission status with LEDs on the module and two 7-segment displays
- Drivers provided for a broad selection of operating systems
- 460.8 kbps maximum baudrate

PComm Lite

Overview

The intelligent C320Turbo serial boards are expandable and flexible COM/TTY solutions for RS-232 applications that require connecting up to 128 serial devices to one computer. The C320Turbo's on-board CPU and large dual-port memory take the load off host systems whose performance and scalability are critical for large-scale systems.

Specifications

Hardware
Comm. Controller: 16C550C or compatible x 8
Bus: 32-bit Universal PCI
Connector: DB25 female
Processor: TMS320BC52-40 RISC CPU
Memory: 512 KB

Serial Interface
Number of Ports: 32 per control board (max.)
Serial Standards: RS-232 (RS-422 available with desktop option)
Max. No. of Boards per PC: 4

Performance
Baudrate: 50 bps to 460.8 kbps

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND

Physical Characteristics
Dimensions: 90 x 120 mm (3.54 x 4.72 in)

Driver Support
Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 55°C (-4 to 131°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, 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
IEC 61000-4-5 Surge: Power: 2 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF
IEC 61000-4-11

MTBF (mean time between failures)
Time: 305,270 hrs
Standard: MIL-HDBK-217F

Power Requirements
Input Current: 500 mA @ 5 VDC

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

	C32010T/ PCI	C32030T	C32045T	C32047T	C32061T
Dimensions	120 x 90 x 15 mm (4.73 x 3.55 x 0.59 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)
Weight	90 g (0.21 lb)	425 g (0.94 lb)	500 g (1.11 lb)	485 g (1.07 lb)	488 g (1.08 lb)
Input Current	0.5 A @ +5 VDC	0.59 A @ +5 VDC	0.28 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.28 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.485 A @ +5 VDC

	C32065T	C32071T	C32080T	C32081T	C32082T	C32083T
Dimensions	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	247 x 108 x 35 mm (9.73 x 4.25 x 1.38 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)	277 x 165 x 44 mm (10.91 x 6.51 x 1.74 in)
Weight	525 g (1.16 lb)	525 g (1.16 lb)	1,020 g (2.25 lb)	1,120 g (2.47 lb)	920 g (2.03 lb)	1,000 g (2.21 lb)
Input Current	1.32 A @ +5 VDC	0.28 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.88 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	1.22 A @ +5 VDC 0.19 A @ +12 VDC 0.12 A @ -12 VDC	0.34 A @ +5 VDC 0.095 A @ +12 VDC 0.06 A @ -12 VDC	0.67 A @ +5 VDC 0.19 A @ +12 VDC 0.12 A @ -12 VDC

Ordering Information

Package Checklist

- 1 C320Turbo/PCI board
- Long-range extension kit (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Available Models

Control Boards (must choose one)

C32010T/PCI: Universal PCI board

External Modules

Rackmount Option

Basic Modules (must choose one)

C32080T: 8 RS-232 ports, 10-pin RJ45 connectors
C32081T: 16-port, RS-232, 10-pin RJ45

Expansion Modules (optional)

C32082T: 8 RS-232 ports, 10-pin RJ45 connectors
C32083T: 16 RS-232 ports, 10-pin RJ45 connectors

Long-range Extension Kit (optional)

C32050T: Includes the following items

- 2-meter DB25-M to DB25-F 10-wire cable (generally used for set-up)
- 90 to 240 VAC switching power adaptor (0 to 30°C operating temperature)

NOTE: Build your own DB25-M to DB25-F 10-wire cable for connecting up to 100 meters.

Desktop Option

- CPU module
- One or more UART modules (32 ports maximum per board)

Rackmount Option

- Basic module
- Zero or more expansion modules (32 ports maximum per board)

Connection Cable (required)

C32020T: 2-meter DB25-M to DB25-F cable with 25 pins for short-range usage

Desktop Option

CPU Module (required)

C32030T: Connects directly to one UART module

8-port UART Modules (choose at least one)

C32045T: RS-232, DB25-F connectors
C32047T: RS-232, DB25-M connectors
C32071T: RS-232, DB25-F connectors
C32061T: RS-422, DB25-F connectors
C32065T: RS-422, DB25-F connectors (2 kV electrical isolation)

Ordering Examples

Rackmount Ordering Examples

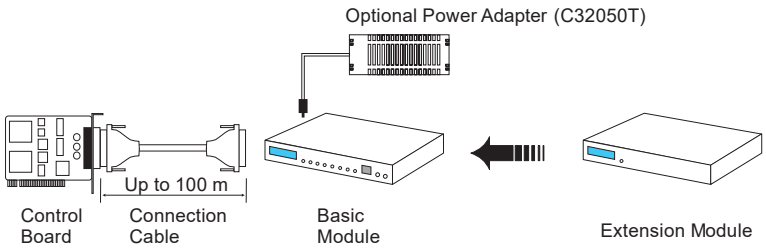
16 RS-232 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
Basic Module: C32081T

32 RS-232 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
Basic Module: C32081T x 1
Expansion Module: C32083T x 1

Rackmount Setup Diagram



Desktop Ordering Examples

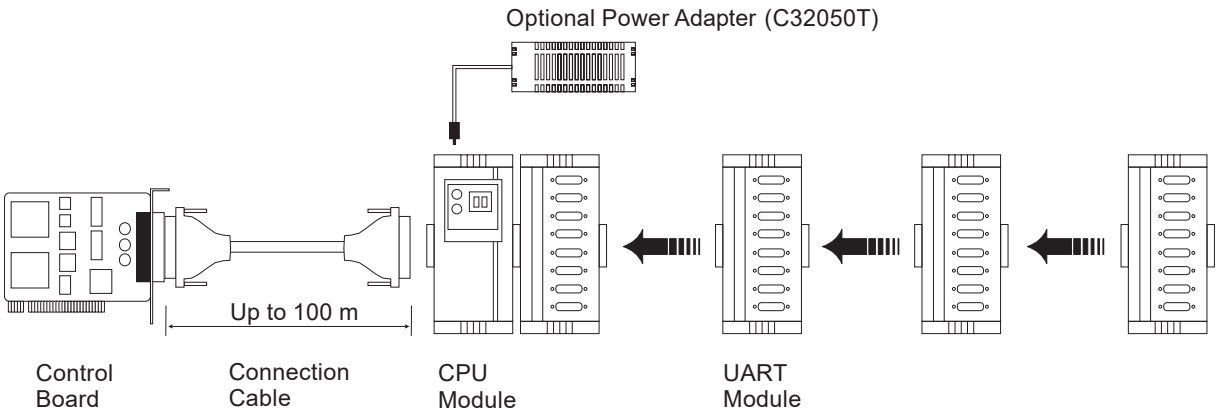
8 RS-232 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
CPU Module: C32030T
UART Module: C32045T x 1

8 RS-232 ports + 16 RS-422 ports

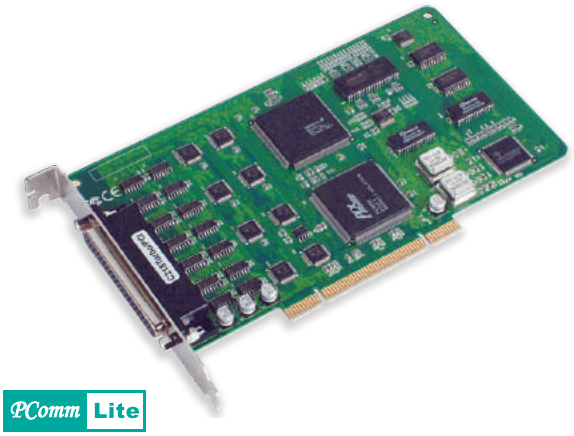
Control Board: C32010T/PCI
Connection Cable: C32020T
CPU Module: C32030T
UART Module: C32045T x 1 + C32061T x 2

Desktop Setup Diagram



C218Turbo Series

8-port RS-232 intelligent Universal PCI serial boards



- Effectively reduces CPU loading
- Drivers provided for a variety of operating systems (Windows, Linux, and Unix)
- Choose from a wide range of connection cables and boxes
- 921.6 kbps maximum baudrate for super fast data transmission
- Provides up to 512 KB of embedded memory
- High data throughput for great performance

PComm Lite

Introduction

The 8-port C218Turbo RS-232 universal PCI board comes with an ASIC, RISC processor, and large I/O buffer to provide a sustained high throughput on all 8 ports simultaneously. Drivers are available for Windows, Linux, and Unix, making the boards suitable for a wide range of applications. Models are available for PCI and PCI-X buses to provide reliable, high-performance solutions for multiport serial communications.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 8
Bus: 32-bit Universal PCI
Connector: DB62 female
Processor: TMS320BC203-57 RISC CPU
Memory: 512 KB

Serial Interface

Number of Ports: 8
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

Optical Isolation: 500 V with connection box Opt8F (must be purchased separately)

Performance

Baudrate: 50 bps to 921.6 kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics

Dimensions: 105 x 180 mm (4.13 x 7.09 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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
IEC 61000-4-5 Surge: Power: 2 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

MTBF (mean time between failures)

Time: 303,325 hrs
Standard: MIL-HDBK-217F

Power Requirements

Input Current:
530 mA @ +5 VDC
110 mA @ +12 VDC
35 mA @ -12 VDC

Warranty

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

Ordering Information

Available Models

C218Turbo/PCI: 8-port RS-232 intelligent Universal PCI serial board

Connection Options (can be purchased separately)

CBL-M62M9x8-100: M62 to 8 x DB9-M cable, 100 cm
CBL-M62M25x8-100: M62 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)

OPT8A: M62 to 8 x DB25-F connection box w/ 150 cm DB62-M to DB62-F cable
OPT8B: M62 to 8 x DB25-M connection box w/ 150 cm DB62-M to DB62-F cable
OPT8S: M62 to 8 x DB25-F connection box w/ surge protection, and 150 cm DB62-M to DB62-F cable
OPT8-M9: M62 to 8 x DB9-M connection box w/ 150 cm DB62-M to DB62-F cable
OPT8-RJ45: M62 to 8 x RJ45 (8-pin) connection box w/ 30 cm cable

Package Checklist

- 1 C218Turbo/PCI board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

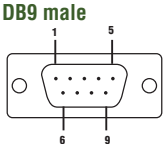
OPT8-M9
DB9 male x 8 (150 cm cable)

CBL-M62M9x8-100
DB9 male x 8 (100 cm cable)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR

PIN	RS-232
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



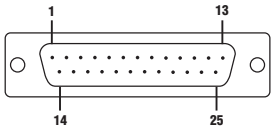
OPT8B
DB25 male x 8 (150 cm cable)

CBL-M62M25x8-100
DB25 male x 8 (100 cm cable)

PIN	RS-232
2	TxD
3	RxD
4	RTS
5	CTS

PIN	RS-232
6	DSR
7	GND
8	DCD
20	DTR

DB25 male



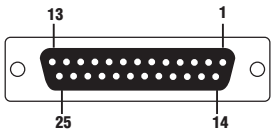
OPT8A
DB25 female x 8 (150 cm cable)

OPT8S
DB25 female x 8 (150 cm cable)

PIN	RS-232
2	RxD
3	TxD
4	CTS
5	RTS

PIN	RS-232
6	DTR
7	GND
8	DCD
20	DSR

DB25 female

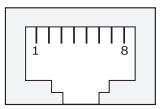


OPT8-RJ45
8-pin RJ45 x 8 (30 cm cable)

PIN	RS-232
1	DSR
2	RTS
3	GND
4	TxD

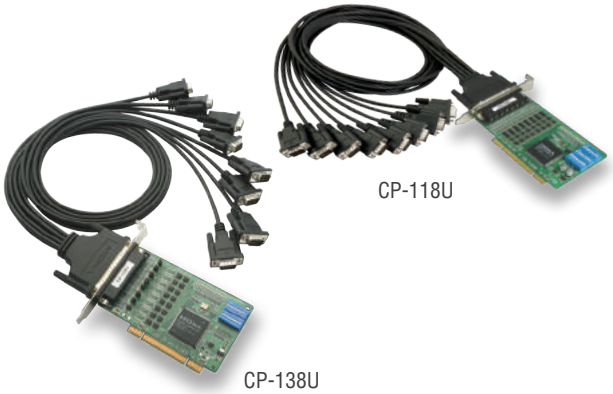
PIN	RS-232
5	RxD
6	DCD
7	CTS
8	DTR

8-pin RJ45



CP-118U/138U

8-port RS-232/422/485 Universal PCI serial boards



- Over 700 kbps data throughput for top performance
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5 V PCI and PCI-X
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Easy maintenance with on-board LED display, and management software
- Wide temperature model available for -40 to 85°C environments

Overview

The CP-118U and CP-138U are smart, 8-port Universal PCI serial boards designed for POS and ATM applications and for use by industrial automation system manufacturers and system integrators. Both boards are compatible with all major operating systems. In addition, the CP-118U's 8 RS-232/422/485 ports and the CP-138U's 8 RS-422/485 ports support data rates up to 921.6 kbps and provide full modem control signals to ensure compatibility with a wide range of serial peripherals. The CP-118U and CP-138U support both 3.3 V and 5 V PCI buses, making them suitable for installation in most PC servers.

Drivers Provided for Windows and Linux

One of Moxa's highest priorities is to provide drivers for all mainstream operating systems. Reliable, well-tested Windows and Linux/Unix drivers are available for use with the CP-118U and CP-138U serial boards. Other operating systems, such as Windows XP embedded and WEPOS, are also supported to accommodate embedded integration applications.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB62 female

Serial Interface

Number of Ports: 8
Serial Standards:
CP-118U: RS-232/422/485
CP-138U: RS-422/485
Max. No. of Boards per PC: 4

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions: 82 x 135 mm (3.22 x 5.31 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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

MTBF (mean time between failures)

Time:
CP-118U: 1,073,385 hrs
CP-138U: 1,147,210 hrs
Standard: Telcordia (Bellcore) SR-332

Power Requirements

Input Current:
CP-118U: 240 mA @ 5 VDC (RS-232); 300 mA @ 5 VDC (RS-422)
CP-138U: 135 mA @ 5 VDC (RS-422)

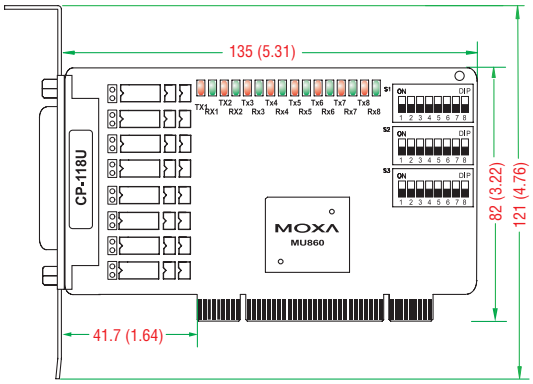
Warranty

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

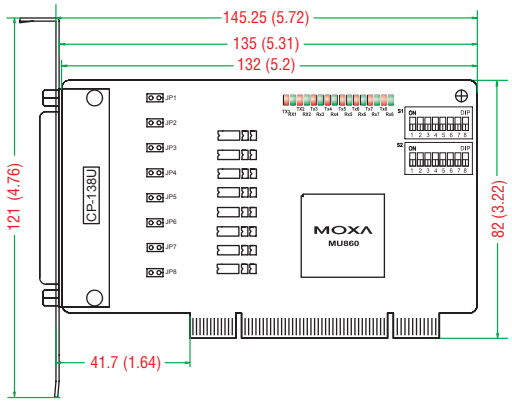
Dimensions

Unit: mm (inch)

CP-118U



CP-138U



Ordering Information

Available Models

CP-118U: 8-port RS-232/422/485 Universal PCI serial board, 0 to 55°C operating temperature
CP-138U: 8-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature
CP-118U-T: 8-port RS-232/422/485 Universal PCI serial board, -40 to 85°C operating temperature
CP-138U-T: 8-port RS-422/485 Universal PCI serial board, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-M68M9x8-100: SCSI VHDCI 68 to 8 x DB9-M cable, 100 cm
CBL-M68M25x8-100: SCSI VHDCI 68 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)

OPT8-M9+: VHDCI 68 to 8 x DB9-M connection box
OPT8B+: VHDCI 68 to 8 x DB25-M connection box
OPT8A+: VHDCI 68 to 8 x DB25-F connection box
OPT8-RJ45+: VHDCI 68 to 8 x RJ45 (8-pin) connection box
OPT8S+: VHDCI 68 to 8 x DB25-F connection box w/ surge protection

Package Checklist

- 1 CP-118U or CP-138U board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

OPT8-M9

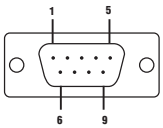
DB9 male x 8 (150 cm cable)

CBL-M62M9x8-100 (OPT8D)

DB9 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
1	DCD	5	GND
2	RxD	6	DSR
3	TxD	7	RTS
4	DTR	8	CTS

DB9 male



OPT8B

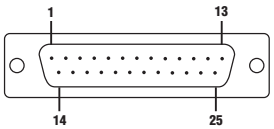
DB25 male x 8 (150 cm cable)

CBL-M62M25x8-100 (OPT8C)

DB25 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
2	TxD	6	DSR
3	RxD	7	GND
4	RTS	8	DCD
5	CTS	20	DTR

DB25 male



OPT8A

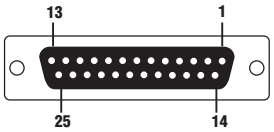
DB25 female x 8 (150 cm cable)

OPT8S

DB25 female x 8 (150 cm cable)

PIN	RS-232	PIN	RS-232
2	RxD	6	DTR
3	TxD	7	GND
4	CTS	8	DCD
5	RTS	20	DSR

DB25 female

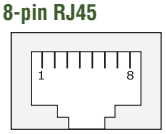


OPT8-RJ45

8-pin RJ45 x 8 (30 cm cable)

PIN	RS-232	PIN	RS-232
1	DSR	5	RxD
2	RTS	6	DCD
3	GND	7	CTS
4	TxD	8	DTR

8-pin RJ45



CP-118U-I/138U-I

8-port RS-232/422/485 Universal PCI serial boards with 2 kV isolation

- Over 700 kbps data throughput for top performance
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5 V PCI and PCI-X
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Easy maintenance with on-board LED display, and management software
- Wide temperature model available for -40 to 85°C environments

Overview

The CP-118U-I and CP-138U-I are 8-port serial boards designed for long distance, multipoint, PC-based data acquisition applications. Industrial automation system integrators will be eager to use these boards for many of their industrial automation projects.

On-chip ADDC® for precise RS-485 communication

RS-485 communication requires precise timing control to enable and disable the line driver, and the Moxa Turbo Serial Engine™ chip that powers the CP-118U-I and CP-138U-I boards come with on-chip ADDC® (automatic data direction control) to make RS-485 as easy to use as RS-232.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-118U-I's 8 RS-232/422/485 ports and the CP-138U-I's 8 RS-422/485 ports can achieve data rates up to 921.6 kbps, and in RS-485 mode, one serial port can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. In addition, the 2 kV electrical isolation protection on the CP-118U-I and CP-138U-I boards helps prevent equipment damage for long distance RS-485 communication.

Top Serial Performance

With 20-plus years of experience in serial board design, Moxa is now concentrating on a new high-performance serial data transmission chip. The Turbo Serial Engine™ chip provides serial boards with a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. Thanks to the Turbo Serial Engine™, Moxa is able to offer the world's best performing smart serial boards.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-118U-I and CP-138U-I boards are no exception. Reliable Windows and Linux/Unix drivers are provided for most Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB78 female

Serial Interface

Number of Ports: 8
Serial Standards:
CP-118U-I: RS-232/422/485
CP-138U-I: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Electrical Isolation: 2 kV

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions: 105 x 133 mm (4.13 x 5.23 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x

Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD

Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
CP-118U-I:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
CP-138U-I:
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

MTBF (mean time between failures)

Time:
CP-118U-I: 350,975 hrs
CP-138U-I: 370,390 hrs
Standard: Telcordia (Bellcore) SR-332

Power Requirements

Input Current:
CP-118U-I: 860 mA @ 5 VDC
CP-138U-I: 330 mA @ 5 VDC

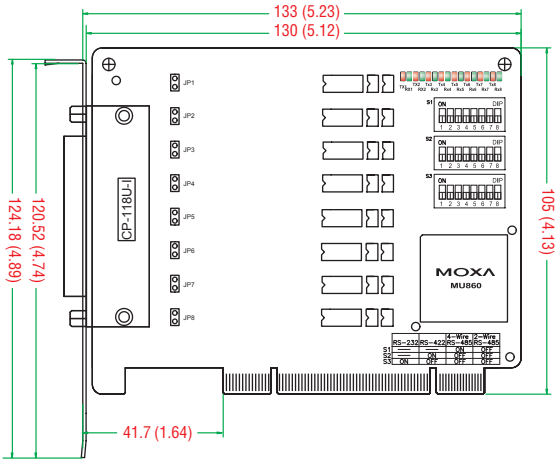
Warranty

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

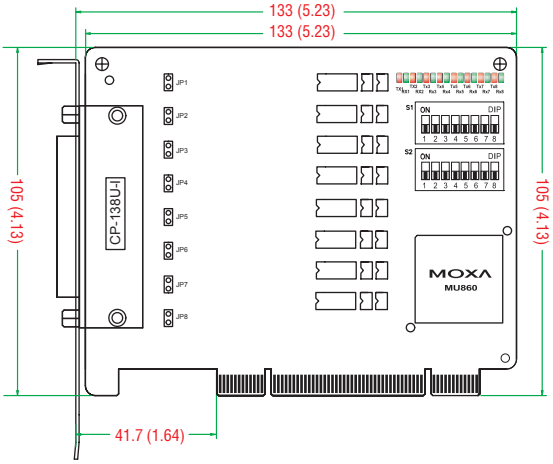
Dimensions

Unit: mm (inch)

CP-118U-I



CP-138U-I



Ordering Information

Available Models

CP-118U-I: 8-port RS-232/422/485 Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature
CP-138U-I: 8-port RS-422/485 Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature
CP-118U-I-T: 8-port RS-232/422/485 Universal PCI serial board with electrical isolation, -40 to 85°C operating temperature
CP-138U-I-T: 8-port RS-422/485 Universal PCI serial board with electrical isolation, -40 to 85°C operating temperature

Package Checklist

- 1 CP-118U-I or CP-138U-I board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Connection Options (can be purchased separately)

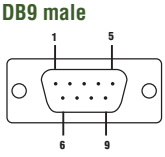
CBL-M68M9x8-100: SCSI VHDCI 68 to 8 x DB9-M cable, 100 cm
CBL-M68M25x8-100: SCSI VHDCI 68 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)

OPT8-M9+: VHDCI 68 to 8 x DB9-M connection box
OPT8B+: VHDCI 68 to 8 x DB25-M connection box
OPT8A+: VHDCI 68 to 8 x DB25-F connection box
OPT8-RJ45+: VHDCI 68 to 8 x RJ45 (8-pin) connection box
OPT8S+: VHDCI 68 to 8 x DB25-F connection box w/ surge protection

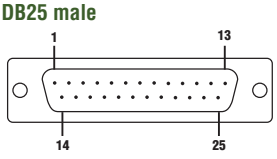
CBL-M78M9x8-100

DB9 male



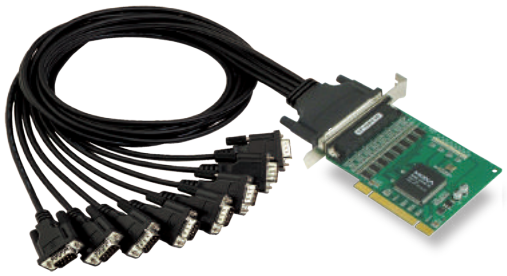
CBL-M78M25x8-100

DB25 male



CP-168U

8-port RS-232 Universal PCI serial board



- Over 700 kbps data throughput for top performance
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Choose from a wide range of connection cables and boxes
- Compatible with 3.3/5 V PCI and PCI-X
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Wide temperature model available for -40 to 85°C environments

Introduction

The CP-168U is a smart, 8-port universal PCI board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 8 RS-232 serial ports supports a superfast 921.6 kbps baudrate. The CP-168U provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and it works with both 3.3 V and 5 V PCI buses, allowing the board to be installed in virtually any available PC server.

Specifications

Hardware
Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB62 female

Serial Interface
Number of Ports: 8
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection
Electrical Isolation: 500 V with connection box Opt8F (must be purchased separately)

Performance
Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics
Dimensions: 82 x 120 mm (3.22 x 4.72 in)

Driver Support
Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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

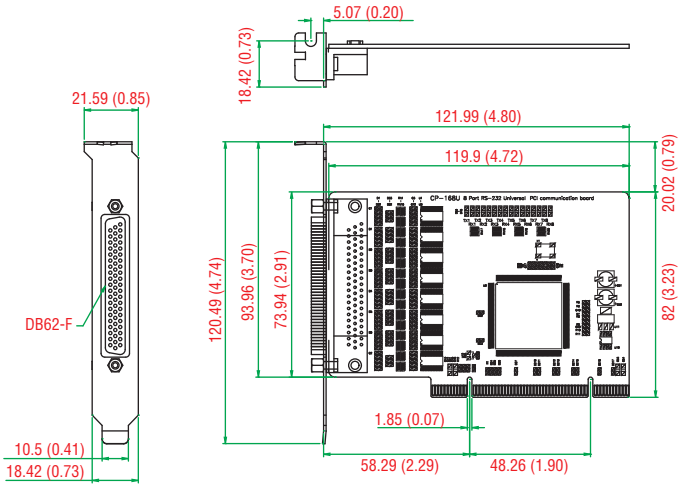
MTBF (mean time between failures)
Time: 280,854 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements
Input Current: 180 mA @ 5 VDC

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

CP-168U: 8-port RS-232 Universal PCI serial board, 0 to 55°C operating temperature
CP-168U-T: 8-port RS-232 Universal PCI serial board, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-M62M9x8-100: M62 to 8 x DB9-M cable, 100 cm
CBL-M62M25x8-100: M62 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)

OPT8A: M62 to 8 x DB25-F connection box w/ 150 cm DB62-M to DB62-F cable
OPT8B: M62 to 8 x DB25-M connection box w/ 150 cm DB62-M to DB62-F cable
OPT8S: M62 to 8 x DB25-F connection box w/ surge protection, and 150 cm DB62-M to DB62-F cable
OPT8-M9: M62 to 8 x DB9-M connection box w/ 150 cm DB62-M to DB62-F cable
OPT8-RJ45: M62 to 8 x RJ45 (8-pin) connection box w/ 30 cm cable

Package Checklist

- 1 CP-168U board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

OPT8-M9

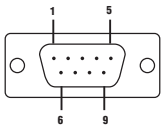
DB9 male x 8 (150 cm cable)

CBL-M62M9x8-100 (OPT8D)

DB9 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
1	DCD	5	GND
2	RxD	6	DSR
3	TxD	7	RTS
4	DTR	8	CTS

DB9 male



OPT8B

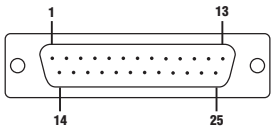
DB25 male x 8 (150 cm cable)

CBL-M62M25x8-100 (OPT8C)

DB25 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
2	TxD	6	DSR
3	RxD	7	GND
4	RTS	8	DCD
5	CTS	20	DTR

DB25 male



OPT8A

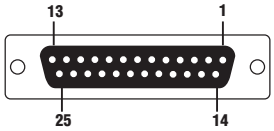
DB25 female x 8 (150 cm cable)

OPT8S

DB25 female x 8 (150 cm cable)

PIN	RS-232	PIN	RS-232
2	RxD	6	DTR
3	TxD	7	GND
4	CTS	8	DCD
5	RTS	20	DSR

DB25 female

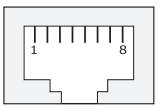


OPT8-RJ45

8-pin RJ45 x 8 (30 cm cable)

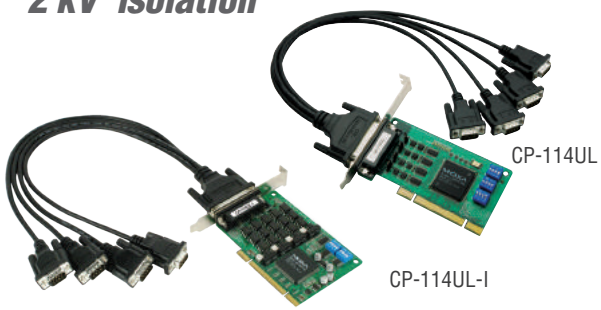
PIN	RS-232	PIN	RS-232
1	DSR	5	RxD
2	RTS	6	DCD
3	GND	7	CTS
4	TxD	8	DTR

8-pin RJ45



CP-114UL/UL-I

4-port RS-232/422/485 Universal PCI serial boards with optional 2 kV isolation



- Over 700 kbps data throughput for top performance
- 128-byte FIFO and on-chip H/W, S/W flow control
- Universal PCI compatible with 3.3/5 V PCI and PCI-X
- Serial communication speed up to 921.6 kbps
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Easy maintenance with on-board LED display
- Wide temperature model available for -40 to 85°C environments

Overview

Moxa's CP-114UL/UL-I series of multiport serial boards are designed to be used by industrial automation system integrators for long distance, multipoint, PC-based data acquisition applications. On-chip Automatic Data Direction Control for precision RS-485 communication requires precise timing control to enable and disable the line driver. The Moxa Turbo Serial Engine™ chip that powers the CP-114UL/UL-I boards come with on-chip ADDC®, which makes RS-485 as easy to use as RS-232. In RS-485 mode, the serial port can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, 2 kV electrical isolation protections are available to prevent equipment damage.

Drives Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-114UL/UL-I boards are no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4
Electrical Isolation: 2 kV (CP-114UL-I only)

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions:
CP-114UL: 64.4 x 120 mm (2.53 x 4.72 in)
CP-114UL-I: 64.4 x 130 mm (2.53 x 5.12 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
CP-114UL:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
CP-114UL-I:
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: 2 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

MTBF (mean time between failures)

Time: 114,223 hrs
Standard: Telcordia (Bellcore) SR-332

Power Requirements

Input Current:
CP-114UL: 320 mA @ 5 VDC
CP-114UL-I: 465 mA @ 5 VDC

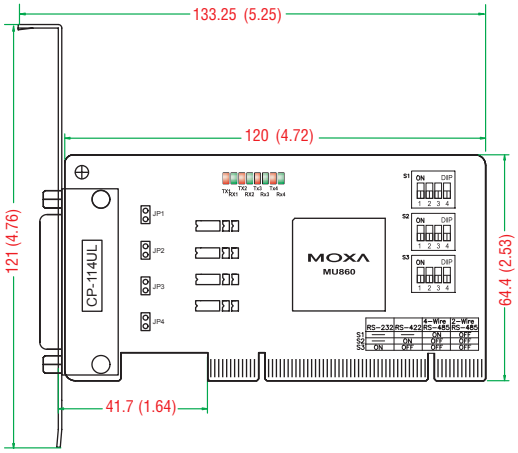
Warranty

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

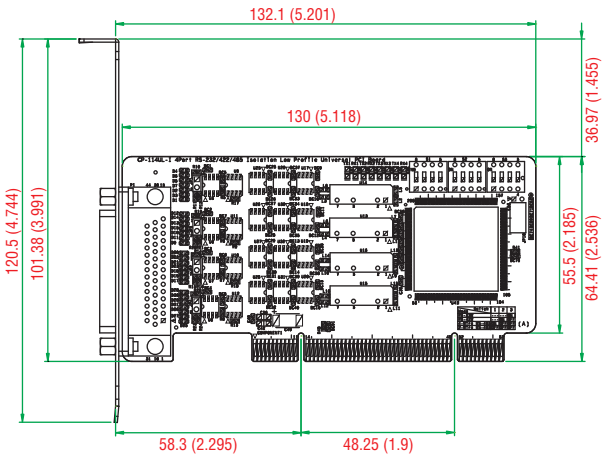
Dimensions

Unit: mm (inch)

CP-114UL



CP-114UL-I



Ordering Information

Available Models

CP-114UL: 4-port RS-232/422/485 low profile Universal PCI board, 0 to 55°C operating temperature
CP-114UL-DB9M: 4-port RS-232/422/485 low profile Universal PCI serial board, 0 to 55°C operating temperature (CBL-M44M9x4-50 cable included)
CP-114UL-DB25M: 4-port RS-232/422/485 low profile Universal PCI serial board, 0 to 55°C operating temperature (CBL-M44M25x4-50 cable included)
CP-114UL-I: 4-port RS-232/422/485 low profile Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature
CP-114UL-I-DB9M: 4-port RS-232/422/485 low profile Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature (CBL-M44M9x4-50 cable included)
CP-114UL-I-DB25M: 4-port RS-232/422/485 low profile Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature (CBL-M44M25x4-50 cable included)
CP-114UL-T: 4-port RS-232/422/485 low profile Universal PCI serial board, -40 to 85°C operating temperature
CP-114UL-I-T: 4-port RS-232/422/485 low profile Universal PCI serial board with electrical isolation, -40 to 85°C operating temperature

Package Checklist

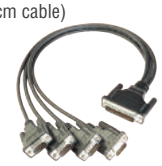
- 1 CP-114UL or CP-114UL-I board
- Low profile bracket
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Connection Options (can be purchased separately)

Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M44M9x4-50: M44 to 4 x DB9-M cable, 50 cm
CBL-M44M25x4-50: M44 to 4 x DB25-M cable, 50 cm

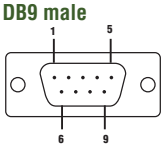
CBL-M44M9x4-50

DB44 male to DB9 male x 4 (50 cm cable)



PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD-(A)	TxD-(A)	–
2	RxD	TxD+(B)	TxD+(B)	–
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data-(A)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
9	–	–	–	–

DB9 male

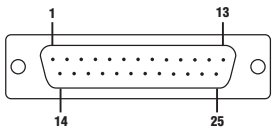


CBL-M44M25x4-50

DB44 male to DB25 male x 4 (50 cm cable)

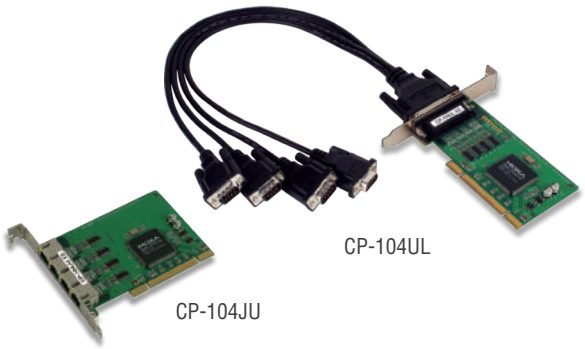
PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	TxD+(B)	–
4	RTS	–	–	–
5	CTS	–	–	–
6	DSR	–	–	–
7	GND	GND	GND	GND
8	DCD	TxD-(A)	TxD-(A)	–
20	DTR	RxD-(A)	RxD-(A)	Data-(A)
22	–	–	–	–

DB25 male



CP-104UL/JU

4-port RS-232 smart Universal PCI serial boards



CP-104UL

CP-104JU

- Over 800 kbps data throughput for top performance
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5 V PCI and PCI-X
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Wide temperature model available for -40 to 85°C environments

Introduction

The CP-104UL and CP-104JU 4-port universal PCI boards are designed for POS and ATM applications. They are a top choice of industrial automation engineers and system integrators, and support many different operating systems, including Windows, Linux, and even Unix. In addition, each of the boards' RS-232 serial ports supports a super fast 921.6 kbps baudrate. The CP-104UL and CP-104JU provide full modem control signals to ensure compatibility with a wide range of serial peripherals, and they work with both 3.3 V and 5 V PCI buses, allowing the boards to be installed in virtually any available PC server.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector:
CP-104UL: DB44 female
CP-104JU: RJ45 x 4

Serial Interface

Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics

Dimensions:
CP-104UL: 64.4 x 120 mm (2.53 x 4.72 in)
CP-104JU: 83 x 120 mm (3.27 x 4.72 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
CP-104UL:
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: 2 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
CP-104JU:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

MTBF (mean time between failures)

Time:
CP-104UL: 558,961 hrs
CP-104JU: 571,627 hrs
Standard:
CP-104UL: MIL-HDBK-217F
CP-104JU: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CP-104UL: 120 mA @ 5 VDC
CP-104JU: 135 mA @ 5 VDC

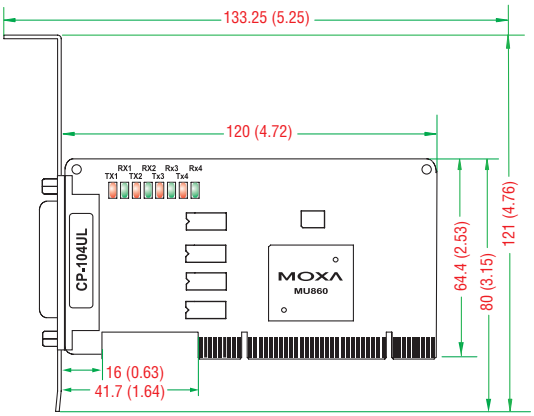
Warranty

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

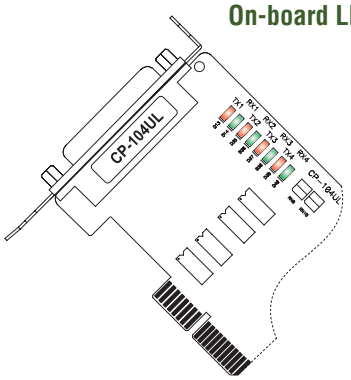
Dimensions

CP-104UL

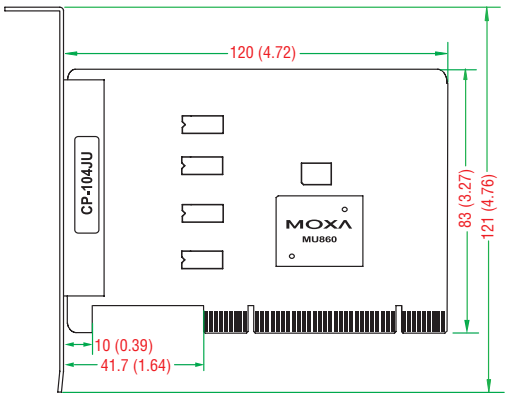
Unit: mm (inch)

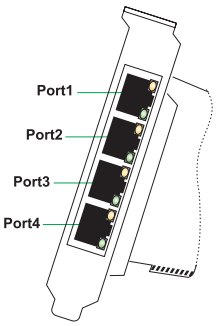


On-board LEDs



CP-104JU





Ordering Information

Available Models

CP-104UL-DB9M: 4-port RS-232 low profile Universal PCI serial board, 0 to 55°C operating temperature (CBL-M44M9x4-50 cable included)
CP-104UL-DB25M: 4-port RS-232 low profile Universal PCI serial board, 0 to 55°C operating temperature (CBL-M44M25x4-50 cable included)
CP-104JU: 4-port RS-232 Universal PCI serial board with RJ45 ports on the board, 0 to 55°C operating temperature
CP-104UL-T: 4-port RS-232 low profile Universal PCI serial board, -40 to 85°C operating temperature
CP-104JU-T: 4-port RS-232 Universal PCI serial board with RJ45 ports on the board, -40 to 85°C operating temperature

Package Checklist

- 1 CP-104UL or CP-104JU board
- Low profile bracket (CP-104UL only)
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Connection Options (can be purchased separately)

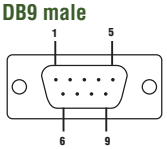
Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M44M9x4-50: M44 to 4 x DB9-M cable, 50 cm
CBL-M44M25x4-50: M44 to 4 x DB25-M cable, 50 cm

CBL-M44M9x4-50
DB44 male to DB9 male x 4 (50 cm cable)

CBL-RJ45M9-150
8-pin RJ45 to DB9 male (150 cm cable)

PIN	RS-232	PIN	RS-232
1	DCD	5	GND
2	RxD	6	DSR
3	TxD	7	RTS
4	DTR	8	CTS

DB9 male

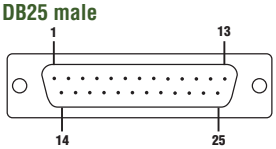


CBL-M44M25x4-50
DB44 male to DB25 male x 4 (50 cm cable)

CBL-RJ45M25-150
8-pin RJ45 to DB25 male (150 cm cable)

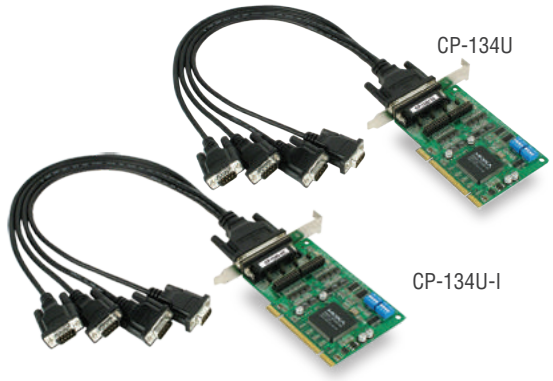
PIN	RS-232	PIN	RS-232
2	TxD	6	DSR
3	RxD	7	GND
4	RTS	8	DCD
5	CTS	20	DTR

DB25 male



CP-134U/U-I

4-port RS-422/485 Universal PCI serial boards with optional 2 kV isolation



- Over 700 kbps data throughput for top performance
- 921.6 kbps maximum baudrate for super fast data transmission
- ADDC® provides automatic data direction control for RS-485 signals
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5 V PCI and PCI-X
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Added bonus! Ports 1 and 2 support RS-232 and RS-422/485
- Wide temperature model available for -40 to 85°C environments

Overview

The CP-134U and CP-134U-I 4-port universal PCI boards are designed for industrial automation applications that require a long distance, multipoint, PC-based data acquisition solution.

On-chip Automatic Data Direction Control for precise RS-485 communication

RS-485 communication requires precise timing control to enable and disable the line driver. The Moxa Turbo Serial Engine™ chip that powers the CP-134U board comes with on-chip ADDC®, which makes RS-485 as easy to use as RS-232.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-134U universal PCI board has 4 RS-422/485 serial ports, each of which can achieve data rates up to 921.6 kbps. In RS-485 mode, the board can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, choose the CP-134U-I, which comes with 2 kV electrical isolation protection to prevent equipment damage.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-134U and CP-134U-I boards are no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: 2 x RS-232/422/485, 2 x RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Electrical Isolation: 2 kV (CP-134U-I configured for RS-422/485 only)

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), RTS+(B), RTS-(A), CTS+(B), CTS-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions:
CP-134U: 82.5 x 120 mm (3.24 x 4.72 in)
CP-134U-I: 115 x 120 mm (4.52 x 4.72 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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

MTBF (mean time between failures)

Time: 480,209 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CP-134U: 180 mA @ 5 VDC
CP-134U-I: 850 mA @ 5 VDC

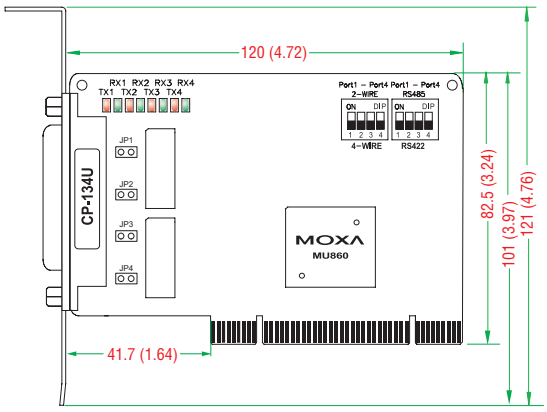
Warranty

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

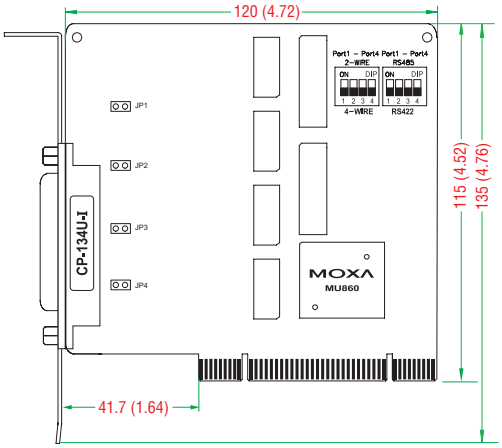
Dimensions

Unit: mm (inch)

CP-134U



CP-134U-I



Ordering Information

Available Models

CP-134U: 4-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature
CP-134U-DB9M: 4-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature (CBL-M44M9x4-50 cable included)
CP-134U-DB25M: 4-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature (CBL-M44M25x4-50 cable included)
CP-134U-I: 4-port RS-422/485 Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature
CP-134U-I-DB9M: 4-port RS-422/485 Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature (CBL-M44M9x4-50 cable included)
CP-134U-I-DB25M: 4-port RS-422/485 Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature (CBL-M44M25x4-50 cable included)
CP-134U-T: 4-port RS-422/485 Universal PCI serial board, -40 to 85°C operating temperature
CP-134U-I-T: 4-port RS-422/485 Universal PCI serial board with electrical isolation, -40 to 85°C operating temperature

Package Checklist

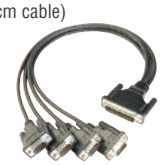
- 1 CP-134U or CP-134U-I board
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Connection Options (can be purchased separately)

Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M44M9x4-50: M44 to 4 x DB9-M cable, 50 cm
CBL-M44M25x4-50: M44 to 4 x DB25-M cable, 50 cm

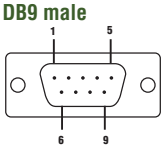
CBL-M44M9x4-50

DB44 male to DB9 male x 4 (50 cm cable)



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

DB9 male

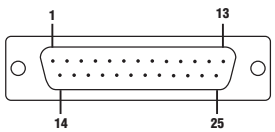


CBL-M44M25x4-50

DB44 male to DB25 male x 4 (50 cm cable)

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

DB25 male



CP-112UL/UL-I Series

2-port RS-232/422/485 Universal PCI serial boards with optional 2 kV isolation

CP-112UL

CP-112UL-I

- Over 700 kbps data throughput for top performance
- 128-byte FIFO and on-chip H/W, S/W flow control
- Universal PCI compatible with 3.3/5 V PCI and PCI-X
- Serial communication speed up to 921.6 kbps
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Easy maintenance with on-board LED display
- Wide temperature model available for -40 to 85°C environments

PComm Lite

Overview

Moxa's CP-112UL/UL-I series of multiport serial boards are designed to be used by industrial automation system integrators for long distance, multipoint, PC-based data acquisition applications. On-chip Automatic Data Direction Control for precision RS-485 communication requires precise timing control for enabling and disabling the line driver. Moxa's Turbo Serial Engine™ chip that powers the CP-112UL/UL-I boards comes with on-chip ADDC®, which makes RS-485 as easy to use as RS-232. The boards come with 2 RS-422/485 serial ports, both of which can achieve data rates up to 921.6 kbps. In RS-485 mode, the serial port can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, 2 kV electrical isolation protection is available to prevent equipment damage.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-112UL/UL-I boards are no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB25 female

Serial Interface

Number of Ports: 2
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4
Electrical Isolation: 2 kV (CP-112UL-I only)

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions: 64.4 x 120 mm (2.53 x 4.72 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)
Time: 219,971 hrs
Standard: Telcordia (Bellcore) TR/SR

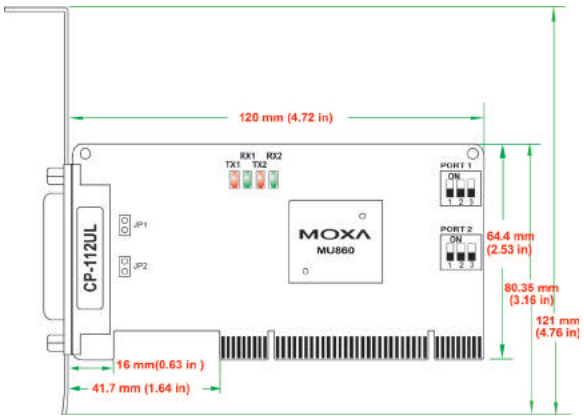
Power Requirements
Input Current:
CP-112UL: 175 mA @ 5 VDC
CP-112UL-I: 290 mA @ 5 VDC

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

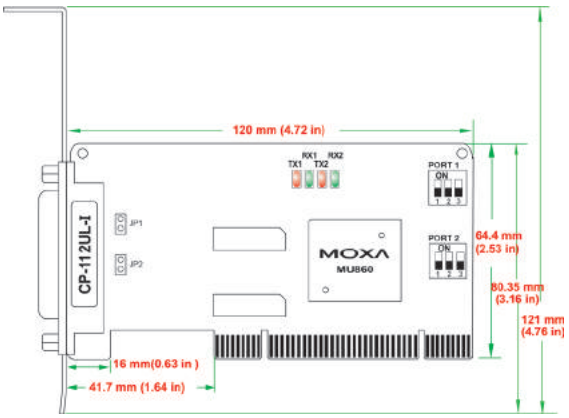
Dimensions

Unit: mm (inch)

CP-112UL



CP-112UL-I



Ordering Information

Available Models
CP-112UL-DB9M: 2-port RS-232/422/485 low profile Universal PCI board, 0 to 55°C operating temperature (CBL-M25M9x2-50 cable included)
CP-112UL-I-DB9M: 2-port RS-232/422/485 low profile Universal PCI board with electrical isolation, 0 to 55°C operating temperature (CBL-M25M9x2-50 cable included)
CP-112UL-T: 2-port RS-232/422/485 low profile Universal PCI board, -40 to 85°C operating temperature
CP-112UL-I-T: 2-port RS-232/422/485 low profile Universal PCI board with electrical isolation, -40 to 85°C operating temperature

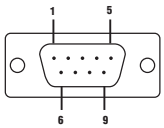
Package Checklist
- 1 CP-112UL or CP-112UL-I board
- Low profile bracket
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Connection Options (can be purchased separately)
Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M25M9x2-50: M25 to 2 x DB9-M cable, 50 cm

CBL-M25M9x2-50
DB25 male to DB9 male x 2 (50 cm cable)

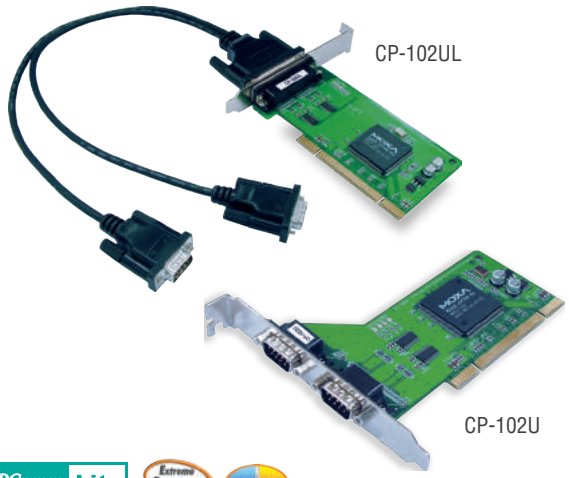
PIN	RS-232	RS-422	RS-485-4W	RS-485-2W
1	DCD	TxD-(A)	TxD-(A)	–
2	RxD	TxD+(B)	TxD+(B)	–
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data+(A)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
9	–	–	–	–

DB9 male



CP-102U/UL

2-port RS-232 Universal PCI serial boards



- Excellent data throughput at over 800 kbps
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5 V PCI and PCI-X
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- MD1 low profile form factor (CP-102UL) fits compact PCs
- Wide temperature model available for -40 to 85°C environments

Overview

The CP-102U and CP-102UL are 2-port universal PCI boards designed for POS and ATM applications. They are designed especially for industrial automation engineers and system integrators to support many different operating systems, including Windows, Linux, and even Unix. In addition, each RS-232 serial port supports up to 921.6 kbps baudrate. The CP-102U and CP-102UL implements full modem control signals to ensure compatibility with a wide range of serial peripherals, and they work with both 3.3 V and 5 V PCI buses, allowing the boards to be installed in virtually any PC.

Designed for Standard and Compact PCs

The CP-102UL is a low-profile board requiring a 5 VDC power supply. It is compatible with both a 3.3 V and 5 V PCI bus, allowing the CP-102UL to be tucked inside compact PCs.

Top Serial Performance

With 20-plus years of experience in serial board design, Moxa is now concentrating on a new high-performance serial data transmission chip. The Turbo Serial Engine™ chip provides serial boards with a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. With Turbo Serial Engine™, Moxa is able to offer advanced smart serial boards with unbeatable transmission performance.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-102U/UL boards are no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, with support for many operating systems, including WEPOS, for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector:
CP-102U: DB9 male x 2
CP-102UL: DB25 female

Serial Interface

Number of Ports: 2 (only one IRQ required)
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Performance

Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics

Dimensions:
CP-102U: 80 x 120 mm (3.15 x 4.72 in)
CP-102UL: 64.5 x 120 mm (2.53 x 4.72 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
CP-102U:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
CP-102UL:
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: 2 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

MTBF (mean time between failures)

Time:
CP-102U: 574,050 hrs
CP-102UL: 576,401 hrs
Standard:
CP-102U: MIL-HDBK-217F
CP-102UL: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current: 93 mA @ 5 VDC

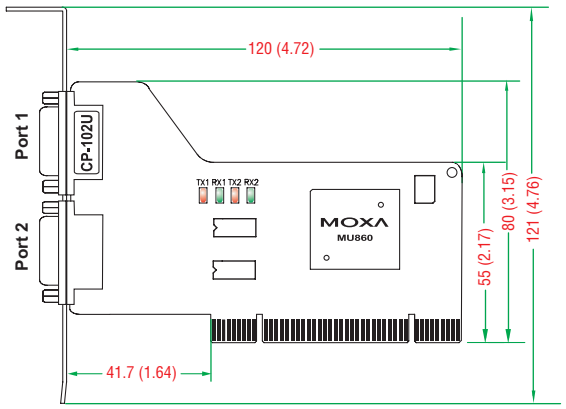
Warranty

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

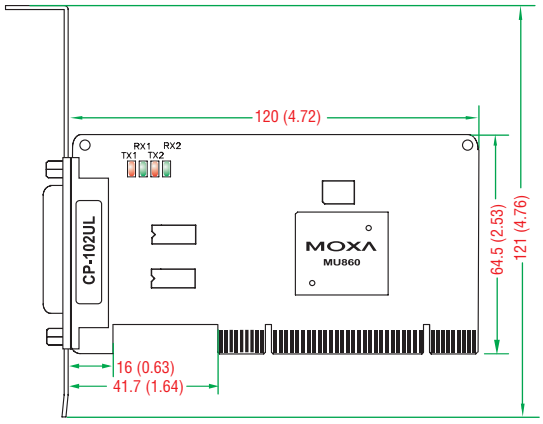
Dimensions

Unit: mm (inch)

CP-102U



CP-102UL



Ordering Information

Available Models

CP-102U: 2-port RS-232 Universal PCI serial board, 0 to 55°C operating temperature
CP-102UL-DB9M: 2-port RS-232 low profile Universal PCI serial board, 0 to 55°C operating temperature (CBL-M25M9x2-50 cable included)
CP-102U-T: 2-port RS-232 Universal PCI serial board, -40 to 85°C operating temperature
CP-102UL-T: 2-port RS-232 low profile Universal PCI serial board, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

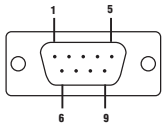
Low Profile Bracket: Bracket for DB44 connector (1490000001000)
CBL-M25M9x2-50: M25 to 2 x DB9-M cable, 50 cm

CBL-M25M9x2-50

DB25 male to DB9 male x 2 (50 cm cable)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

DB9 male

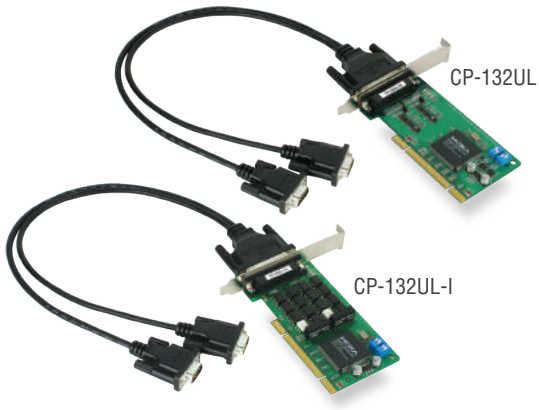


Package Checklist

- 1 CP-102U or CP-102UL board
- Low profile bracket (CP-102UL only)
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CP-132UL/UL-I

2-port RS-422/485 Universal PCI serial boards with optional 2 kV isolation



- Over 800 kbps data throughput for top performance
- 921.6 kbps maximum baudrate for super fast data transmission
- ADDC® provides automatic data direction control for RS-485 signals
- Transmit data up to 1.2 km with RS-422/485
- 128-byte FIFO and on-chip S/W flow control
- Compatible with 3.3/5 V PCI and PCI-X
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- MD1 low profile form factor fits small-sized PCs
- Wide temperature model available for -40 to 85°C environments

Overview

The CP-132UL and CP-132UL-I are 2-port Universal PCI boards designed for industrial automation applications that require a long distance, multipoint, PC-based data acquisition solution.

On-chip Automatic Data Direction Control for precise RS-485 communication

RS-485 communication requires precise timing control to enable and disable the line driver. Moxa's Turbo Serial Engine™ chip that powers the CP-132UL/UL-I boards comes with on-chip ADDC®, which makes RS-485 as easy to use as RS-232.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-132UL/UL-I Universal PCI boards have two RS-422/485 serial ports, both of which can achieve data rates up to 921.6 kbps. In RS-485 mode, the boards can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, choose the CP-132UL-I model, which comes with 2 kV electrical isolation protection to prevent equipment damage.

Top Serial Performance

With 20-plus years of experience in serial board design, Moxa is now concentrating on a new high performance serial data transmission chip. The Turbo Serial Engine™ chip provides serial boards with a 128-byte FIFO, on-chip software flow control, and burst data mode. Thanks to the Turbo Serial Engine™, Moxa is able to offer the world's best performing smart serial boards.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-132UL/UL-I boards are no exception. Reliable Windows and Linux/Unix drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB25 female

Serial Interface

Number of Ports: 2
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Electrical Isolation: 2 kV (CP-132UL-I only)

Performance

Baudrate: 50 bps to 921.6 kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: XON/XOFF

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), RTS+(B), RTS-(A), CTS+(B), CTS-(A), GND

RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions:
CP-132UL: 64.4 x 120 mm (2.53 x 4.72 in)
CP-132UL-I: 64.4 x 120 mm (2.53 x 4.72 in)

Driver Support

Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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

MTBF (mean time between failures)

Time: 1,647,832 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CP-132UL: 120 mA @ 5 VDC
CP-132UL-I: 490 mA @ 5 VDC

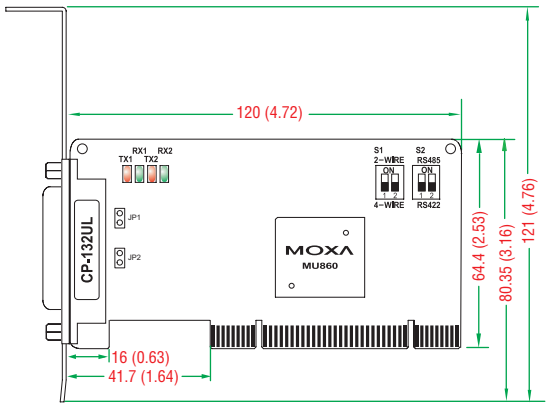
Warranty

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

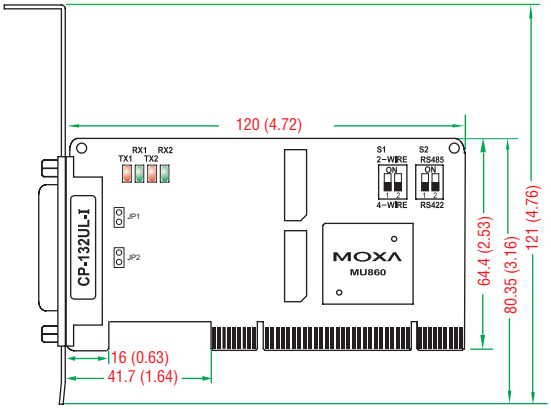
Dimensions

Unit: mm (inch)

CP-132UL



CP-132UL-I



Ordering Information

Available Models

CP-132UL-DB9M: 2-port RS-422/485 low profile Universal PCI serial board, 0 to 55°C operating temperature (CBL-M25M9x2-50 cable included)
CP-132UL-I-DB9M: 2-port RS-422/485 low profile Universal PCI serial board with electrical isolation, 0 to 55°C operating temperature (CBL-M25M9x2-50 cable included)
CP-132UL-T: 2-port RS-422/485 low profile Universal PCI serial board, -40°C to 85 operating temperature
CP-132UL-I-T: 2-port RS-422/485 low profile Universal PCI serial board with electrical isolation, -40°C to 85 operating temperature

Package Checklist

- 1 CP-132UL or CP-132UL-I board
- Low profile bracket
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Connection Options (can be purchased separately)

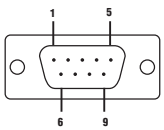
Low Profile Bracket: Bracket for DB44 connector (3095010000007)
CBL-M25M9x2-50: M25 to 2 x DB9-M cable, 50 cm

CBL-M25M9x2-50

DB25 male to DB9 male x 2 (50 cm cable)

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

DB9 male



POS-104UL

4-port RS-232 Universal PCI boards with power over serial

- Over 800 kbps data throughput, for top performance
- Power options for each port: 5 V (output), 12 V (output), and RI (input)
- Serial port power from bus or power supply
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5 V PCI and PCI-X
- Low profile board, suitable for compact-sized PCs
- Drivers provided for a broad selection of operating systems, including the latest Windows and Linux
- Wide temperature model available for -40 to 85°C environments

Introduction

The POS-104UL is a smart, 4-port Universal PCI serial board designed for POS and ATM applications and for use by industrial automation system manufacturers and system integrators. The POS-104UL is compatible with all major operating systems. In addition, each of the 4 RS-232 serial ports supports data rates up to 921.6 kbps and provides full modem control signals to ensure compatibility with a wide range of serial peripherals. The POS-104UL supplies 5 or 12 volts of power to each serial port, and it works with both 3.3 V and 5 V PCI buses, making it suitable for installation in most PC servers.

Specifications

Hardware
Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB44 female

Serial Interface
Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Performance
Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI (optional)

Physical Characteristics
Dimensions: 64.4 x 120 mm (2.53 x 4.72 in)

Driver Support
Windows: 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), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 61000-6-2/6-4
EMI: CISPR 22, FCC Part 15B Class B
EMS:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power: 2 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m
IEC 61000-4-8 PFMF
IEC 61000-4-11

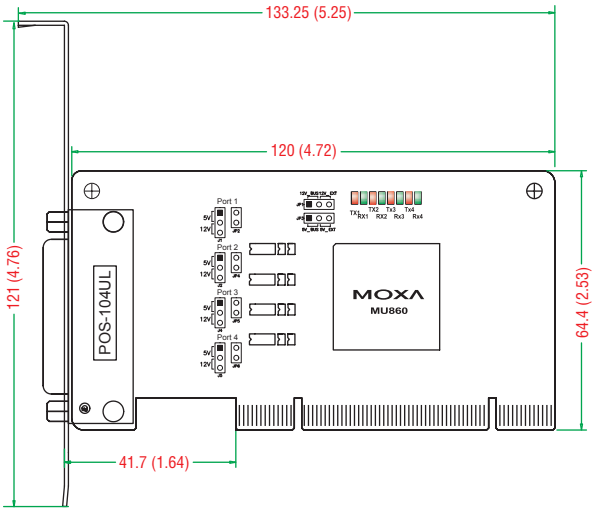
MTBF (mean time between failures)
Time: 2,124,022 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements
Input Current: 145 mA @ 5 VDC

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

POS-104UL-DB9M: 4-port RS-232 low profile Universal PCI board with serial port power, 0 to 55°C operating temperature (CBL-M44M9x4-50 (POS) cable included)
POS-104UL-T: 4-port RS-232 low profile Universal PCI board with serial port power, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-M44M9x4-50 (POS): M44 to 4 x DB9-M cable, 50 cm
Low Profile Bracket: Bracket for DB44 connector (1490000001000)

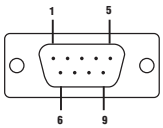
Package Checklist

- 1 POS-104UL board
- Low profile bracket
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CBL-M44M9x4-50 (POS)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	5V/12V/RI

DB9 male



C168H/HS

8-port RS-232 ISA serial boards

- Compact ISA boards with 8 RS-232 ports
- 921.6 kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip H/W flow control
- Choose from a wide range of connection cables and boxes
- Drivers provided for Windows, Windows XP Embedded, DOS, Linux 2.4, 2.6, 3, QNX 4/6, FreeBSD, SCO OpenServer UnixWare 7, Solaris 10
- Easy configuration, without switches or jumpers

PComm Lite

Overview

The 8-port C168H/HS ISA boards offer users a basic, high-performance multiport serial communication solution for connecting terminals, modems, printers, data acquisition equipment, and other serial devices to a PC. The boards are a top choice of industrial automation engineers and system integrators, and they support many different operating systems, including Windows, Linux, and even Unix. In addition, each of the 8 RS-232 ports supports a superfast 921.6 kbps baudrate.

Specifications

Hardware
Comm. Controller: 16C550C or compatible x 8
Bus: 16-bit ISA
Connector: DB62 female

Serial Interface
Number of Ports: 8
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection
Electrical Isolation: 500 V with connector Opt8F (must be purchased separately)

Performance
Baudrate: 50 bps to 921.6 kbps

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics
Dimensions: 93 x 157 mm (3.66 x 6.18 in)

Driver Support
Windows: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)
Time: 601,501 hrs
Standard: MIL-HDBK-217F

Power Requirements
Input Current: 170 mA @ +5 VDC; 100 mA @ +12 VDC; 160 mA @ -12 VDC

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

Ordering Information

Available Models
C168H: 8-port RS-232 ISA serial board
C168HS: 8-port RS-232 ISA serial board with surge protection

Connection Options (can be purchased separately)
CBL-M62M9x8-100: M62 to 8 x DB9-M cable, 100 cm
CBL-M62M25x8-100: M62 to 8 x DB25-M cable, 100 cm

Optional Connectors (choose one per board)
OPT8A: M62 to 8 x DB25-F connection box w/ 150 cm DB62-M to DB62-F cable
OPT8B: M62 to 8 x DB25-M connection box w/ 150 cm DB62-M to DB62-F cable
OPT8S: M62 to 8 x DB25-F connection box w/ surge protection, and 150 cm DB62-M to DB62-F cable
OPT8-M9: M62 to 8 x DB9-M connection box w/ 150 cm DB62-M to DB62-F cable
OPT8-RJ45: M62 to 8 x RJ45 (8-pin) connection box w/ 30 cm cable

Package Checklist
- 1 C168H or C168HS board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

C104H/HS

4-port RS-232 ISA serial boards

- Cost-effective, compact ISA boards with 4 RS-232 ports
- 921.6 kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip H/W, S/W flow control
- Drivers provided for Windows, Windows XP Embedded, DOS, Linux 2.4, 2.6, 3, QNX 4/6, FreeBSD, SCO OpenServer, UnixWare 7, Solaris 10
- Easy configuration, without switches or jumpers

PComm Lite

Overview

The 4-port C104H/HS ISA boards offer users an economical, high-performance multiport serial communication solution for connecting terminals, modems, printers, data acquisition equipment, and other serial devices to a PC. The boards are a top choice of industrial automation engineers and system integrators, and they support many different operating systems, including Windows, Linux, and even Unix. In addition, each of the 4 RS-232 ports supports a superfast 921.6 kbps baudrate.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 4
Bus: 16-bit ISA
Connector: DB37 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Performance

Baudrate: 50 bps to 921.6 kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Physical Characteristics

Dimensions: 83 x 157 mm (3.27 x 6.18 in)

Driver Support

Windows: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64), Windows 3.x, DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)

Time: 629,545 hrs
Standard: MIL-HDBK-217F

Power Requirements

Input Current: 100 mA @ +5 VDC; 100 mA @ +12 VDC; 60 mA @ -12 VDC

Warranty

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

Ordering Information

Available Models

C104H: 4-port RS-232 ISA serial board
C104H-DB9M: 4-port RS-232 ISA serial board (CBL-M37M9x4-30 cable included)
C104H-DB25M: 4-port RS-232 ISA serial board (CBL-M37M25x4-30 cable included)
C104HS: 4-port RS-232 ISA serial board with surge protection
C104HS-DB9M: 4-port RS-232 ISA serial board with surge protection (CBL-M37M9x4-30 cable included)
C104HS-DB25M: 4-port RS-232 ISA serial board with surge protection (CBL-M37M25x4-30 cable included)

Connection Options (one cable is included with each board)

CBL-M37M9x4-30: M37 to 4 x DB9-M cable, 30 cm
CBL-M37M25x4-30: M37 to 4 x DB25-M cable, 30 cm

Package Checklist

- 1 C104H or C104HS board
- 1 connection cable (optional)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CI-134 Series

4-port RS-422/485 ISA serial boards

- Cost-effective ISA boards with 4 RS-422/485 ports
- RS-485 data direction control with ADDC® or by RTS
- 921.6 kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip hardware flow control
- Surge protection and electrical isolation available
- Built-in termination resistors

PComm Lite

Overview

The CI-134 series ISA boards come with 4 independent RS-422/485 serial ports for connecting data acquisition equipment and other serial devices to a PC. Connect your devices over longer distances—up to 1.2 km (4000 ft)—and ensure greater reliability in industrial environments with on-board surge protection and electrical isolation (available with some models). Enjoy greater versatility by using point-to-point full duplex connections, or set up a half duplex RS-485 multi-drop network.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 4
Bus: 16-bit ISA
Connector: DB37 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

Electrical Isolation: 2 kV (CI-134I/IS only)

Performance

Baudrate: 50 bps to 921.6 kbps
Built-in Termination Resistor: 120 ohm (enabled by jumper for RS-485-2w)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), RTS+(B), RTS-(A), CTS+(B), CTS-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Physical Characteristics

Dimensions:
CI-134: 85 x 160 mm (3.35 x 6.30 in)
CI-134I/IS: 110 x 180 mm (4.33 x 7.09 in)

Driver Support

Windows: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64), Windows 3.x, DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Signal: 2 kV

MTBF (mean time between failures)

Time: 424,655 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CI-134: 450 mA @ 5 VDC
CI-134I: 610 mA @ 5 VDC
CI-134IS: 620 mA @ 5 VDC

Warranty

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

Ordering Information

Available Models

CI-134-DB9M: 4-port RS-422/485 ISA serial board (CBL-M37M9x4-30 cable included)
CI-134I-DB9M: 4-port RS-422/485 ISA serial board with electrical isolation (CBL-M37M9x4-30 cable included)
CI-134IS-DB9M: 4-port RS-422/485 ISA serial board with electrical isolation and surge protection (CBL-M37M9x4-30 cable included)
CI-134 w/o Cable: 4-port RS-422/485 ISA serial board (CBL-M37M25x4-30 cable included)
CI-134I w/o Cable: 4-port RS-422/485 ISA serial board with electrical isolation (CBL-M37M25x4-30 cable included)
CI-134IS w/o Cable: 4-port RS-422/485 ISA serial board with electrical isolation and surge protection (CBL-M37M25x4-30 cable included)

Connection Options (one cable is included with each board)

CBL-M37M9x4-30: M37 to 4 x DB9-M cable, 30 cm
CBL-M37M25x4-30: M37 to 4 x DB25-M cable, 30 cm

Package Checklist

- 1 CI-134 board
- 1 connection cable
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CI-132 Series

2-port RS-422/485 ISA serial boards

- Economical RS-422/485 ISA boards with two DB9 male connectors on the board for easy wiring
- RS-485 data direction control with ADDC® or by RTS
- 921.6 kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip hardware flow control
- Surge protection and electrical isolation available
- Built-in termination resistors

PComm Lite

Overview

The CI-132 series ISA boards come with 2 independent RS-422/485 serial ports for connecting data acquisition equipment and other serial devices to a PC. Connect your devices over longer distances—up to 1.2 km (4000 ft)—and ensure greater reliability in industrial environments with on-board surge protection and electrical isolation (available with some models). Enjoy greater versatility by using point-to-point full-duplex connections, or set up a half-duplex RS-485 multidrop network.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 2
Bus: 16-bit ISA
Connectors: DB9 male x 2

Serial Interface

Number of Ports: 2
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 25 kV on the board (CI-132IS only)
Electrical Isolation: 2 kV (CI-132I/IS only)

Performance

Baudrate: 50 bps to 921.6 kbps
Built-in Termination Resistor: 120 ohm (enabled by jumper for RS-485-2w)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), RTS+(B), RTS-(A), CTS+(B), CTS-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Control: ADDC® (automatic data direction control), or by RTS

Physical Characteristics

Dimensions:
CI-132: 75 x 157 mm (2.95 x 6.18 in)
CI-132I/IS: 105 x 157 mm (4.13 x 6.18 in)

Driver Support

Windows: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1 (x86/x64), Windows 2008 R2/2012/2012 R2 (x64), DOS, Windows Embedded CE 5.0/6.0, Windows XP Embedded
Linux: Linux 2.4.x, 2.6.x, 3.x
Unix-like Systems: QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD
Note: Please refer to Moxa's website for the latest driver support information.

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Signal: 2 kV

MTBF (mean time between failures)

Time: 441,015 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

Input Current:
CI-132: 240 mA @ 5 VDC
CI-132I/IS: 620 mA @ 5 VDC

Warranty

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

Ordering Information

Available Models

CI-132: 2-port RS-422/485 ISA serial board
CI-132I: 2-port RS-422/485 ISA serial board with electrical isolation
CI-132IS: 2-port RS-422/485 ISA serial board with electrical isolation and surge protection

Connection Options (can be purchased separately)

CBL-F9M9-150: DB9-F to DB9-M serial cable, 150 cm
CBL-F9M9-20: DB9-F to DB9-M serial cable, 20 cm

Package Checklist

- 1 CI-132 board
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Introduction to CAN

The CAN serial bus, which was developed for the automotive industry, was introduced in 1986 as the "Automotive Serial Controller Area Network." It was soon discovered that CAN worked extremely well in other embedded systems applications, and consequently its popularity increased. The list of applications that use CAN includes weaving machines, elevator systems in large buildings, all kinds of ships, trains, aircraft, x-ray machines and other medical equipment, logging equipment, tractors and combines, coffee makers, and major appliances.

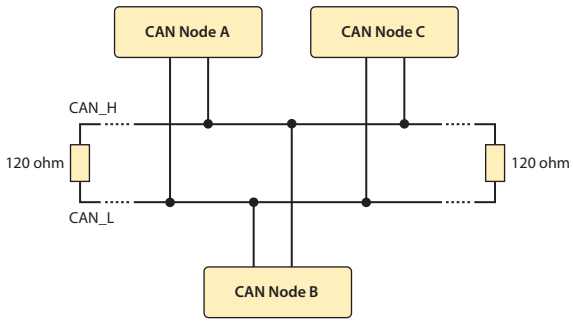
The Controller Area Network (CAN) is a serial protocol that allows multiple processors in a system to communicate with each other in an efficient manner. CAN is now the standard for high-speed, mission-critical, real-time control networks for different types of machines, due to the fact that the networks are reliable, relatively simple, and inexpensive.

CAN systems are quite versatile, and mechanics and technicians find it easy to repair or replace computer hardware in a CAN system, without affecting the rest of the network in any way. In addition, design engineers can easily modify existing CAN systems for other uses by adding or removing network nodes.

The CAN Physical Layer

The CAN serial protocol covers applications that range from high-speed networks to low-cost multiplex wiring. Automotive electronics, engine control units, sensors, and anti-skid-systems, for example, are connected using CAN with bitrates up to 1 Mbps.

CAN signals are typically transmitted differentially through a pair of wires, since doing so greatly improves the reliability of signal transmissions even when the network is subject to low signal levels or common mode errors. The two wires are called CAN_H and CAN_L and use 120-ohm termination resistors. Many CAN systems also use twisted pair wires to reduce the effects of electromagnetic interference. CAN systems are popular since they use an inexpensive bus topology, make it easy to connect additional nodes, and are less prone to network failures.



Layered Structure of a CAN Node

The specifications are designed to achieve compatibility between any two CAN implementations, where compatibility can refer to either electrical features or how transmitted data is interpreted. CAN is subdivided into different layers, as indicated in the accompanying table.

Application Layer
Object Layer
-Message Filtering
-Message and Status Handling
Transfer Layer
-Fault Confinement
-Error Detection and Signaling
-Message Validation
-Acknowledgement
-Arbitration
-Message Framing
-Transfer Rate and Timing
Physical Layer
-Signal Level and Bit Representation
-Transmission Medium

The object layer and the transfer layer comprise all services and functions of the data link layer defined by the ISO/OSI model

The physical layer specifies the physical properties for transferring bits between different nodes and must be the same for all nodes belonging to the same network. The physical layer defines how signals are actually transmitted, but it is not defined to allow transmission medium and signal level implementations to be optimized for their applications.

CP-602E-I Series

2-port CAN interface PCI Express boards with 2 kV isolation

- CAN 2.0A and CAN 2.0B supported
- Two independent CAN communication ports
- CAN transfer rate up to 1 Mbps
- 2 kV electrical isolation
- LED for transmit/receive status on each port
- Optional 120 ohm terminal resistor for CAN bus network
- DLL library and examples included
- Windows driver provided

Overview

Moxa's new CP-602E-I CAN (Controller Area Network) interface board supports the PCI Express interface. As a stand-alone CAN controller, the CP-602E-I is a cost-effective solution that provides two active CAN controllers with a DB9 connector on the same board. The CP-602E-I CAN interface board uses the NXP SJA1000 and transceiver PCA82C251, which provide the bus arbitration and error detection. The -40 to 85°C wide operating temperature (CP-602E-I-T only) and 2 kV isolation make the boards suitable for use in harsh industrial environments.

Specifications

Hardware

Connectors: DB9 male x 2
CAN Controller: NXP SJA1000
CAN Transceiver: PCA82C251
CAN Specification: CAN 2.0 A/B
Signal Support: CAN_H, CAN_L, GND
Transfer Rate: 1 Mbps
Max. Number of Boards per PC: 4
Electrical Isolation: 2 kV
Termination Resistor: 120 ohm (selected by jumper)

Driver Support

Windows: Windows 2000, Windows XP/2003/Vista/2008 (x86/x64)

Software

Libraries: Visual C/C++, Borland C/C++

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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
IEC 61000-4-5 Surge: Power: 2 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

MTBF (mean time between failures)

Time: 4,645,502 hrs
Standard: Telcordia (Bellcore) SR-332

Power Requirements

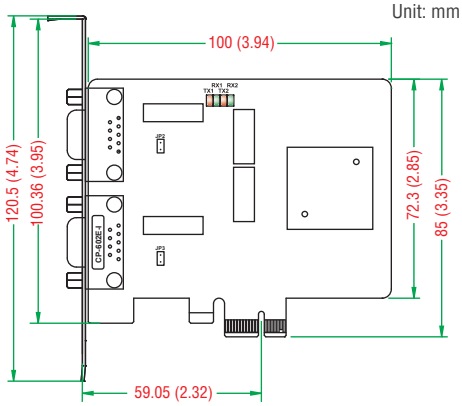
Input Current: 780 mA @ 5 VDC

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

CP-602E-I: 2-port CAN interface PCI Express board, with 2 kV electrical isolation, 0 to 55°C operating temperature
CP-602E-I-T: 2-port CAN interface PCI Express board with 2 kV electrical isolation, -40 to 85°C operating temperature

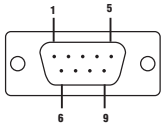
Connection Options (can be purchased separately)

CBL-F9M9-150: DB9-F to DB9-M serial cable, 150 cm
CBL-F9M9-20: DB9-F to DB9-M serial cable, 20 cm

Pin Assignment

PIN	Signal
2	CAN L
3	CAN GND
5	Shield
7	CAN H

DB9 male



Package Checklist

- 1 PCI Express board with standard bracket
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CP-602U-I Series

2-port CAN Interface Universal PCI boards with 2 kV isolation

- CAN 2.0A and CAN 2.0B supported
- Two independent CAN communication ports
- CAN transfer rate up to 1 Mbps
- 2 kV electrical isolation
- LED for transmit/receive status on each port
- Optional 120 ohm terminal resistor for CAN bus network
- DLL library and examples included
- Windows driver provided

Overview

Moxa's new CP-602U-I CAN (Controller Area Network) interface board supports the Universal PCI interface. As a stand-alone CAN controller, the CP-602U-I is a cost-effective solution that provides two active CAN controllers with a DB9 connector on the same board. The CP-602U-I CAN interface board uses the NXP SJA1000 and transceiver PCA82C251, which provide the bus arbitration and error detection. The -40 to 85°C wide operating temperature (CP-602U-I-T only) and 2 kV isolation make the boards suitable for use in harsh industrial environments.

Specifications

Hardware

Connectors: DB9 male x 2
CAN Controller: NXP SJA1000
CAN Transceiver: PCA82C251
CAN Specification: CAN 2.0 A/B
Signal Support: CAN_H, CAN_L, GND
Transfer Rate: 1 Mbps
Max. Number of Boards per PC: 4
Electrical Isolation: 2 kV
Termination Resistor: 120 ohm (selected by jumper)
Card Interface: Universal PCI

Driver Support

Windows: Windows 2000, Windows XP/2003/Vista/2008 (x86/x64)

Software

Libraries: Visual C/C++, Borland C/C++

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 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

MTBF (mean time between failures)

Time: 1,989,990 hrs
Standard: Telcordia (Bellcore) SR-332

Power Requirements

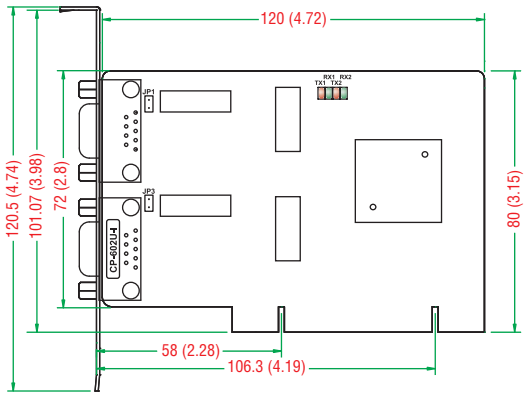
Input Current: 365 mA @ 5 VDC

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

CP-602U-I: 2-port CAN interface Universal PCI board, with 2 kV electrical isolation, 0 to 55°C operating temperature
CP-602U-I-T: 2-port CAN interface Universal PCI board with 2 kV electrical isolation, -40 to 85°C operating temperature

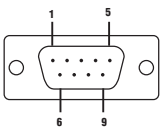
Connection Options (can be purchased separately)

CBL-F9M9-150: DB9-F to DB9-M serial cable, 150 cm
CBL-F9M9-20: DB9-F to DB9-M serial cable, 20 cm

Pin Assignment

PIN	Signal
2	CAN L
3	CAN GND
5	Shield
7	CAN H

DB9 male



Package Checklist

- 1 Universal PCI board with standard bracket
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CB-602I Series

2-port CAN interface PC/104-Plus modules with 2 kV isolation

- CAN 2.0A and CAN 2.0B supported
- Two independent CAN communication ports
- CAN transfer rate up to 1 Mbps
- 2 kV electrical isolation
- LED for transmit/receive status on each port
- Optional 120 ohm terminal resistor for CAN bus network
- DLL library and examples included
- Windows drivers provided

Overview

Moxa's new CB-602I CAN (Controller Area Network) interface board supports the PC/104-Plus interface. Optional DB9 and DB25 connection cables are available for connecting to CAN interface device. The CB-602I CAN interface board uses the NXP SJA1000 and transceiver PCA82C251, which provide the bus arbitration and error detection. The -40 to 85°C wide operating temperature (CB-602I-T only) and 2 kV isolation make the boards suitable for use in harsh industrial environments.

Specifications

Hardware

Connector: 20-pin box header
CAN Controller: NXP SJA1000
CAN Transceiver: PCA82C251
CAN Specification: CAN 2.0 A/B
Signal Support: CAN_H, CAN_L, GND
Transfer Rate: 1 Mbps
Max. Number of Boards per PC: 4
Electrical Isolation: 2 kV
Termination Resistor: 120 ohms (selected by jumper)

Driver Support

Windows: Windows 2000, Windows XP/2003/Vista/2008 (x86/x64)
Note: Please refer to Moxa's website for the latest driver support information.

Software

Libraries: Visual C/C++, Borland C/C++

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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
IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 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

MTBF (mean time between failures)

Time: 248,563 hrs
Standard: Telcordia (Bellcore) TR/SR

Power Requirements

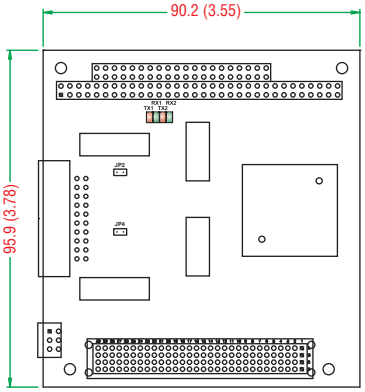
Input Current: 380 mA @ 5 VDC

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

CB-602I: 2-port CAN interface PC/104-Plus module with 2 kV electrical isolation, 0 to 55°C operating temperature

CB-602I-T: 2-port CAN interface PC/104-Plus module with 2 kV electrical isolation, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F20M25x2-50: F20 to 2 x DB25-M cable, 50 cm

Package Checklist

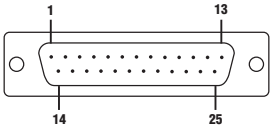
- 1 PC/104-Plus Module
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

CBL-F20M25x2-50

20-pin box header to DB25 male x 2 connection cable, 50 cm

PIN	Signal
2	CAN GND
3	CAN L
4	CAN H
7	Shield

DB25 male



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Industrial USB

13

Industrial USB

USB-to-Serial Converters

	UPort® 1110	UPort® 1130 UPort® 1130I	UPort® 1150	UPort® 1150I	UPort® 1250	UPort® 1250I	UPort® 1410	UPort® 1450	UPort® 1450I
USB Interface									
Compliance	USB 1.1/2.0 compliant								
Connector	USB Type A			USB Type B					
Speed	12 Mbps (Full-Speed USB)				480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)				
Serial Interface									
Number of Ports	1 x RS-232	1 x RS-422/485	1 x RS-232/422/485		2 x RS-232/422/485		4 x RS-232	4 x RS-232/422/485	
Connector	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, XON/XOFF								
FIFO	64 bytes				128 bytes				
Baudrate	50 bps to 921.6 kbps								
Embedded ESD Protection	15 kV								
Electrical Isolation	–	2 kV (UPort 1130I)	–	2 kV	–	2 kV	–	–	2 kV
Driver Support									
Windows 98/ME	✓	✓	✓	✓	–	–	–	–	–
Windows 2000	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows XP/2003 x86/x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows Vista x86/x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 7 x86/ x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 8/8.1 x86/x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 10 x86/ x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2012 x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 2008 R2/2012 R2 x64	✓	✓	✓	✓	✓	✓	✓	✓	✓
WinCE 5.0/6.0	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux 2.4.x	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux 2.6.x	✓	✓	✓	✓	✓	✓	✓	✓	✓
Linux 3.x	✓	✓	✓	✓	✓	✓	✓	✓	✓
Physical Characteristics									
Housing	ABS + PC			SECC sheet metal (1 mm)					
Product Weight	60 g (0.13 lb)			75 g (0.65 lb)	180 g (0.40 lb)		720 g (1.59 lb)		
Packaged Weight	200 g (7.05 lb)			320 g (0.72 lb)	370 g (0.82 lb)	680 g (1.5 lb)	1345 g (2.96 lb)		
Dimensions	37.5 x 20.5 x 60 mm (1.48 x 0.81 x 2.36 in)			52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)	77 x 26 x 111 mm (3.03 x 1.02 x 4.37 in)		204 x 30 x 125 mm (8.03 x 1.18 x 4.92 in)		
Environmental Limits									
Operating Temperature	0 to 55°C (32 to 131°F)								
Ambient Relative Humidity	5 to 95% (non-condensing)								
Storage Temperature	-20 to 70°C (-4 to 158°F)								
Standards and Certifications									
Safety	–	–	–	–	UL 60950-1				
EMC	EN 55022/24				EN 55022/24				
EMI	CISPR 22, FCC Part 15B Class B				CISPR 22, 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: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF				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 IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF				
Power Requirements									
Input Voltage	5 VDC				5 VDC	12 to 48 VDC	5 VDC for USB port 12 to 48 VDC for external adapter		12 to 48 VDC
Input Current	30 mA @ 5 VDC	60 mA @ 5 VDC	77 mA @ 5 VDC	260 mA @ 5 VDC	360 mA @ 5 VDC	200 mA @ 12 VDC	5 VDC, 0.5 A for USB port 12 to 48 VDC, 260 mA for external adapter		12 to 48 VDC, 360 mA external adapter
Reliability									
MTBF (Time)	Time: 1,949,025 hrs Standard: Telcordia (Bellcore), GB				Time: 563,179 hrs Standard: Telcordia (Bellcore), GB		Time: UPort 1410: 394,441 hrs UPort 1450/1450I: 546,770 hrs Standard: UPort 1410: MIL-HDBK-217F UPort 1450/1450I: Telcordia (Bellcore), GB		
Warranty	5 years (see www.moxa.com/warranty)								
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USB-to-Serial Converters






	UPort® 1610-8	UPort® 1650-8	UPort® 1610-16	UPort® 1650-16	UPort® 2210	UPort® 2410
USB Interface						
Compliance	USB 1.1/2.0 compliant					
Connector	USB Type B					
Speed	480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)					
Serial Interface						
Number of Ports	8 x RS-232	8 x RS-232/422/485	16 x RS-232	16 x RS-232/422/485	2 x RS-232	4 x RS-232
Connector	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, XON/XOFF					
FIFO	128 bytes				16 bytes	
Baudrate	50 bps to 921.6 kbps					
Embedded ESD Protection	15 kV					
Driver Support						
Windows 98/ME	–	–	–	–	–	–
Windows 2000	✓	✓	✓	✓	✓	✓
Windows XP/2003 x86/x64	✓	✓	✓	✓	✓	✓
Windows Vista x86/x64	✓	✓	✓	✓	✓	✓
Windows 2008 x86/x64	✓	✓	✓	✓	✓	✓
Windows 7 x86/ x64	✓	✓	✓	✓	✓	✓
Windows 8/8.1 x86/x64	✓	✓	✓	✓	✓	✓
Windows 10 x86/ x64	✓	✓	✓	✓	✓	✓
Windows 2012 x64	✓	✓	✓	✓	✓	✓
WinCE 5.0/6.0	✓	✓	✓	✓	–	–
Linux 2.4.x	✓	✓	✓	✓	–	–
Linux 2.6.x	✓	✓	✓	✓	✓	✓
Linux 3.x	✓	✓	✓	✓	✓	✓
Physical Characteristics						
Housing	SECC sheet metal (1 mm)				Polycarbonate (PC)	
Product Weight	835 g (1.84 lb)		2475 g (5.45 lb)		120 g (0.26 lb)	210 g (0.46 lb)
Packaged Weight	1435 g (3.16 lb)		3485 g (7.68 lb)		325 g (0.72 lb)	455 g (1 lb)
Dimensions (mm)	204 x 44 x 125 mm (8.03 x 1.73 x 4.92 in)		440 x 45.5 x 198.1 mm (17.32 x 1.79 x 7.80 in)		70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in)	80 x 35 x 185 mm (3.15 x 1.38 x 7.28 in)
Environmental Limits						
Operating Temperature	0 to 55°C (32 to 131°F)					
Operating Humidity	5 to 95% (non-condensing)					
Storage Temperature	-20 to 75°C (-4 to 167°F)					
Standards and Certifications						
Safety	UL 60950-1					
EMC	EN 55022/24					
EMI	CISPR 22, FCC Part 15B Class A				CISPR 22, FCC Part 15B Class B	
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 IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF				IEC 61000-4-2 ESD: Contact: 8 kV; Air: 4 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF	
Power Requirements						
Input Voltage	12 to 48 VDC		100 to 240 VAC		5 VDC	
Input Current	230 mA @ 12 VDC	340 mA @ 12 VDC	130 mA @ 100 VAC	150 mA @ 100 VAC	140 mA @ 5 VDC	240 mA @ 5 VDC
Reliability						
MTBF (Time)	Time: 208,413 hrs Standard: MIL-HDBK-217F	Time: 186,567 hrs Standard: MIL-HDBK-217F	Time: 138,704 hrs Standard: MIL-HDBK-217F	Time: 120,001 hrs Standard: MIL-HDBK-217F	Time: 4,221,778 hrs Standard: Telcordia (Bellcore), GB	Time: 3,901,775 hrs Standard: Telcordia (Bellcore), GB
Warranty	5 years (see www.moxa.com/warranty)					
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USB Hubs




		UPort® 404/404-T	UPort® 407/407-T	UPort® 204	UPort® 207
USB Interface					
Compliance		USB 1.1/2.0 compliant			
Upstream USB Ports		1 (Type B)			
Downstream USB Ports		4 (Type A)	7 (Type A)	4 (Type A)	7 (Type A)
Speed		480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)			
Supply Current		500 mA max. per channel			
Physical Characteristics					
Housing		Aluminum		Polycarbonate (PC)	
Product Weight		850 g (1.87 lb)	950 g (2.1 lb)	800 g (1.76 lb)	875 g (1.93 lb)
Packaged Weight		855 g (1.88 lb)	965 g (2.13 lb)	805 g (1.87 lb)	890 g (1.96 lb)
Dimensions		80 x 35 x 130 mm (3.15 x 1.38 x 5.12 in)	100 x 35 x 192 mm (3.94 x 1.38 x 7.55 in)	70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in)	80 x 35 x 185 mm (3.15 x 1.38 x 4.72 in)
Environmental Limits					
Operating Temperature	Standard Temperature	0 to 60°C (32 to 140°F)		0 to 60°C (32 to 140°F)	
	Wide Temperature	-40 to 85°C (-40 to 185°F)			
Operating Humidity		5 to 95% (non-condensing)	5 to 95% (non-condensing)	5 to 95% (non-condensing)	5 to 95% (non-condensing)
Storage Temperature		-40 to 85°C (-40 to 185°F)		-20 to 75°C (-4 to 167°F)	
Standards and Certifications					
Safety		UL 508			
EMC		EN 55022/24, EN 61000-6-2/6-4			
EMI		CISPR 22, FCC Part 15B Class A			
EMS		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m IEC 61000-4-8 PFMF			
Power Requirements					
Input Voltage		12 to 40 VDC			
Input Current		1.3 A @ 12 VDC	2.3 A @ 12 VDC	1.21 A @ 12 VDC	2.17 A @ 12 VDC
Reliability					
MTBF (Time)		Time: 1,490,340 hrs Standard: Telcordia (Bellcore), GB	Time: 1,111,361 hrs Standard: Telcordia (Bellcore), GB	Time: 1,577,573 hrs Standard: Telcordia (Bellcore), GB	
Warranty		5 years (see www.moxa.com/warranty)			
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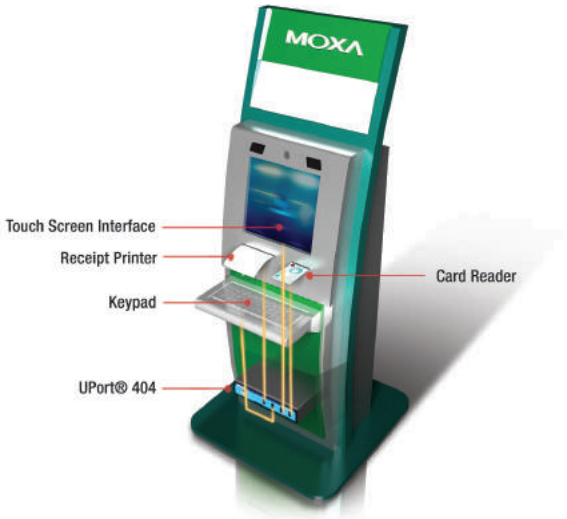
Introduction to USB Connectivity

Moxa's UPort® line of USB connectivity products includes a wide range of solutions for connecting COM ports or USB ports to a PC through the PC's USB port. Moxa's UPort® products are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, come with LED indicators for easy monitoring, and are even suitable for heavy-load applications. The UPort® product line includes USB-to-serial converters with 1, 2, 4, 8, or 16 independent RS-232, RS-422/485, and RS-232/422/485 serial ports for connecting data acquisition equipment and many other types of serial devices to notebooks and desktop PCs, and USB hubs with 4 or 7 USB ports for expanding the number of built-in USB ports on a host PC.

Available Products

USB-to-serial converters: UPort® 1000 and UPort® 2000 series
USB hubs: UPort® 200 and UPort® 400 series



Instant Plug & Play

UPort® products allow you to connect serial devices or USB devices to your laptop or workstation through a USB (Universal Serial Bus) port. These plug & play USB solutions are perfect for mobile, instrumentation, and point-of-sale applications.

USB-IF Certified

Moxa's UPort® 200 and UPort® 400 series of USB 2.0 hubs have passed USB-IF (USB Implementers Forum) certification, which verifies that products meet a number of strict electrical requirements for Hi-Speed USB operation designed to the USB 2.0 specifications. This means that the UPort® 200/400 series supports Hi-Speed USB 2.0 for up to 480 Mbps USB transmission, is fully compliant with the requirements for interoperability, provides enough power to attached devices, and can transition back to high-speed operation from the suspend state.

Reduce Short- and Long-Term Costs

For many applications, system integrators are moving towards using either serial-to-Ethernet or USB-to-serial products to connect serial devices to a PC. The overall costs of setting up an application is reduced, not only from a short-term hardware investment perspective, but also by reducing costs associated with long-term management and integration. Another big plus to using Moxa's USB-to-serial solutions is that each product supports a broad range of operating systems. Drivers are available for Windows 2012 x64, Windows XP/2003/Vista/2008/7/8/8.1/10 x86/x64, Windows 98/ME/2000, WinCE 5.0/6.0, and Linux 2.4.x, 2.6.x, 3.0.x.

ESD Level 4 Protection

Electrostatic discharge (ESD) could be as severe as having more than 1,000 volts of ESD with a high rise-time (dv/dt) break through the junction layer of protective devices. In order to avoid serious damage, Moxa's UPort® 400 series USB hubs provide ESD level 4 (contact 8 kV, air 15 kV) protection, which increases the quality and value of the user's end-product.

RS-232/422/485 Support

Moxa's UPort® 1000/2000 series of USB-to-serial products includes models that support some or all of the RS-232/422/485 serial interfaces. The full slate of RS-232 signals (TxD, RxD, DTR, DSR, RTS, CTS, DCD) is supported, and both 2-wire and 4-wire RS-485 can be used. Many of Moxa's USB-to-serial products use DB9 male connectors for the serial ports, and for industrial applications, the DB9 female to terminal block accessory can be used. In addition, users can select baudrates up to 921.6 kbps and make use of the 128-byte FIFO.

Always Enough Power

Some UPort® models support both bus power and external power through the power adapter. Bus power can be used with laptop and workstation connections that support a 500 mA output for USB devices. An external power adapter can be used if your computer's USB port does not provide enough amperage to run the UPort®.

Top Serial Performance

Moxa's 25-plus years of experience in serial board design is now built into a new top performance CPU called MOXA ART. This chip equips the UPort® converters with USB 2.0 (Hi-Speed 480 Mbps), a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode, making Moxa's UPort® converters perform far better than the competition.

Patented COM Preserver

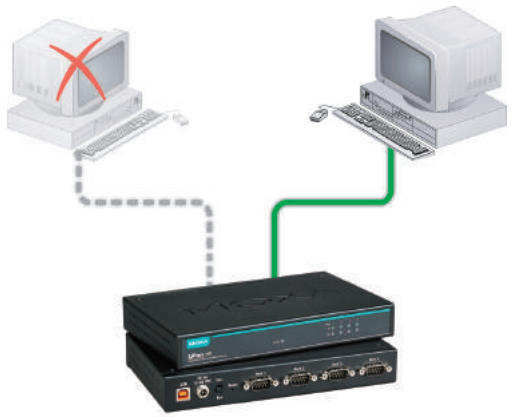
Serial transmission applications use names such as COM3 and COM4 to identify COM ports. Unfortunately, most USB-to-serial products are unable to use fixed COM names on the host PC. This means that the names of the COM ports change when the USB-to-serial device is plugged into a different USB port, either on the same or a different PC, forcing the user to reconfigure the COM names manually from within the application.

Moxa's UPort® 1200/1400/1600 USB-to-serial hubs have an advanced feature that allows them to use fixed COM names. When the user enables the "COM Preserver™" function, the COM names "go with" the UPort® device. In fact, Moxa's drivers can even create the same COM port names on a different host PC. With this feature, you do not need to modify application programs, or rebuild the entire project every time you install a new operating system or upgrade the computer. Don't worry about moving the UPort® from one USB hub to another, or even from one computer to another. Once the COM Preserver™ function is enabled, the names of the USB-to-serial COM ports will go with the UPort® wherever it is used.

Note that the COM Preserver™ function is disabled by default. Users can use the traditional method of enumerating COM ports, or enable the COM Preserver™ function to make use of this great new feature.

Scenario 1

COM port assignment is maintained across different PCs



Scenario 2

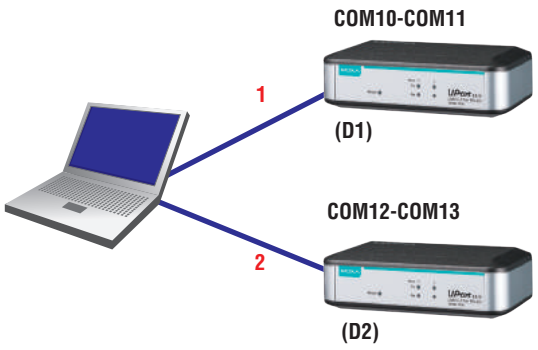
COM port assignment is maintained across different USB ports

Fixed-Base COM Mode

Moxa's UPort® 1000 series and UPort® 2000 series of products provide a unique fixed-base COM function that allows users to set a specific initial COM port number. Regardless of which UPort® is plugged into the host, the COM port numbers for the UPort®'s serial ports will be numbered sequentially starting with the initial COM port number.

For example, assume that you have set COM10 as the first COM number that will be assigned. If UPort® D1 is plugged into your computer first, your computer will assign COM10 and COM11 to the UPort®'s serial ports. When UPort® D2 is plugged in, the computer will assign COM numbers COM12 and COM13.

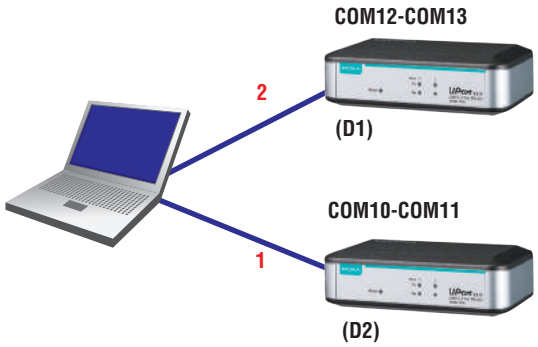
Scenario 3



If both UPorts are unplugged from the computer, and UPort® D2 has been plugged back in, the computer will assign COM10 and COM11 to the UPort's serial ports. When UPort® D1 is plugged back in, COM numbers COM12 and COM13 will be assigned the UPort's serial ports.

When "Fixed-base COM Mode" is enabled for the first time, all COM port numbers and serial port parameters will be reset to their default values. You can then set the COM numbers and configuration parameters to the values needed for your application.

Scenario 4



Function Support Table

Model	Serial Number	Fixed-Base COM	COM Preserver
UPort® 1100 Series	–	✓	–
UPort® 1200/1400/1600 Series	✓	✓	✓
UPort® 2000 Series	–	✓	–

COM Port Numbers Displayed in Windows System Tray

When using a UPort® to connect a serial device to your PC, it may be necessary to determine the COM port number assigned to the serial device. A new tool provided by Moxa gives engineers a handy means of monitoring the COM port number of the device. When the UPort® is plugged into your computer's USB port, a UPort® icon will be placed in the Windows System Tray located in the lower right corner of the desktop. Simply position the cursor over the UPort® icon, and an information window showing the COM port number will pop up. When two or more UPorts are connected to the same computer, the pop-up window will show the COM numbers for all of the UPorts.

UPort® Models Listed by Interface and Number of Ports

USB-to-Serial Converters

Interface	No. of Ports	Model Name
RS-232	1	UPort® 1110
	2	UPort® 2210
	4	UPort® 1410
		UPort® 2410
	8	UPort® 1610-8
	16	UPort® 1610-16
RS-422/485	1	UPort® 1130/1130I
RS-232/422/485	1	UPort® 1150/1150I
	2	UPort® 1250/1250I
	4	UPort® 1450/1450I
	8	UPort® 1650-8
	16	UPort® 1650-16

USB Hubs

Interface	No. of Ports	Model Name
USB	4	UPort® 204
	4	UPort® 404
	7	UPort® 207
	7	UPort® 407
	4	UPort® 404-T
	7	UPort® 407-T

Important Considerations for USB Devices in Industrial Applications

USB (Universal Serial Bus) is the most popular interface in the IT industry today. In recent years, USB has also gained popularity in industrial applications as more and more devices support the interface. But industrial operations are more demanding than your typical office application and require additional considerations. For example, a factory floor may be subject to extreme temperatures that are too hot for a consumer-grade USB hub to handle. Industrial applications also require a higher level of reliability because system downtime is not only costly but potentially dangerous. To ensure that your USB devices meet these demands, system engineers should consider the following factors when selecting a USB device for industrial environments.

USB-IF Certification

Although any vendor can design a USB product that meets the USB specifications, the product may not have been tested for flaws. When considering which USB product to buy, you should make sure that the product has received USB-IF certification, and that the product is listed in the USB-IF Integrators List on the USB-IF website. Products that are certified to carry the USB logo have been tested for both reliability and interoperability.

Moxa's USB 2.0 Hubs First to Receive USB-IF Certification

Moxa's new line of industrial-grade USB hubs, the UPort® 200 and UPort® 400 series, are the world's first to receive USB-IF certification for reliable peripheral plug-and-play devices. The hubs are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, even for heavy-load applications. As USB-IF certified products, the UPort® 200 and UPort® 400 series have passed high-speed compliance testing and are eligible to bear the official USB logo.

The UPort® 200 and UPort® 400 series are external plug-and-play hubs that can be plugged into a standard USB port for instant peripheral device connectivity. For industrial networks, high reliability can never be compromised. As defined by the USB-IF (USB Implementers Forum), certification for Moxa's UPort® USB hubs guarantees:

- 480 Mbps USB 2.0 transmissions
- Device accessibility
- Full power for connected devices
- High-speed operation from suspend mode

To guard against serious damage, the UPort® 200 and UPort® 400 series have doubled their ESD protection from Level 2 (4 kV) to Level 4 (8 kV) to provide 8 kV of ESD protection for direct contact and 15 kV of ESD protection for contact through the air. Wide temperature range models (UPort® 200-T and UPort® 400-T) are also available for use in extreme temperatures, ranging anywhere from -40 to 85°C.

UPort® 1100 Series

1-port RS-232, RS-422/485, and RS-232/422/485 USB-to-serial converters

Terminal Block Adapter for the UPort® 1130/1130I/1150/1150I

- Compatible with USB 2.0
- 12 Mbps USB data rate
- 921.6 kbps maximum baudrate for super fast data transmission
- Drivers provided for Windows, WinCE, and Linux
- Mini DB9 female to terminal block adapter for easy wiring
- LEDs for indicating USB and TxD/RxD activity
- 2 kV electrical isolation (UPort 1130I and 1150I)

Overview

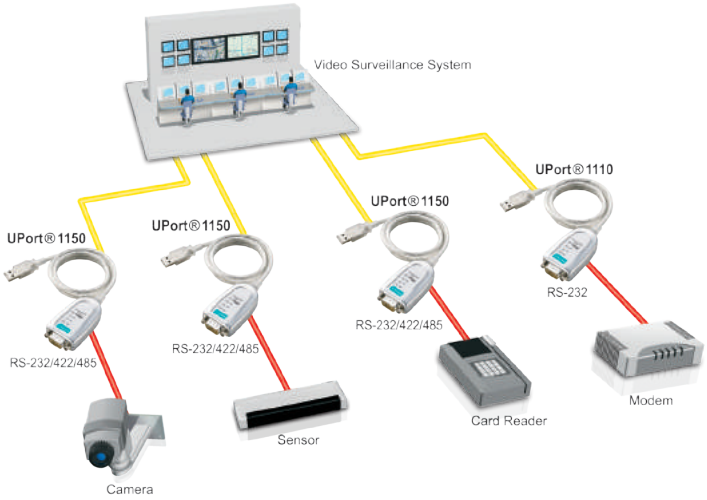
The UPort® 1100 series USB-to-serial converters are the perfect accessory for laptop computers that do not have a serial port, and they are essential for engineers who need to connect different serial devices in the field or separate interface converters for devices without a standard COM port or DB9 connector. The UPort® 1110 converts from USB to RS-232, the UPort® 1130/1130I from USB to RS-422/485, and the UPort® 1150/1150I from USB to RS-232/422/485. All products are compatible with new and legacy serial devices, and can be used with mobile, instrumentation, and point-of-sale applications.

Typical Application—Surveillance Monitoring System

The most basic video surveillance setup consists of a single camera connected directly to a monitor and recording device. However, many businesses require video surveillance on a larger scale requiring a dedicated management system. Existing management systems often lack device-port versatility, making converters a necessity when connecting different devices. Management systems that need USB-to-serial converters for serial devices such as card readers, modems, video cameras, and sensors, now have a simple solution. Moxa's UPort® 1100 converters provide plug-and-play serial device connectivity without having to install new adapter boards, which usually requires opening of computer/server chassis. Also, a unique driver allows the UPort® 1100 to retain COM port numbers when they have been unplugged and then reconnected again, even into a new USB port.

UPort® 1100 convenient characteristics include:

- USB 2.0 compatibility
- RS-232 or RS-422/485 interface
- Stability and reliability
- Cost-effective
- Plug-and-play
- Easy to use



Specifications

USB Interface
Compliance: USB 1.0/1.1 compliant, USB 2.0 compatible
Connector:
UPort 1110/1130/1130I/1150: USB Type A
UPort 1150I: USB Type B
Speed: 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 1
Serial Standards:
UPort 1110: RS-232
UPort 1130/1130I: RS-422/485
UPort 1150/1150I: RS-232/422/485
Connector: DB9 male
Electrical Isolation: 2 kV (UPort 1130I and 1150I)

Performance
Baudrate: 50 bps to 921.6 kbps

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, XON/XOFF
FIFO: 64 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Operating Systems
Windows Real COM Drivers: Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2012 (x64), Windows Embedded CE 5.0/6.0
Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing:
UPort 1110/1130/1130I/1150: ABS + PC
UPort 1150I: Metal
Weight:
UPort 1110/1130/1130I/1150:
Product only: 65 g (0.14 lb)
Packaged: 200 g (0.44 lb)
UPort 1150I:
Product only: 75 g (0.65 lb)
Packaged: 320 g (0.72 lb)
Dimensions:
UPort 1110/1130/1130I/1150:
37.5 x 20.5 x 60 mm (1.48 x 0.81 x 2.36 in)
UPort 1150I:
52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 70°C (-4 to 158°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
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: 2 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF

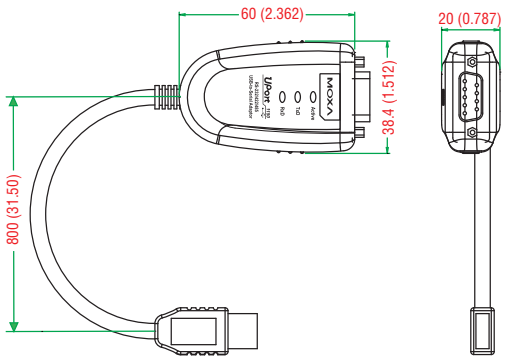
Power Requirements
Input Voltage: 5 VDC
Input Current:
UPort 1110: 30 mA @ 5 VDC
UPort 1130: 60 mA @ 5 VDC
UPort 1130I: 65 mA @ 5 VDC
UPort 1150: 77 mA @ 5 VDC
UPort 1150I: 260 mA @ 5 VDC

MTBF (mean time between failures)
Time: 1,949,025 hrs
Standard: Telcordia (Bellcore), GB

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

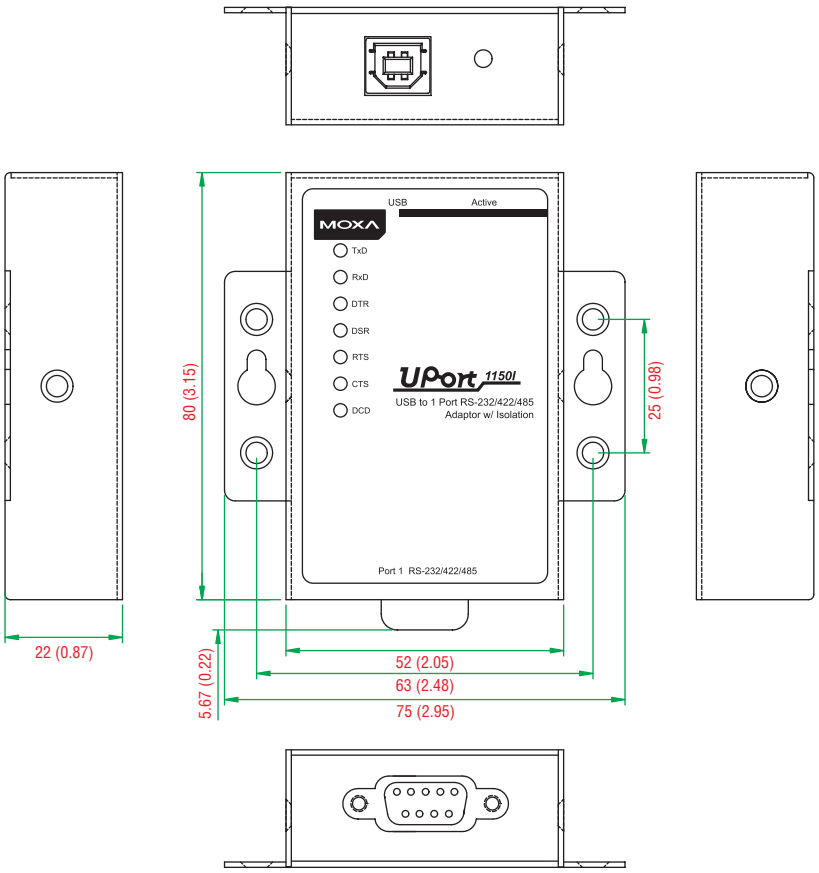
Cable-Type Dimensions

Unit: mm (inch)



Dimensions

Unit: mm (inch)



Ordering Information

Available Models

UPort 1110: 1-port RS-232 USB-to-serial converter
UPort 1130: 1-port RS-422/485 USB-to-serial converter
UPort 1130I: 1-port RS-422/485 USB-to-serial converter with 2 kV electrical isolation
UPort 1150: 1-port RS-232/422/485 USB-to-serial converter
UPort 1150I: 1-port RS-232/422/485 USB-to-serial converter with 2 kV electrical isolation

Optional Accessories (can be purchased separately)

Mini DB9F-to-TB: DB9 female to terminal block connector
CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-F9M9-20: DB9 female to DB9 males serial cable, 20 cm
CBL-RJ45SF9-150: RJ45 to DB9 female shielded serial cable, 150 cm
ADP-RJ458P-DB9: DB9 female to RJ45 connector
A-ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector

Cable-Type Package Checklist

- 1 UPort 1110 or 1130 or 1130I or 1150 USB-to-serial converter
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Note: The UPort 1130/1130I/1150 also come with 1 mini DB9F-to-TB serial connector.

UPort 1150I Package Checklist

- 1 UPort 1150I USB-to-serial converter
- USB cable: CBL-USBA/B-100
- Velcro lock-down strap for the USB cable
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 1250/1250I

2-port RS-232/422/485 USB-to-serial converters with optional 2 kV isolation

UPort® 1250

UPort® 1250I

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- 15N high retention type B connector
- Supports fixed-base COM Utility for setting the initial extended COM port number
- Drivers provided for Windows, WinCE, and Linux
- LEDs for easy monitoring
- Locking power jack

Overview

The UPort® 1250/1250I USB-to-serial converters allow you to connect 2 RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. These plug & play USB solutions are perfect for mobile, instrumentation, and point-of-sale applications.

Specifications

USB Interface

Compliance: USB 1.1/2.0 compliant
Connector: USB Type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface

Number of Ports: 2
Serial Standards: RS-232/422/485
Connector: DB9 male
Electrical Isolation: 2 kV (UPort 1250I only)

Performance

Baudrate: 50 bps to 921.6 kbps (including 500 kbps)

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, XON/XOFF
FIFO: 128 bytes

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Operating Systems

Windows Real COM Drivers: Windows 2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2012 (x64), Windows Embedded CE 5.0/6.0
Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x
Android Driver: Android 3.1.x and later
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics

Housing: SECC sheet metal (1 mm)
Weight:
Product only: 180 g (0.40 lb)
Packaged:
UPort 1250: 370 g (0.82 lb)
UPort 1250I: 680 g (1.5 lb)
Dimensions: 77 x 26 x 111 mm (3.03 x 1.02 x 4.37 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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
IEC 61000-4-5 Surge: Power: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF
Green Product: RoHS, CRoHS, WEEE

Power Requirements

Input Voltage:
UPort 1250: 5 VDC
UPort 1250I: 12 to 48 VDC
Input Current:
UPort 1250: 360 mA @ 5 VDC
UPort 1250I: 200 mA @ 12 VDC

MTBF (mean time between failures)

Time: 563,179 hrs
Telcordia (Bellcore), GB

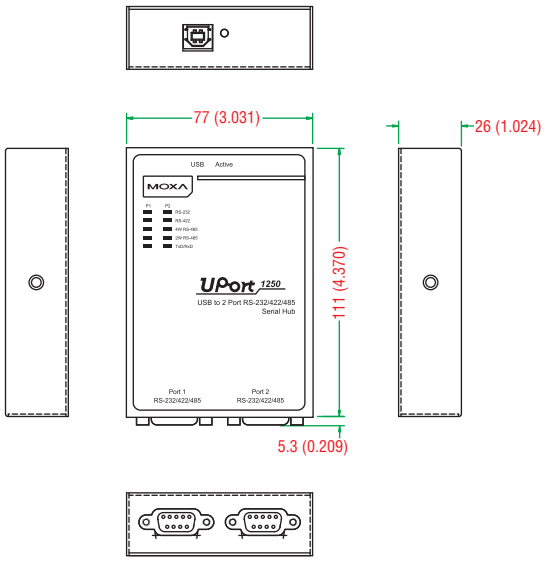
Warranty

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

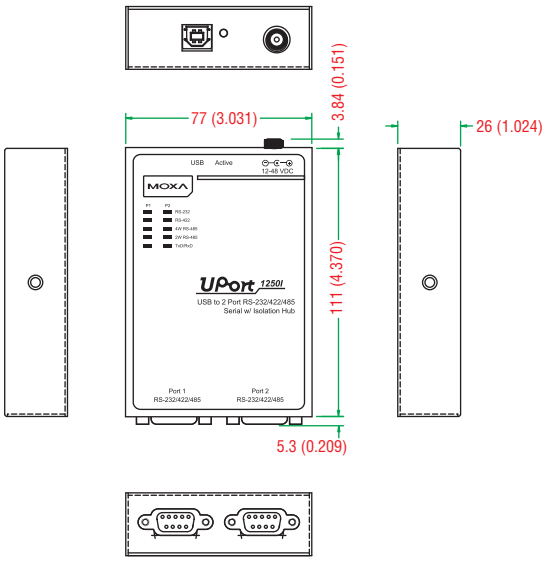
Dimensions

Unit: mm (inch)

UPort® 1250



UPort® 1250I



Ordering Information

Available Models

UPort 1250: 2-port RS-232/422/485 USB-to-serial converter
UPort 1250I: 2-port RS-232/422/485 USB-to-serial converter with 2 kV electrical isolation, adaptor included

Optional Accessories (can be purchased separately)

DK35A: 35-mm DIN-rail mounting clips; 2 DIN-rail plates with 4 screws
Mini DB9F-to-TB: DB9 female to terminal block connector
CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-F9M9-20: DB9 female to DB9 males serial cable, 20 cm
CBL-RJ45SF9-150: RJ45 to DB9 female shielded serial cable, 150 cm
ADP-RJ458P-DB9: DB9 female to RJ45 connector
A-ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector
DK-UP1200: DIN-rail/wall- mounting kit that includes 2 wall-mounting plates with 6 screws (WK-35-02), and 2 DIN-rail plates with 4 screws (DK35A)

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

Package Checklist

- 1 UPort 1250 or 1250I USB-to-serial converter
- 1 serial adapter: mini DB9F-to-TB
- USB cable: CBL-USBA/B-100
- UPort 1250I only:
  > 100 to 240 VAC power adapter suitable for your region (excluding T models)
  > 1 power cord suitable for your region
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

DK-UP1200

Available Accessory

UPort® 1400 Series

4-port RS-232 and RS-232/422/485 USB-to-serial converters with optional 2 kV isolation

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 kbps maximum baudrate for super fast data transmission
- 15N high retention USB Type B connector
- 128-byte FIFO and on-chip H/W, S/W flow control
- 2 kV electrical isolation (UPort 1450I only)
- Hassle-free COM port retention
- Supports fixed-base COM Utility for setting the initial extended COM port number
- Drivers provided for Windows/WinCE/Linux
- Choose bus power or external power (UPort 1410/1450 only)
- Locking power jack

Overview

The UPort® 1400 USB-to-serial converters allow you to connect 4 RS-232 or RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 1400 converters are compatible with new and legacy serial devices, and they are perfect for mobile, instrumentation, and point-of-sale applications.

Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB Type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 4
Serial Standards:
UPort 1410: RS-232
UPort 1450/1450I: RS-232/422/485
Connector: DB9 male
Electrical Isolation: 2 kV (UPort 1450I only)

Performance
Baudrate: 50 bps to 921.6 kbps (including 500 kbps)

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, XON/XOFF
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Operating Systems
Windows Real COM Drivers: Windows 2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2012 (x64), Windows Embedded CE 5.0/6.0
Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x
Android Driver: Android 3.1.x and later
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight:
Product only: 720 g (1.59 lb)
Packaged: 1345 g (2.96 lb)
Dimensions: 204 x 30 x 125 mm (8.03 x 1.18 x 4.92 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, 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
IEC 61000-4-5 Surge: Power: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF
Green Product: RoHS, CRoHS, WEEE

Power Requirements

Input Voltage: 12 to 48 VDC
Input Current:
- UPort 1410/1450:
  0.5 A @ 5 VDC for USB port
  260 mA @ 12 VDC for external adapter
- UPort 1450I:
  360 mA @ 12 VDC external adapter

MTBF (mean time between failures)

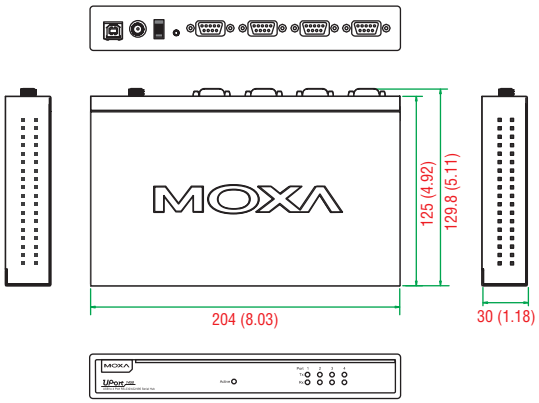
Time:
UPort 1410: 394,441 hrs
MIL-HDBK-217F
UPort 1450/1450I: 546,770 hrs
Telcordia (Bellcore), GB

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

UPort 1410: 4-port RS-232 USB-to-serial converter
UPort 1450: 4-port RS-232/422/485 USB-to-serial converter, adapter included
UPort 1450I: 4-port RS-232/422/485 USB-to-serial converter with 2 kV electrical isolation, adapter included

Optional Accessories (can be purchased separately)

DK35A: 35-mm DIN-rail mounting clips; 2 DIN-rail plates with 4 screws
Mini DB9F-to-TB: DB9 female to terminal block connector
CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-F9M9-20: DB9 female to DB9 males serial cable, 20 cm
CBL-RJ45SF9-150: RJ45 to DB9 female shielded serial cable, 150 cm
ADP-RJ458P-DB9: DB9 female to RJ45 connector
A-ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector
DK-UP1400: DIN-rail/wall- mounting kit that includes 2 wall-mounting plates with 6 screws (WK-35-01), and 2 DIN-rail plates with 4 screws (DK35A)
DIN-Rail Kit: DIN-rail kit with 2 screws (P/N: 1490000150011)

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

DK-UP1400

Available Accessory

Package Checklist

- 1 UPort 1400 USB-to-serial converter
- USB cable: CBL-USBA/B-100
- UPort 1450/1450I only:
  > 1 serial adapter: mini DB9F-to-TB
  > 100 to 240 VAC power adapter suitable for your region (excluding T models)
  > 1 power cord suitable for your region
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 1600-8 Series

8-port RS-232 and RS-232/422/485 USB-to-serial converters

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 kbps maximum baudrate for super fast data transmission
- 15N high retention USB Type B connector
- 128-byte FIFO and on-chip H/W, S/W flow control
- COM port assignments maintained across different PCs
- Supports fixed-base COM Utility for setting the initial extended COM port number
- Mini DB9 female to terminal block adapter for easy wiring
- Drivers provided for Windows, WinCE, and Linux
- Locking power cord

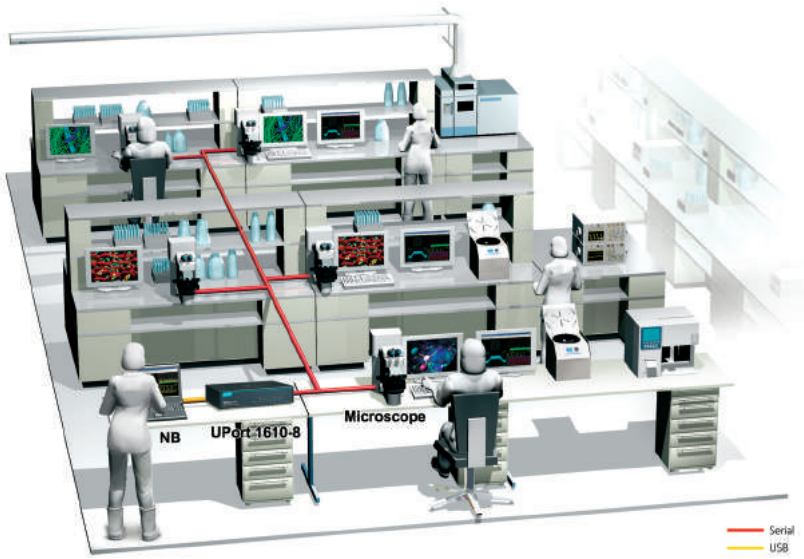
Overview

The UPort® 1600-8 USB-to-serial converters allow you to connect 8 RS-232 or RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 1600-8 converters are compatible with new and legacy serial devices, and they are perfect for instrumentation and manufacturing applications.

Typical Application Topology

Medical scientists and pharmaceutical researchers rely on sophisticated laboratory equipment to discover new treatments for patients. Most research is carried out in teams given the complex and collaborative nature of medical science. Scientists often transfer images and data from microscopes and other equipment to each other's laptops or desktop computers. Connecting all of these pieces of equipment usually requires multiple serial ports, one for each peripheral device. Since computers are only equipped with a limited number of serial ports, expanding a USB connection into multiple serial ports can provide researchers with the connectivity they need to make their next scientific breakthrough. Moxa's solution is the UPort® 1610-8, which is an RS-232 USB-to-serial converter that can be used to connect multiple serial interface microscopes and other equipment to a computer's USB port. The UPort® 1610-8 provides the following benefits:

- Up to 8 ports for easy USB-to-serial expansion
- True USB 2.0 high-speed transmission for large data transmission
- 128-byte FIFO and on-chip hardware and software flow control to ensure stable data transmission
- Easy troubleshooting with LED indicators for each serial port
- Compatibility with both laptop and desktop PCs



Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB Type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 8
Serial Standards:
UPort 1610-8: RS-232
UPort 1650-8: RS-232/422/485
Connector: DB9 male

Performance
Baudrate: 50 bps to 921.6 kbps (including 500 kbps)

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, XON/XOFF
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Operating Systems
Windows Real COM Drivers: Windows 2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2012 (x64), Windows Embedded CE 5.0/6.0
Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x
Android Driver: Android 3.1x and later
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight:
Product only: 835 g (1.84 lb)
Packaged: 1435 g (3.16 lb)
Dimensions: 204 x 44 x 125 mm (8.03 x 1.73 x 4.92 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

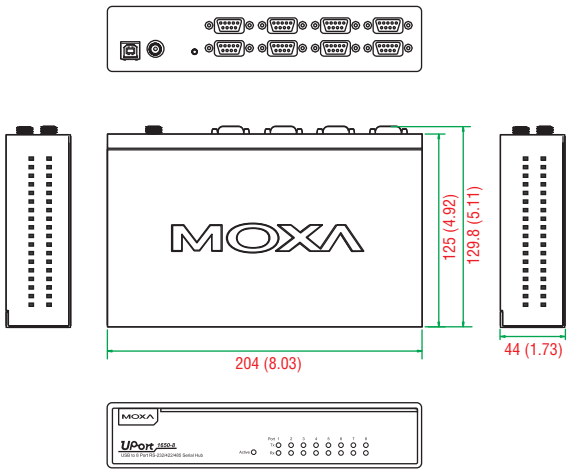
Standards and Certifications
Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
IEC 61000-4-4 EFT: Power: 1 kV
IEC 61000-4-5 Surge: Power: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Input Voltage: 12 to 48 VDC
Input Current: 580 mA @ 12 VDC

MTBF (mean time between failures)
Time:
UPort 1610-8: 208,413 hrs
UPort 1650-8: 186,567 hrs
MIL-HDBK-217F

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

Dimensions
Unit: mm (inch)



Ordering Information

Available Models
UPort 1610-8: 8-port RS-232 USB-to-serial converter, adapter included
UPort 1650-8: 8-port RS-232/422/485 USB-to-serial converter, adapter included

Optional Accessories (can be purchased separately)
Mini DB9F-to-TB: DB9 female to terminal block connector
CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-F9M9-20: DB9 female to DB9 males serial cable, 20 cm
CBL-RJ45SF9-150: RJ45 to DB9 female shielded serial cable, 150 cm
ADP-RJ458P-DB9: DB9 female to RJ45 connector
A-ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector
DK-UP1400: DIN-rail/wall- mounting kit that includes 2 wall-mounting plates with 6 screws (WK-35-01), and 2 DIN-rail plates with 4 screws (DK35A)
DIN-Rail Kit: DIN-rail kit with 2 screws (P/N: 1490000150011)
Note: One power cord suitable for your region is included in the product package. Additional power adapters and power cords can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist
- 1 UPort 1600-8 USB-to-serial converter
- 1 serial adapter: Mini DB9F-to-TB (UPort 1650-8 only)
- USB cable: CBL-USBA/B-100
- 100 to 240 VAC power adapter suitable for your region (excluding T models)
- 1 power cord (suitable for your region)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 1600-16 Series

16-port RS-232 and RS-232/422/485 USB-to-serial converters

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 kbps maximum baudrate for super fast data transmission
- 15N high retention USB Type B connector
- 128-byte FIFO and on-chip H/W, S/W flow control
- Standard 19-inch rack-mountable
- COM port assignments maintained across different PCs
- Supports fixed-base COM Utility for setting the initial extended COM port number
- Mini DB9 female to terminal block adapter for easy wiring
- Drivers provided for Windows, WinCE, and Linux

Overview

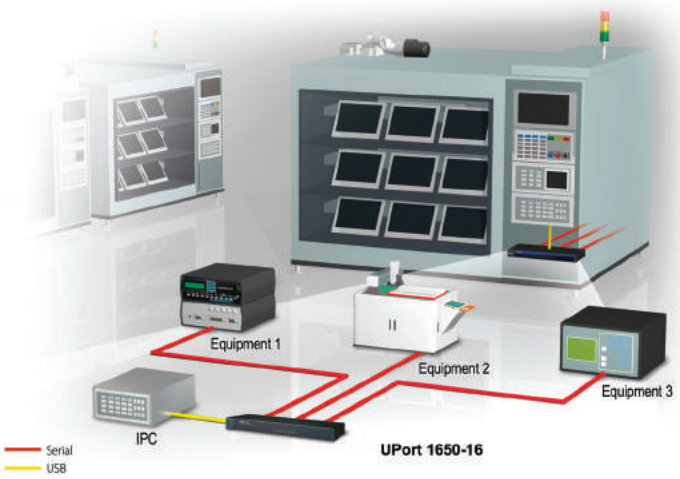
The UPort® 1600-16 USB-to-serial converters allow you to connect 16 RS-232 or RS-232/422/485 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 1600-16 converters are compatible with new and legacy serial devices, and they are perfect for instrumentation and manufacturing applications.

Typical Application—TFT-LCD Manufacturing

Manufacturing TFT-LCD (thin-film transistor liquid crystal display) panels is a complicated and highly technical process. The three major stages in TFT-LCD panel production are the array, LC cell, and module assembly processes. In addition, each finished panel must also pass a series of quality inspection tests, which include defect inspection and lighting tests. The most challenging part of the TFT-LCD manufacturing process is achieving zero fault tolerance for high quality and productivity. One of our customers needed a USB-to-serial solution to transmit data between a host and quality inspection equipment in the TFT-LCD manufacturing process. In such a demanding manufacturing environment, adopting multiple ports and Moxa's ruggedly designed UPort® 1650-16 USB-to-serial converter proved to be the best option.

The UPort® 1650-16 has the following features:

- Standard 19-inch rackmount size and metal housing for industrial-grade requirements
- Up to 16 ports for easy USB-to-serial expansion
- 3-in-1 serial ports for a cost-effective solution
- True USB 2.0 Hi-Speed transmission for greater productivity
- 128-byte FIFO and on-chip hardware and software flow control to ensure stable data transmission during inspection
- Each serial port has its own LED indicator for easy troubleshooting



Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB Type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 16
Serial Standards:
UPort 1610-16: RS-232
UPort 1650-16: RS-232/422/485
Connector: DB9 male

Performance
Baudrate: 50 bps to 921.6 kbps (including 500 kbps)

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, XON/XOFF
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Operating Systems
Windows Real COM Drivers: Windows 2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2012 (x64), Windows Embedded CE 5.0/6.0
Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x
Android Driver: Android 3.1.x and later
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight:
Product only: 2475 g (5.45 lb)
Packaged: 3485 g (7.68 lb)
Dimensions: 440 x 45.5 x 198.1 mm (17.32 x 1.79 x 7.80 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

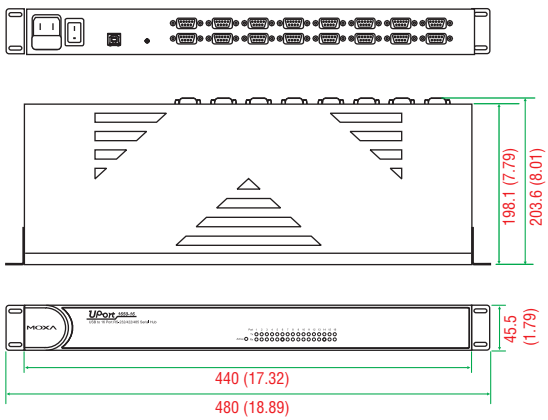
Standards and Certifications
Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
IEC 61000-4-4 EFT: Power: 1 kV
IEC 61000-4-5 Surge: Power: 1 kV;
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Input Voltage: 100 to 240 VAC
Input Current: 220 mA @ 100 VAC

MTBF (mean time between failures)
Time:
UPort 1610-16: 138,704 hrs
UPort 1650-16: 120,001 hrs
MIL-HDBK-217F

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

Dimensions
Unit: mm (inch)



Ordering Information

Available Models
UPort 1610-16: 16-port RS-232 USB-to-serial converter
UPort 1650-16: 16-port RS-232/422/485 USB-to-serial converter

Optional Accessories (can be purchased separately)
Mini DB9F-to-TB: DB9 female to terminal block connector
CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm
CBL-F9M9-150: DB9 female to DB9 male serial cable, 150 cm
CBL-F9M9-20: DB9 female to DB9 males serial cable, 20 cm
CBL-RJ45SF9-150: RJ45 to DB9 female shielded serial cable, 150 cm
ADP-RJ458P-DB9: DB9 female to RJ45 connector
A-ADP-RJ458P-DB9F-ABC01: DB9 female to RJ45 connector
WK-44-01: Rack-mounting kit: 2 L-shaped plates with 8 screws
Note: One power cord suitable for your region is included in the product package. Additional power adapters and power cords can be purchased separately. Please refer to the Power Accessory Selection Guide for details.

Package Checklist
- 1 UPort 1600-16 USB-to-serial converter
- USB cable: CBL-USBA/B-100
- 100 to 240 VAC power adapter (excluding T models)
- 1 power cord suitable for your region
- 1 serial adapter: mini DB9F-to-TB (UPort 1650-16 only)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 2210/2410

2 and 4-port RS-232 USB-to-serial converters

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- 921.6 kbps maximum baudrate for super fast data transmission
- Drivers provided for Windows and Linux
- Supports fixed-base COM Utility for setting the initial extended COM port number
- LEDs for easy monitoring

Overview

The UPort® 2210/2410 USB-to-serial converters allow you to connect 2 or 4 RS-232 devices to your laptop or workstation through the USB (Universal Serial Bus) port. The UPort® 2210 and UPort® 2410 are cost-effective solutions for both new and legacy RS-232 devices, and they are perfect for mobile, instrumentation, and point-of sale applications.

Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB Type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports:
UPort 2210: 2
UPort 2410: 4
Serial Standards: RS-232
Connector: DB9 male

Performance
Baudrate: 50 bps to 921.6 kbps

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Mark, Space
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS
FIFO: 16 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Operating Systems
Windows Real COM Drivers: Windows 2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2012 (x64)
Mac Driver: Mac OS X
Linux Real TTY Drivers: Linux 2.4.x, 2.6.x, 3.x
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: Polycarbonate (PC)
Weight:
Product only:
UPort 2210: 120 g (0.26 lb)
UPort 2410: 210 g (0.46 lb)
Packaged:
UPort 2210: 325 g (0.72 lb)
UPort 2410: 455 g (1 lb)
Dimensions:
UPort 2210: 70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in)
UPort 2410: 80 x 35 x 185 mm (3.15 x 1.38 x 7.28 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 4 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m
IEC 61000-4-4 EFT: Power: 1 kV
IEC 61000-4-5 Surge: Power: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m
IEC 61000-4-8 PFMF
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Input Voltage: 5 VDC
Input Current: UPort 2210: 140 mA @ 5 VDC
UPort 2410: 240 mA @ 5 VDC

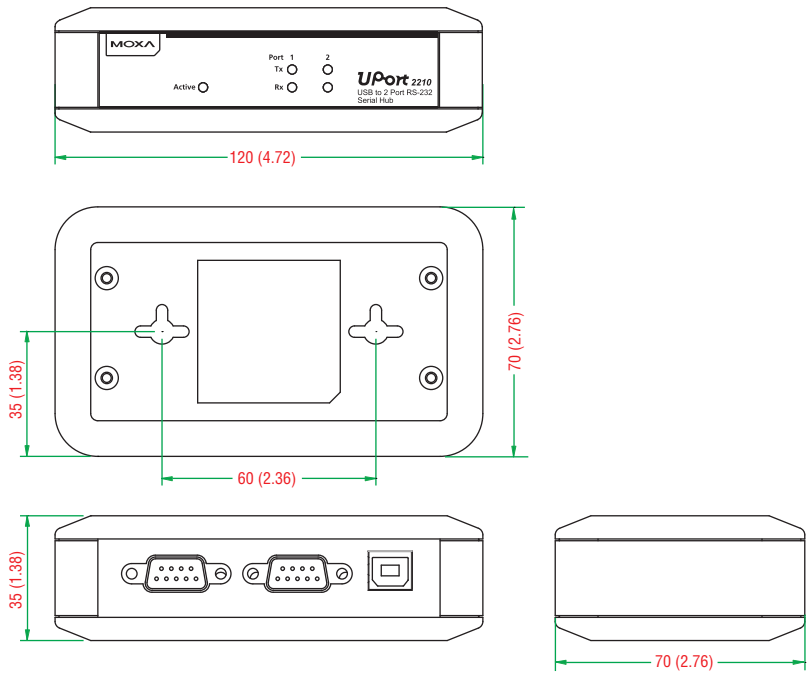
MTBF (mean time between failures)
Time:
UPort 2210: 4,221,778 hrs
UPort 2410: 3,901,775 hrs
Standard: Telcordia (Bellcore), GB

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

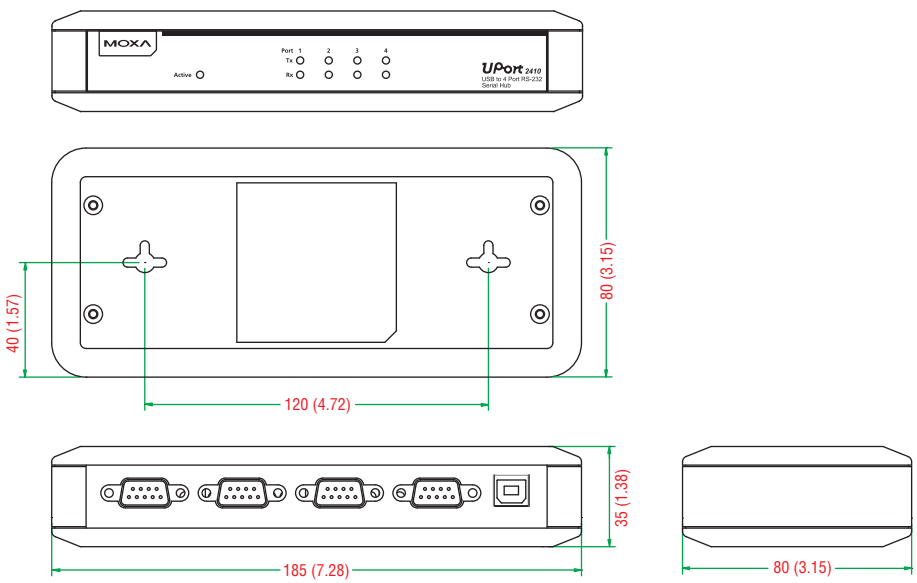
Dimensions

Unit: mm (inch)

UPort® 2210



UPort® 2410



Ordering Information

Available Models

UPort 2210: 2-port RS-232 USB-to-serial converter
UPort 2410: 4-port RS-232 USB-to-serial converter

Optional Accessories (can be purchased separately)

CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm

Package Checklist

- 1 UPort 2210 or UPort 2410 USB-to-serial converter
- USB cable: CBL-USBA/B-100
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

UPort® 404/407

4 and 7-port industrial-grade USB hubs

- Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
- USB-IF certification
- Dual power inputs (power jack and terminal block)
- 15 kV ESD Level 4 protection for all USB ports
- Rugged metal housing
- DIN-Rail and wall mountable
- Comprehensive diagnostic LEDs
- Choose bus power or external power (UPort 404)

Introduction

The UPort® 404 and UPort® 407 are industrial-grade USB 2.0 hubs that expand 1 USB port into 4 and 7 USB ports, respectively. The hubs are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, even for heavy-load applications. The UPort® 404/407 have received USB-IF Hi-Speed certification, which is an indication that both products are reliable, high-quality USB 2.0 hubs.In addition, the hubs are fully compliant with the USB Plug & Play spec and provide a full 500 mA of power per port, ensuring that your USB devices will function properly. The UPort® 404/407 hubs' support of 12-40 VDC power makes them ideal for mobile applications. Externally powered USB hubs are the only way to guarantee the broadest compatibility with USB devices.

USB-IF Certification

The UPort® 404 and UPort® 407 USB 2.0 industrial-grade USB hubs have passed USB-IF (USB Implementers Forum) certification. USB-IF verifies a number of strict electrical requirements for the high-speed USB operation of USB hubs designed to the USB 2.0 specification. This means that the UPort® 404/407 support Hi-Speed USB 2.0 for up to 480 Mbps USB transmission, which is fully compliant with interoperability requirements, has enough power for devices to function, and provides for a successful transition back to high-speed operation from the suspend state.

ESD Level 4 Protection

Electrostatic discharge (ESD) could be as severe as having more than 1,000 volts of ESD with a high rise-time (dv/dt) break through the junction layer of protective devices. In order to avoid serious damage, Moxa's UPort® 404/407 USB hubs provide ESD level 4 (contact 8 kV, air 15 kV) protection, which increases the quality and value of the user's end-product.

Specifications

USB Interface

Compliance: USB 1.1/2.0 compliant
Upstream: 1 USB port, Type B connector
Downstream:
UPort 404: 4 USB ports, Type A connectors
UPort 407: 7 USB ports, Type A connectors
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)
Supply Current: 500 mA max. per channel

Physical Characteristics

Housing: Aluminum
Weight: Product only:
UPort 404: 850 g (1.87 lb)
UPort 407: 950 g (2.1 lb)
Packaged:
UPort 404: 855 g (1.88 lb)
UPort 407: 965 g (2.13 lb)
Dimensions:
UPort 404: 80 x 35 x 130 mm (3.15 x 1.38 x 5.12 in)
UPort 407: 100 x 35 x 192 mm (3.94 x 1.38 x 7.55 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temperature Models: -40 to 85°C (-40 to 185°F)
Storage Temperature:
Standard Models: -20 to 75°C (-4 to 167°F)
Wide Temperature Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety: UL 508
EMC: EN 55022/24, EN 61000-6-2/6-4
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV
IEC 61000-4-5 Surge: Power: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m
IEC 61000-4-8 PFMF
Green Product: RoHS, CRoHS, WEEE

Power Requirements

Input Voltage: 12 to 40 VDC
Input Current: UPort 404: 1.3 A @ 12 VDC
UPort 407: 2.3 A @ 12 VDC

MTBF (mean time between failures)

Time:
UPort 404: 1,490,340 hrs
UPort 407: 1,111,361 hrs
Standard: Telcordia (Bellcore), GB

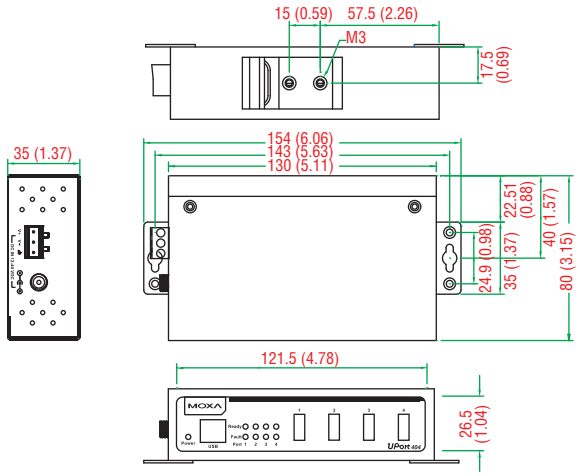
Warranty

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

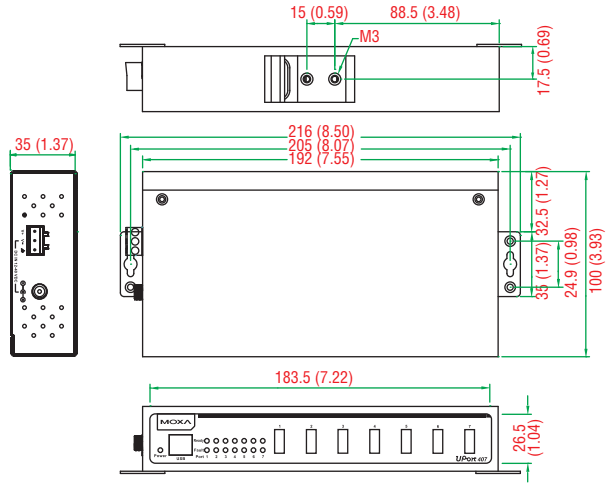
Dimensions

Unit: mm (inch)

UPort® 404



UPort® 407



Ordering Information

Available Models

UPort 404: 4-port industrial USB hub, adapter included, 0 to 60°C operating temperature
UPort 407: 7-port industrial USB hub, adapter included, 0 to 60°C operating temperature
UPort 404-T: 4-port industrial USB hub, -40 to 85°C operating temperature
UPort 407-T: 7-port industrial USB hub, -40 to 85°C operating temperature

Optional Accessories (can be purchased separately)

CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm
WK-35-02: 2 plates with 6 screws
DK-25-01: 1 DIN-rail kit; 25 x 48.3 mm with 2 screws
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 UPort 404 or UPort 407 industrial-grade USB hub
- 100 to 240 VAC power adapter suitable for your region (excluding T models)
- USB Cable: CBL-USBA/B-100
- Wall-mounting kit: WK-35-02
- Quick installation guide (printed)
- Warranty card

UPort® 204/207

4 and 7-port entry-level USB hubs

- Hi-Speed USB 2.0 for up to 480 Mbps of USB transmission
- USB-IF certification
- 15 kV ESD Level 4 protection for all USB ports
- Comprehensive diagnostic LEDs
- Full 500 mA of power per port
- Choose bus power or external power (UPort 204 only)

Introduction

The UPort® 204 and UPort® 207 are entry-level USB 2.0 hubs that expand 1 USB port into 4 and 7 USB ports, respectively. The hubs are designed to provide true USB 2.0 Hi-Speed 480 Mbps data transmission through each port, even for heavy-load applications. The UPort® 204/207 have received USB-IF Hi-Speed certification and are fully Plug & Play. 500 mA of power per port ensures that your USB devices will function properly, and using 12 to 40 VDC of power makes them ideal for mobile applications. Externally USB hubs provide a broad USB device compatibility.

USB-IF Certification

The UPort® 204/207 USB 2.0 entry-level USB hubs are USB-IF (USB Implementers Forum) certified. USB-IF verifies a number of strict electrical requirements for the Hi-Speed USB operation of USB hubs designed to the USB 2.0 specification. This means that the UPort® 204/207 support Hi-Speed USB 2.0 for up to 480 Mbps USB transmission, which is compliant with interoperability requirements, has enough power for devices to function, and provides for a successful transition back to high-speed operation from the suspend state.

ESD Level 4 Protection

Electrostatic discharge (ESD) could be as severe as having more than 1,000 volts of ESD with a high rise-time (dv/dt) break through the junction layer of protective devices. In order to avoid serious damage, Moxa's UPort® 204/207 USB hubs provide ESD level 4 (contact 8 kV, air 15 kV) protection, which increases the quality and value of the user's end-product.

Specifications

USB Interface

Compliance: USB 1.1/2.0 compliant
Upstream: 1 USB port (Type B connector)
Downstream:
UPort 204: 4 USB ports, Type A connectors
UPort 207: 7 USB ports, Type A connectors
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)
Supply Current: 500 mA max. per channel

Physical Characteristics

Housing: Polycarbonate (PC)
Weight: Product only:
UPort 204: 800 g (1.76 lb)
UPort 207: 875 g (1.93 lb)
Packaged:
UPort 204: 805 g (1.87 lb)
UPort 207: 890 g (1.96 lb)
Dimensions:
UPort 204: 70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in)
UPort 207: 80 x 35 x 185 mm (3.15 x 1.38 x 4.72 in)

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications

Safety: UL 508
EMC: EN 55022/24, EN 61000-6-2/6-4
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV
IEC 61000-4-5 Surge: Power: 1 kV
IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m
IEC 61000-4-8 PFMF
Green Product: RoHS, CRoHS, WEEE

Power Requirements

Input Voltage: 12 to 40 VDC
Input Current: UPort 204: 1.21 A @ 12 VDC
UPort 207: 2.17 A @ 12 VDC

MTBF (mean time between failures)

Time:
UPort 204: 1,577,573 hrs
UPort 207: 1,059,201 hrs
Standard: Telcordia (Bellcore), GB

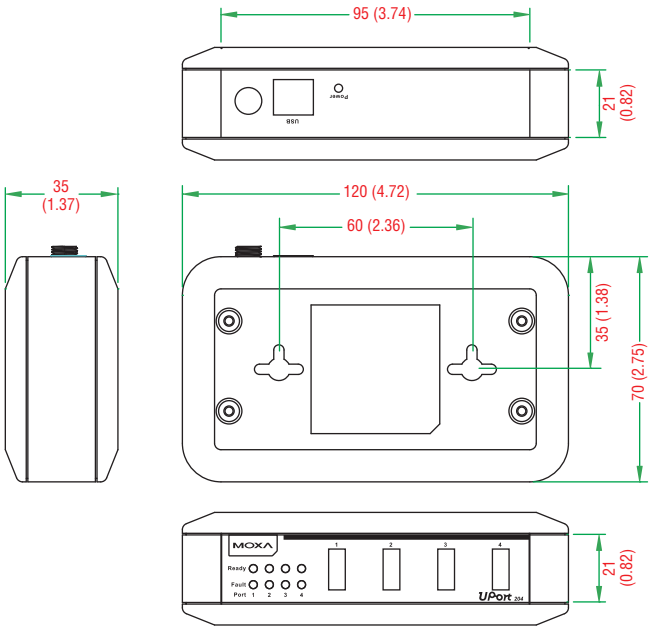
Warranty

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

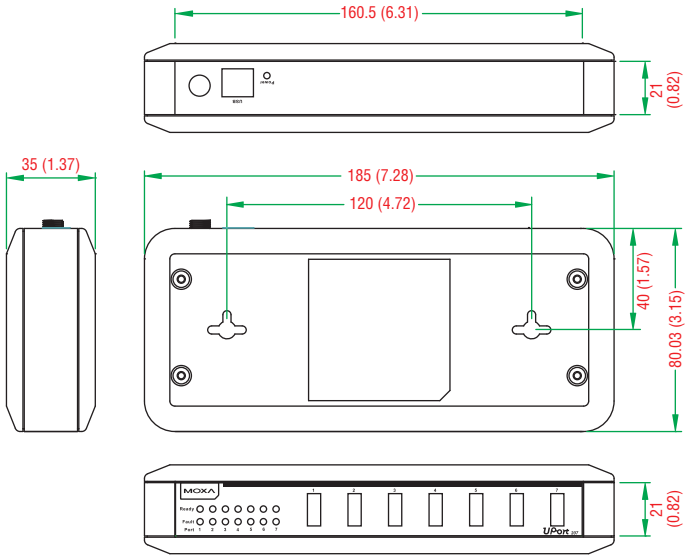
Dimensions

Unit: mm (inch)

UPort® 204



UPort® 207



Ordering Information

Available Models

UPort 204: 4-port entry-level USB hub, adapter included
UPort 207: 7-port entry-level USB hub, adapter included

Optional Accessories (can be purchased separately)

CBL-USBA/B-100: USB Type A to USB Type B cable, 100 cm

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 UPort 204 or UPort 207 entry-level USB hub
- USB cable: CBL-USBA/B-100
- 100 to 240 VAC power adapter suitable for your region (excluding T models)
- Quick installation guide (printed)
- Warranty card

Power Accessory Selection Guide

Barrel Plug Type		Non-locking barrel plug	Locking barrel plug				
O/P		12 VDC, 1.5 A, 100 to 240 VAC	12 VDC, 3 A 100 to 240 VAC (Switch Mode)				
Plug Type		CN	US/JP	EU	AU	UK	CN
Model Name		PWR-12150-CN-S2	PWR-12300-WPUSJP-S1	PWR-12300-WPEU-S1	PWR-12300-WPAU-S1	PWR-12300-WPUK-S1	PWR-12300-WPCN-S1
Appearance							
2 ports	UPort 1250	–	–	–	–	–	–
	UPort 1250I	✓	–	–	–	–	–
	UPort 2210	–	–	–	–	–	–
4 ports	UPort 1410	✓	–	–	–	–	–
	UPort 1450	✓	–	–	–	–	–
	UPort 1450I	✓	–	–	–	–	–
	UPort 2410	–	–	–	–	–	–
	UPort 204	–	✓	✓	✓	✓	✓
	UPort 404	–	✓	✓	✓	✓	✓
7 ports	UPort 207	–	✓	✓	✓	✓	✓
	UPort 407	–	✓	✓	✓	✓	✓
8 ports	UPort 1610-8	✓	–	–	–	–	–
	UPort 1650-8	✓	–	–	–	–	–
16 ports	UPort 1610-16	–	–	–	–	–	–
	UPort 1650-16	–	–	–	–	–	–

Barrel Plug Type		Locking barrel plug					
O/P		12 VDC 2 A, 100 to 240 VAC (desktop type)	2.5A/250 V Power Cord, 183 cm				
Plug Type		Must be used with a 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							
2 ports	UPort 1250	✓	✓	✓	✓	✓	✓
	UPort 1250I	✓	✓	✓	✓	✓	✓
	UPort 2210	–	–	–	–	–	–
4 ports	UPort 1410	✓	✓	✓	✓	✓	✓
	UPort 1450	✓	✓	✓	✓	✓	✓
	UPort 1450I	✓	✓	✓	✓	✓	✓
	UPort 2410	–	–	–	–	–	–
	UPort 204	–	–	–	–	–	–
	UPort 404	–	–	–	–	–	–
7 ports	UPort 207	–	–	–	–	–	–
	UPort 407	–	–	–	–	–	–
8 ports	UPort 1610-8	✓	✓	✓	✓	✓	✓
	UPort 1650-8	✓	✓	✓	✓	✓	✓
16 ports	UPort 1610-16	✓	✓	✓	✓	✓	✓
	UPort 1650-16	✓	✓	✓	✓	✓	✓

Serial Media Converters

Chassis Media Converters

	TRC-190-AC TRC-190-DC-48	TCF-142-M-SC-RM TCF-142-M-ST-RM	TCF-142-S-SC-RM TCF-142-S-ST-RM
Optical-Fiber Side			
Fiber Connector	–	SC or ST	
Cable Requirements	–	50/125, 62.5/125, or 100/140 µm	8.3/125, 8.7/125, 9/125, or 10/125 µm
Transmission Distance	–	5 km	40 km
Wavelength	–	850 nm	1310 nm
Tx Output	–	> -5 dBm	
Rx Sensitivity	–	-20 dBm	-25 dBm
Point-to-Point Transmission	–	Point-to-Point Transmission: Half-duplex or full-duplex	
RS-232/422/485 Side			
Connector	–	DB9	
RS-232 Signals	–	TxD, RxD, GND	
RS-422 Signals	–	TxD+, TxD-, RxD+, RxD-, GND	
RS-485-4w Signals	–	TxD+, TxD-, RxD+, RxD-, GND	
RS-485-2w Signals	–	Data+, Data-, GND	
Baudrate	–	50 bps to 921.6 kbps	
Physical Characteristics			
Housing	SECC (1.2 mm)	–	
Dimensions	440 x 260 x 77 mm (18.6 x 11 x 3.3 in)	86.8 x 136.5 x 21 mm (3.42 x 5.37 x 0.83 in)	
Weight	5.2 kg (11.4 lb), with one power module installed	105 g (0.23 lb)	
Number of Slots	19 slots in the front for slide-in modules, 2 slots in the back for power supply modules	–	
Environmental Limits			
Operating Temperature	0 to 60°C (32 to 140°F)		
Ambient Relative Humidity	5 to 95% (non-condensing)		
Storage Temperature	-25 to 75°C (-4 to 167°F)		
Power Requirements			
Input Voltage	100 to 240 VAC or 36 to 72 VDC	12 VDC	
Input Current	3.2 mA @ 36 VDC	150 mA @ 12 VDC	
Standards and Certifications			
Safety	UL 60950-1		
EMC	EN 55022/24		
EMI	CISPR 22, FCC Part 15B Class A		
EMS	EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV EN 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF EN 61000-4-11 DIPS		
Freefall	–	IEC 60068-2-32	
Green Product	RoHS, CRoHS, WEEE		
Reliability			
MTBF	Time: 959,780 hrs Standard: MIL-HDBK-217F		
Warranty	5 years (see www.moxa.com/warranty)		
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Serial-to-Fiber Media Converters

	ICF-1150-M-SC/ST ICF-1150-M-SC/ST-T	ICF-1150I-M-SC/ST ICF-1150I-M-SC/ST-T	ICF-1150-S-SC/ST ICF-1150-S-SC/ST-T	ICF-1150I-S-SC/ST ICF-1150I-S-SC/ST-T	TCF-142-M-SC/ST TCF-142-M-SC/ST-T	TCF-142-S-SC/ST TCF-142-S-SC/ST-T	TCF-90-M/S
Optical-Fiber Side							
Fiber Connector	SC or ST						ST
Cable Requirements	Single-mode: 8.3/125, 8.7/125, 9/125, or 10/125 µm Multi-mode: 50/125, 62.5/125, or 100/140 µm						
Transmission Distance	Single-mode: 40 km Multi-mode: 5 km						
Wavelength	Single-mode: 1310 nm Multi-mode: 850 nm						
Tx Output	Single-mode: > -5 dBm Multi-mode: > -5 dBm						
Rx Sensitivity	Single-mode: -25 dBm Multi-mode: -20 dBm						
Point-to-Point Transmission	Half-duplex or full-duplex						–
Multidrop Transmission	Half-duplex, fiber ring						–
RS-232 Side							
Connector	DB9 female				Terminal block		DB9 female
Signals	Tx, Rx, GND						TxD, RxD, GND (Loop-back wiring: RTS to CTS, DTR to DSR and DCD)
Baudrate	50 bps to 921.6 kbps						300 bps to 115.2 kbps
RS-232/422/485 Side							
Connector	Terminal Block						–
RS-232 Signals	TxD, RxD, GND						
RS-422 Signals	TxD+, TxD-, RxD+, RxD-, GND						–
RS-485-4w Signals	TxD+, TxD-, RxD+, RxD-, GND						–
RS-485-2w Signals	Data+, Data-, GND						–
Baudrate	50 bps to 921.6 kbps						–
Isolation	–	2 kV	–	2 kV	–	–	–
Physical Characteristics							
Housing	Metal						ABS + PC
Weight	330 g (0.73 lb)	330 g (0.73 lb)	330 g (0.73 lb)	330 g (0.73 lb)	320 g (0.71 lb)	320 g (0.71 lb)	150 g (0.33 lb)
Dimensions	30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)				67 x 100 x 22 mm (2.64 x 3.94 x 0.87 in)		42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in)
Environmental Limits							
Operating Temperature	Standard Temperature: 0 to 60°C (32 to 140°F) Wide Temperature: -40 to 85°C (-40 to 185°F)				Standard Temperature: 0 to 60°C (32 to 140°F) Wide Temperature: -40 to 85°C (-40 to 167°F)		0 to 60°C (32 to 140°F)
Ambient Relative Humidity	5 to 95% (non-condensing)						
Storage Temperature	-40 to 85°C (-40 to 185°F)						-20 to 75°C (-4 to 167°F)
Power Requirements							
Source of Input Power	–	–	–	–	–	–	RS-232 port (TxD, RTS, DTR) or power input jack
Input Voltage	12 to 48 VDC						5 to 12 VDC
Input Current	127 mA @ 12 VDC	163 mA @ 12 VDC	127 mA @ 12 VDC	163 mA @ 12 VDC	140 mA @ 12 VDC		20 mA @ 12 VDC
Voltage Reversal Protection	Protects against V+/V- reversal						–
Overcurrent Protection	1.1 A				1.1 A		–
Standards and Certifications							
Safety	UL 508				UL 60950-1		UL 60950-1
Hazardous Location	Hazardous Location: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2 EEx nC IIC, IECEx				–	–	–
EMC	EN 55022/24						
EMI	CISPR 22, FCC Part 15B Class A						CISPR 22, FCC Part 15B Class A
EMS	EN 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV EN 61000-4-5 Surge: Power: 4 kV; Signal: 0.5 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF				EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m EN 61000-4-4 EFT: Power: 1 kV EN 61000-4-5 Surge: Power: 1 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF		EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 0.5 kV; Signal: 1 kV EN 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF
Freefall	IEC 60068-2-32				–	–	–
Green Product	RoHS, CRoHS, WEEE				RoHS, CRoHS, WEEE		RoHS, CRoHS, WEEE
Reliability							
MTBF	Time: 792,085 hrs Standard: Telcordia (Bellcore), GB				Time: 780,480 hrs Standard: Telcordia (Bellcore), GB		Time: 2,272,562 hrs Standard: MIL-HDBK-217F
Warranty	5 years (see www.moxa.com/warranty)						
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Serial Converters and Repeaters

	TCC-100 TCC-100-T	TCC-100I TCC-100I-T	TCC-80	TCC-80I	TCC-120	TCC-120I	TCC-82
RS-232 Side							
Connector	DB9 female		DB9 female		–	–	DB9 male/female
Signals	TxD, RxD, RTS, CTS, GND (Loop-back wiring: DTR to DSR and DCD)		TxD, RxD, GND (Loop-back wiring: RTS to CTS, DTR to DSR and DCD)		–	–	TxD, RxD, RTS, CTS, GND (Loop-back wiring: DTR to DSR and DCD)
RS-422/485 Side							
Connector	Terminal Block		Terminal Block or DB9 male		Terminal block on both ends		–
Signals	(interface selected by DIP switch) RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND RS-485-2w: Data+, Data-, GND		(interface selected by DIP switch) RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND RS-485-2w: Data+, Data-, GND		(interface selected by DIP switch) RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND RS-485-2w: Data+, Data-, GND		–
RS-485 Data Direction Control	ADDC®		ADDC®		ADDC®		–
Serial Communication							
Baudrate	50 bps to 921.6 kbps		50 bps to 115.2 kbps		50 bps to 921.6 kbps		50 bps to 115.2 kbps
Pull High Resistance	1k/150k ohm		1k ohm	4.7k ohm	1k/150k ohm		–
Pull Low Resistance	1k/150k ohm		1k ohm	4.7k ohm	1k/150k ohm		–
Optical Isolation	–	2 kV	–	2.5 kV	–	2 kV	4 kV
Physical Characteristics							
Housing	Metal		ABS + PC		Metal		ABS
Dimensions	67 x 100.4 x 22 mm (2.64 x 3.93 x 0.87 in)		42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in)		67 x 100.4 x 22 mm (2.64 x 3.93 x 0.87 in)		42 x 80 x 23.6 mm (1.65 x 3.15 x 0.93 in)
Weight	148 g (0.325 lb)		50 g (0.11 lb)		148 g (0.325 lb)		60 g (0.132 lb)
Environmental Limits							
Operating Temperature	Standard Temperature: -20 to 60°C (-4 to 140°F) Wide Temperature: -40 to 85°C (-40 to 185°F)		0 to 60°C (32 to 140°F)		-20 to 60°C (4 to 140°F)		0 to 60°C (32 to 140°F)
Ambient Relative Humidity	5 to 95% (non-condensing)						
Storage Temperature	-40 to 85°C (-40 to 185°F)		-20 to 75°C (-4 to 167°F)		-20 to 75°C (-4 to 167°F)		-20 to 75°C (-4 to 167°F)
Power Requirements							
Source of Input Power	Power input jack		RS-232 port (TxD, RTS, DTR) or power input jack		Power input jack		RS-232 port (TxD, RTS, DTR) or power input jack
Input Voltage	12 to 48 VDC		5 to 12 VDC		12 to 48 VDC		5 to 12 VDC
Input Current	85 mA @ 12 VDC	150 mA @ 12 VDC	10 mA @ 5 VDC	20 mA @ 5 VDC	65 mA @ 12 VDC	180 mA @ 12 VDC	20 mA @ 5 VDC
Voltage Reversal Protection	Protects against V+/V- reversal		–	–	Protects against V+/V- reversal		–
Overcurrent Protection	✓	✓	–	–	✓	✓	–
Standards and Certifications							
Safety	UL 60950-1						
EMC	EN 55022/24						
EMI	CISPR 22, FCC Part 15B Class B						
EMS	EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV EN 61000-4-5 Surge: Power: 1 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF		EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 1 kV EN 61000-4-5 Surge: Power: 1 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF		EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV EN 61000-4-5 Surge: Power: 1 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF		EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 0.5 kV EN 61000-4-5 Surge: Power: 1 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF
Green Product	RoHS, CRoHS, WEEE						
Reliability							
MTBF	Time: 3,017,857 hrs Standard: MIL-HDBK-217F		Time: 2,781,161 hrs Standard: Telcordia (Bellcore), GB		Time: 1,949,025 hrs Standard: Telcordia (Bellcore), GB		Time: 959,780 hrs Standard: MIL-HDBK-217F
Warranty	5 years (see www.moxa.com/warranty)						
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Serial Surge Protector




	ISD-1110-T	ISD-1130-T	ISD-1210-T	ISD-1230-T
Data Line Surge Protection				
Interface	RS-232	RS-422/485	RS-232	RS-422/485
Maximum Power Protection	400 watts		5000 watts	
Number of Protected Lines	7	4		
Surge Capacity	4 kV, 8/20 μs impulse per line		20 kV, 8/20 μs impulse per line	
Working Voltage	15 V	5 V	15 V	5 V
Maximum Load Current	0.1 A (23°C), 0.05 A (85°C)	0.12 A (23°C), 0.07 A (85°C)	0.4 A (20°C), 0.13 A (85°C)	0.4 A (20°C), 0.13 A (85°C)
Response Time	< 1 ns			
Bandwidth	10 MHz loss < 1 dB			
Connector				
Connector	Data in: DB9 male Data out: DB9 female	Data in: Terminal Block Data out: Terminal Block		
Physical Characteristics				
Housing	Plastic (IP30)		Metal (IP30)	
Weight	58 g (0.13 lb)	30 g (0.07 lb)	214 g (0.48 lb)	212 g (0.47 lb)
Dimension	53 x 37 x 20.6 mm (2.01 x 1.46 x 0.81 in)		95 x 53 x 25 mm (3.74 x 2.01 x 0.98 in)	
Environmental Limits				
Operating Temperature	-40 to 85°C (-40 to 185°F)			
Ambient Relative Humidity	-40 to 85°C (-40 to 185°F)			
Operating Humidity	5 to 95% (non-condensing)			
Standards and Certifications				
EMS	EN 61000-4-5 Surge: Signal 4 kV		IEC 61643-21 C2: 20 kV 1.2/50, 10 kA 8/20	
Reliability				
Warranty	5 years (limited to 1-time use) (see www.moxa.com/warranty) Note: ISD products will only be repaired once within 5 years of purchase. After the first repair, the product's warranty will no longer be valid.			
MTBF	Time: 862,859 hrs Standard: Telcordia (Bellcore), GB		Time: 964,269 hrs Standard: Telcordia (Bellcore), GB	
Page	14-26	14-26	14-26	14-26

CAN-to-Fiber, PROFIBUS-to-Fiber Converters



	ICF-1170I-M-ST ICF-1170I-M-ST-T	ICF-1180I-M-ST/ST-T ICF-1180I-S-ST/ST-T	ICF-1280I-M-ST/ST-T ICF-1280I-S-ST/ST-T
Optical Fiber Side			
Fiber Connector	ST		
Cable Requirements	Multi-mode: 50/125, 62.5/125, or 100/140 µm		
Transmission Distance	Up to 2 km	Multi-mode: 4 km Single-mode: 45 km	Multi-mode: 4 km Single-mode: 45 km
Wavelength	Multi-mode: 850 nm	Multi-mode: 820 nm Single-mode: 1310 nm	Multi-mode: 820 nm Single-mode: 1310 nm
Tx Output	Multi-mode: > -5 dBm	Multi-mode: > -14 dBm Single-mode: > -7 dBm	Multi-mode: > -14 dBm Single-mode: > -7 dBm
Rx Sensitivity	Multi-mode: -20 dBm	Multi-mode: -28 dBm Single-mode: -29 dBm	Multi-mode: -28 dBm Single-mode: -29 dBm
Fieldbus Interface			
Connector	3-pin removable screw terminal	DB9 female	DB9 female
Specification	CAN 2.0A and 2.0B (ISO 11898-2)	PROFIBUS DP (IEC 61158-2)	PROFIBUS DP (IEC 61158-2)
Signal Support	CAN_H, CAN_L, CAN_GND	PROFIBUS D+, PROFIBUS D-, RTS, Signal common, 5 V	PROFIBUS D+, PROFIBUS D-, RTS, Signal common, 5 V
Optical Isolation	2 kV		
Transfer Rate	Up to 1 Mbps	Up to 12 Mbps	Up to 12 Mbps
Termination Resistors	120 ohms (selected by DIP switch)		
Physical Characteristics			
Housing	Metal		
Weight	178 g (0.39 lb)	164 g (0.36 lb)	308 g (0.68 lb)
Dimensions	30.3 x 115 x 70 mm (11.9 x 45.3 x 27.6 in)		39 x 115 x 70 mm (1.54 x 45.3 x 2.76 in)
Environmental Limits			
Operating Temperature – Standard Temperature	0 to 60°C (32 to 140°F)		
Operating Temperature – Wide Temperature	-40 to 85°C (-40 to 185°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)
Ambient Relative Humidity	5 to 95% (non-condensing)		
Storage Temperature	-40 to 85°C (-40 to 185°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)
Power Requirements			
Input Voltage	12 to 48 VDC dual power inputs for redundant power		
Input Current	221 mA @ 12 VDC	186 mA @ 12 VDC	315 mA @ 12 VDC
Voltage Reversal Protection	Protects against V+/V- reversal		
Over Current Protection	1.1 A (protects against two signals shorted together)		
Standards and Certifications			
Safety	UL 508, EN 60950-1	UL 508, EN 60950-1	UL 508, EN 60950-1
EMC	EN 55022/24		
EMI	CISPR 22, FCC Part 15B Class B A	CISPR 22, FCC Part 15B Class B A	CISPR 22, FCC Part 15B Class B A
EMS	EN 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV EN 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 PFMF	EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m EN 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV EN 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m EN 61000-4-8 PFMF	EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV EN 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m EN 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV EN 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV EN 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m EN 61000-4-8 PFM)
Freefall	IEC 60068-2-32	IEC 60068-2-32	IEC 60068-2-32
Green Product	RoHS, CRoHS, WEEE	RoHS, CRoHS, WEEE	RoHS, CRoHS, WEEE
Reliability			
MTBF	Time: 792,085 hrs Standard: Telcordia (Bellcore), GB	Time: 1,870,854 hrs Standard: Telcordia (Bellcore), GB	Time: 1,567,875 hrs Standard: Telcordia (Bellcore), GB
Warranty	5 years (see www.moxa.com/warranty)		
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TRC-190 Series

Rackmount chassis for the NRack System™

- 19-inch chassis for rackmount use
- 19 slots for high-density applications
- Supports hot-swap and dual-power input with redundancy
- Fanless chassis design reduces servicing costs

Introduction

The TRC-190 series provides 19 slots for media converter modules from the CSM-200 series of Ethernet-to-fiber modules and the TCF-142-RM series of serial-to-fiber modules. A TRC-190 chassis comes with one AC or DC power input, with an optional redundant power expansion module available for greater reliability. The TRC-190 series' power input module supports the hot-swap feature.

Specifications

Physical Characteristics

Housing: SECC (1.2 mm)
Dimensions: 440 x 260 x 77 mm (18.6 x 11 x 3.3 in)
Weight: 5.2 kg (11.4 lb), with one power module installed
Number of Slots: 19 slots in the front for slide-in modules, 2 slots in the back for power supply modules

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: Universal 100 to 240 VAC (47 to 63 Hz) or 36 to 72 VDC
Input Current: 3.2 A @ 36 VDC
Power Consumption: Max. Output: 3.2A @ 36 VDC

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 1 kV; Signal: 0.5 kV
EN 61000-4-5 (Surge): Power: 1 kV; Signal: 0.5 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
EN 61000-4-11 (DIPS)
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

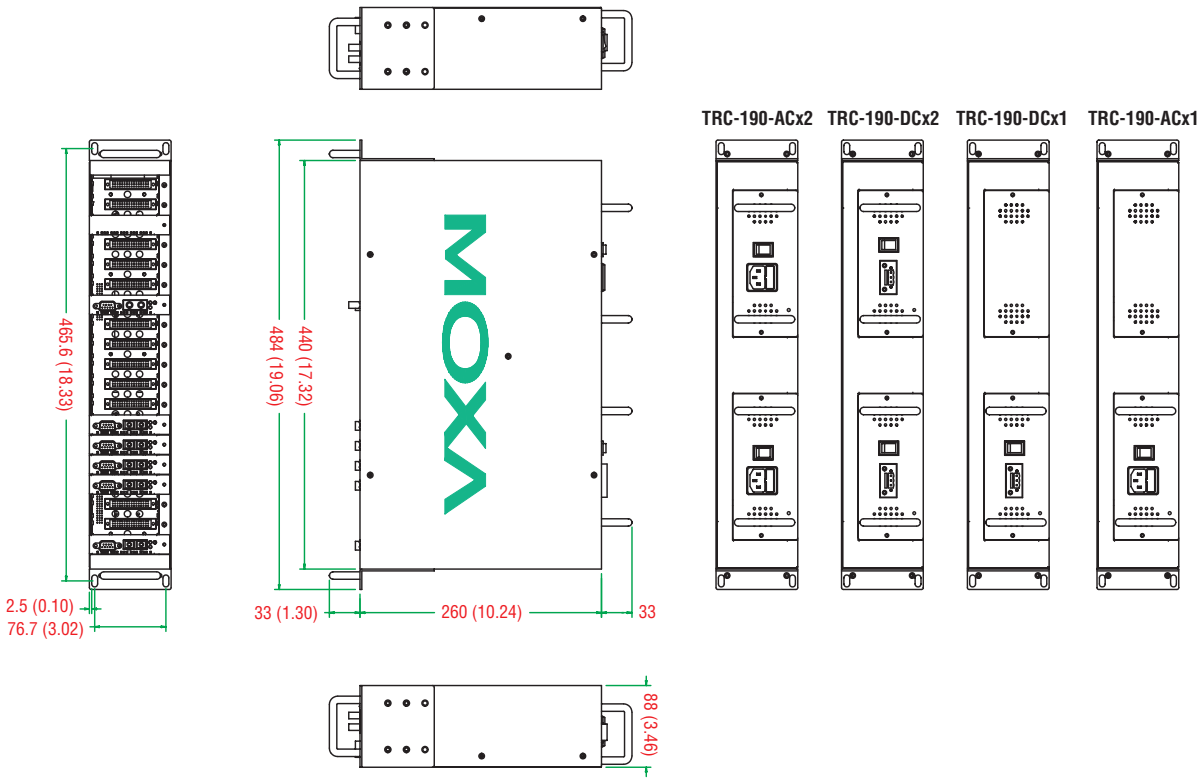
Time: 1,055,112 hrs
Standard: Telcordia (Bellcore), GB

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

TRC-190-AC: Rack chassis, 2U, single 110 to 240 VAC input, with 19 slots on front panel
TRC-190-DC-48: Rack chassis, 2U, single 36 to 72 VDC input, with 19 slots on front panel

Available Slide-in Modules

CSM-200-1213: 10/100BaseT(X) to 100BaseFX slide-in module media converter, multi-mode ST connector
CSM-200-1214: 10/100BaseT(X) to 100BaseFX slide-in module media converter, multi-mode SC connector
CSM-200-1218: 10/100BaseT(X) to 100BaseFX slide-in module media converter, single-mode SC connector
TCF-142-M-SC-RM: RS-232/422/485 to multi-mode fiber slide-in module converter, SC connector
TCF-142-M-ST-RM: RS-232/422/485 to multi-mode fiber slide-in module converter, ST connector
TCF-142-S-SC-RM: RS-232/422/485 to single-mode fiber slide-in module converter, SC connector
TCF-142-S-ST-RM: RS-232/422/485 to single-mode fiber slide-in module converter, ST connector

Optional Accessories (can be purchased separately)

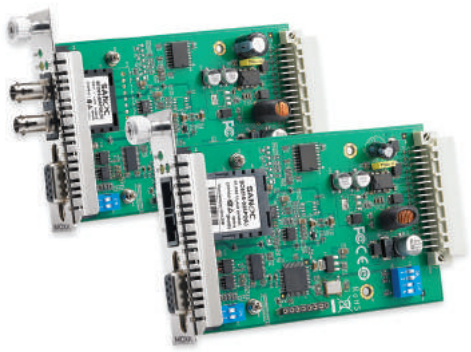
PWR-190-AC: 110 to 240 VAC power supply for the TRC-190-AC
PWR-190-DC-48: 36 to 72 VDC power supply for the TRC-190-DC-48
Plate-1: Faceplate to cover unused front panel slots (required for all unused slots)
Note: One power adapter suitable for your region is included in the product package.

Package Checklist

- 1 TRC-190 with single-power input
- Plate-1: TRC-190 bracket accessory package required for the faceplate to cover unused front panel slots. Includes 18 brackets and 18 screws.
- BKT-PWR: TRC-190 DIN-rail accessory package required for covering unused power slots. Includes 2 L-shaped metal plate and 8 screws.
- PWR-190-DC-48: 36 to 72 VDC power supply (for the TRC-190-DC-48 only)
- PWR-190-AC: 110 to 240 VAC power supply (for theTRC-190-AC only)
- User's manual (printed)
- Warranty card

TCF-142-RM Series

RS-232/422/485 to fiber slide-in modules for the NRack System™



- Extend RS-232/422/485 transmission up to:
  - 40 km with single-mode
  - 5 km with multi-mode
- 1 or 150 kilo-ohm adjustable pull high/low resistor
- "Ring" and "Point-to-Point" transmission supported

Introduction

The TCF-142-RM series of serial-to-fiber converters are slide-in modules that work with the TRC-190 chassis. The modules convert from the RS-232, RS-422, or RS-485 signal to a fiber-optic signal.

Automatic Baudrate Detection

The TCF-142-RM series can automatically detect the serial baudrate. This is an extremely convenient feature. Even if a device's baudrate is changed, the signal will still be transmitted through the media converter without any problem.

Specifications

Optical-Fiber Side

Fiber Connector: SC or ST
Fiber Cable Requirements:

Low-Speed Fiber Module		Multi-Mode	Single-Mode
Fiber Cable Requirements		50/125 µm, 800 MHz	G.652
		62.5/125 µm, 500 MHz	
Typical Distance		5 km	40 km
Wave-length	Typical (nm)	850	1310
	TX Range (nm)	840 to 860	1290 to 1330
	RX Range (nm)	800 to 900	1100 to 1650
Optical Power	TX Range (dBm)	0 to -5	0 to -5
	RX Range (dBm)	0 to -20	0 to -25
	Link Budget (dB)	15	20
	Dispersion Penalty (dB)	1	1

Note: When using a power meter to measure the fiber TX power, set the baudrate to 9,600 bps and send data (00, …, 0h) to the serial converter's serial port.

Point-to-Point Transmission: Half-duplex or full-duplex

RS-232/422/485 Side

Connector: DB9
RS-232 Signals: TxD, RxD, GND
RS-422 Signals: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w Signals: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w Signals: Data+, Data-, GND
Baudrate: 50 bps to 921.6 kbps

Physical Characteristics

Dimensions: 86.8 x 136.5 x 21 mm (3.42 x 5.37 x 0.83 in)
Weight: 105 g (0.23 lb)

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 VDC
Input Current: 12 VDC @ 150 mA

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 1 kV; Signal: 0.5 kV
EN 61000-4-5 (Surge): Power: 1 kV; Signal: 0.5 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
EN 61000-4-11 (DIPS)
Green Product: RoHS, CRoHS, WEEE
Freefall: IEC 60068-2-32

MTBF (mean time between failures)

Time: 514,926 hrs
Standard: Telcordia (Bellcore), GB

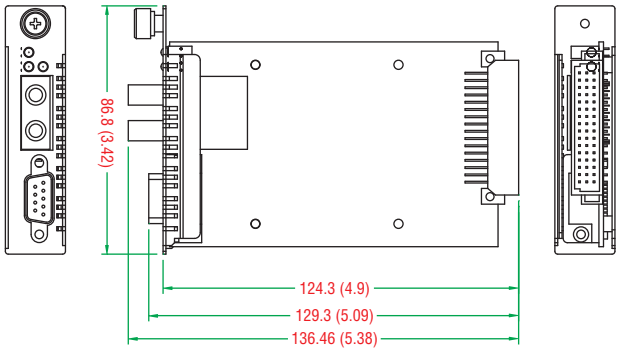
Warranty

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

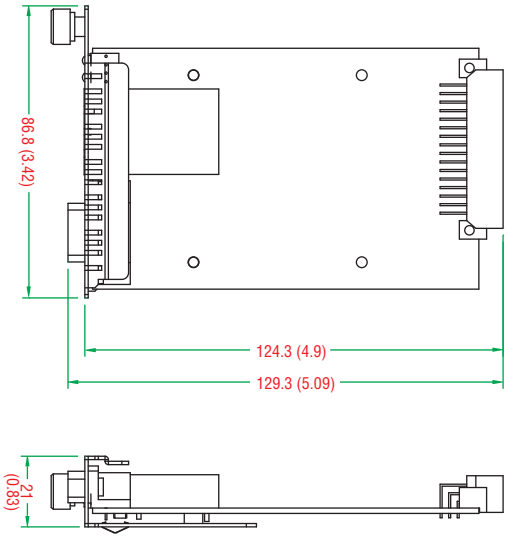
Dimensions

Unit: mm (inch)

TCF-142-M/S-ST-RM Series

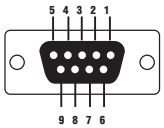


TCF-142-M/S-SC-RM Series



Pin Assignment

DB9 female connector



Pin	RS-232	RS-422/485-4w	RS-485-2w
1	–	RxD-(A)	Data-(A)
2	TxD	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	–
4	–	TxD-(A)	–
5	GND	GND	GND
6	–	–	–
7	–	–	–
8	–	–	–
9	–	–	–

Ordering Information

Available Models

TCF-142-M-SC-RM: RS-232/422/485 to multi-mode fiber slide-in module converter, SC connector
TCF-142-M-ST-RM: RS-232/422/485 to multi-mode fiber slide-in module converter, ST connector
TCF-142-S-SC-RM: RS-232/422/485 to single-mode fiber slide-in module converter, SC connector
TCF-142-S-ST-RM: RS-232/422/485 to single-mode fiber slide-in module converter, ST connector

Package Checklist

- 1 TCF-142-RM fiber converter
- Quick installation guide (printed)
- Warranty card

ICF-1150 Series

Industrial RS-232/422/485 to fiber converters

- 3-way communication: RS-232, fiber, and RS-422/485
- Rotary switch to change the pull high/low resistor value
- Extend RS-232/422/485 transmission up to:
  - 40 km with single-mode
  - 5 km with multi-mode
- 3-way isolation protection (for "I" models only)
- -40 to 85°C wide temperature range models available
- C1D2, ATEX, and IECEx certified for harsh industrial environments

Three-Way Communication

The ICF-1150 series support 2 serial ports, with a DB9 connector for RS-232 communication and a removable terminal block for RS-422 or RS-485 communication. The 3 ports (2 serial ports and one fiber port) are completely independent. When an ICF-1150 converter receives data from any one port, it will send the data through the other 2 ports. For example, once the ICF-1150 converter receives a command from the remote master through the fiber port, it will convert the signal and send the command through the RS-232 and RS-422/485 ports at the same time. If the user is monitoring a system running on an RS-485 network, there is no need to use an additional RS-232 to RS-485 converter to connect the laptop computer's serial port to the RS-485 bus.

Rotary Switch for Setting the Pull High/Low Resistor

The RS-485 interface supports multidrop or daisy-chain connections, which system engineers will use to connect serial devices such as meters, RTUs, and readers, together on the same bus. Since the number of serial devices on the same bus will cause the impedance of the data line to increase, the ICF-1150 allows users to tune the pull high/low resistor. Just rotate the switch to the appropriate value without removing the ICF-1150 from the DIN rail.

Pull High/Low Resistor Values

Position	0	1	2	3	4	5	6	7	8	9
ohms	150k	10k	4.7k	3.3k	1k	909	822	770	500	485

Specifications

Optical-Fiber Side

Fiber Connector: SC or ST
Fiber Cable Requirements:

Low-Speed Fiber Module		Multi-Mode	Single-Mode
Fiber Cable Requirements		50/125 µm, 800 MHz 62.5/125 µm, 500 MHz	G.652
Typical Distance		5 km	40 km
Wave-length	Typical (nm)	850	1310
	TX Range (nm)	840 to 860	1290 to 1330
	RX Range (nm)	800 to 900	1100 to 1650
Optical Power	TX Range (dBm)	0 to -5	0 to -5
	RX Range (dBm)	0 to -20	0 to -25
	Link Budget (dB)	15	20
	Dispersion Penalty (dB)	1	1

Note: When using a power meter to measure the fiber TX power, set the baudrate to 9,600 bps and send data (00, …, 0h) to the serial converter's serial port.

Ring Transmission: Half-duplex
Point-to-Point Transmission: Half-duplex or full-duplex

RS-232/422/485 Side

RS-232 Signals: TxD, RxD, GND
RS-422 Signals: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w Signals: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w Signals: Data+, Data-, GND
Baudrate: 50 bps to 921.6 kbps
Isolation: 2 kV RMS isolation per I/O port for 1 minute

Physical Characteristics

Housing: Metal
Dimensions: 30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)
Weight: 330 g (0.73 lb)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC
Input Current:
ICF-1150: 127 mA @ 12 VDC
ICF-1150I: 163 mA @ 12 VDC
Voltage Reversal Protection: Protects against V+/V- reversal
Overcurrent Protection: 1.1 A (protects against two signals shorted together)

Standards and Certifications

Safety: UL 508
Hazardous Location: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2 EEx nC IIC, IECEx
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
EN 61000-4-2 (ESD): Contact: 8 kV; Air: 15 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 4 kV; Signal: 2 kV
EN 61000-4-5 (Surge): Power: 4 kV; Signal: 0.5 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE
Freefall: IEC 60068-2-32

MTBF (mean time between failures)

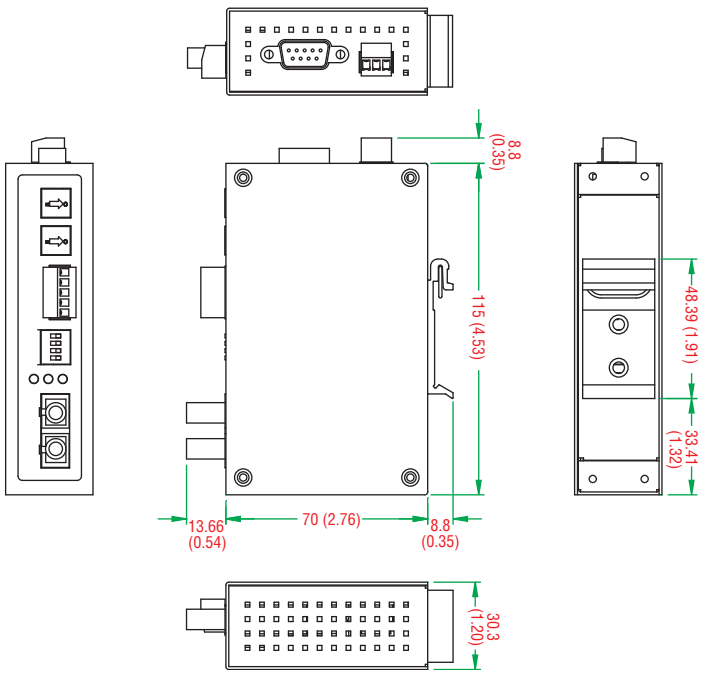
Time: 792,085 hrs
Standard: Telcordia (Bellcore), GB
Water and Dust Proof: IP30

Warranty

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

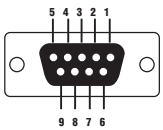
Dimensions

Unit: mm (inch)



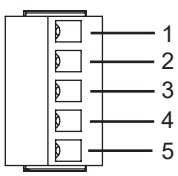
Pin Assignment

DB9 female connector



Pin	RS-232
1	–
2	TxD
3	RxD
4	–
5	GND
6	–
7	–
8	–

Terminal block connector



Pin	RS-422/485-4w	RS-485-2w
1	GND	GND
2	RxD-(A)	Data-(A)
3	RxD+(B)	Data+(B)
4	TxD-(A)	–
5	TxD+(B)	–

Ordering Information

Available Models

ICF-1150-M-SC: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, 0 to 60°C operating temperature
ICF-1150-M-ST: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, 0 to 60°C operating temperature
ICF-1150-S-SC: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, 0 to 60°C operating temperature
ICF-1150-S-ST: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, 0 to 60°C operating temperature
ICF-1150I-M-SC: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, 2 kV isolation, 0 to 60°C operating temperature
ICF-1150I-M-ST: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, 2 kV isolation, 0 to 60°C operating temperature
ICF-1150I-S-SC: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, 2 kV isolation, 0 to 60°C operating temperature
ICF-1150I-S-ST: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, 2 kV isolation, 0 to 60°C operating temperature
ICF-1150-M-SC-T: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, -40 to 85°C operating temperature
ICF-1150-M-ST-T: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, -40 to 85°C operating temperature
ICF-1150-S-SC-T: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, -40 to 85°C operating temperature
ICF-1150-S-ST-T: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, -40 to 85°C operating temperature
ICF-1150I-M-SC-T: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, 2 kV isolation, -40 to 85°C operating temperature
ICF-1150I-M-ST-T: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, 2 kV isolation, -40 to 85°C operating temperature
ICF-1150I-S-SC-T: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, 2 kV isolation, -40 to 85°C operating temperature
ICF-1150I-S-ST-T: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, 2 kV isolation, -40 to 85°C operating temperature

Package Checklist

- 1 ICF-1150 series fiber converter
- Quick installation guide (printed)
- Warranty card

IECEx Models

ICF-1150-M-SC-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, IECEx, 0 to 60°C operating temperature
ICF-1150-M-ST-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, IECEx, 0 to 60°C operating temperature
ICF-1150-S-SC-IEX: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, IECEx, 0 to 60°C operating temperature
ICF-1150-S-ST-IEX: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, IECEx, 0 to 60°C operating temperature
ICF-1150I-M-SC-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, 2 kV isolation, IECEx, 0 to 60°C operating temperature
ICF-1150I-M-ST-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, 2 kV isolation, IECEx, 0 to 60°C operating temperature
ICF-1150I-S-SC-IEX: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, 2 kV isolation, IECEx, 0 to 60°C operating temperature
ICF-1150I-S-ST-IEX: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, 2 kV isolation, IECEx, 0 to 60°C operating temperature
ICF-1150-M-SC-T-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, IECEx, -40 to 85°C operating temperature
ICF-1150-M-ST-T-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, IECEx, -40 to 85°C operating temperature
ICF-1150-S-SC-T-IEX: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, IECEx, -40 to 85°C operating temperature
ICF-1150-S-ST-T-IEX: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, IECEx, -40 to 85°C operating temperature
ICF-1150I-M-SC-T-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, SC connector, 2 kV isolation, IECEx, -40 to 85°C operating temperature
ICF-1150I-M-ST-T-IEX: Industrial RS-232/422/485 to multi-mode fiber converter, ST connector, 2 kV isolation, IECEx, -40 to 85°C operating temperature
ICF-1150I-S-SC-T-IEX: Industrial RS-232/422/485 to single-mode fiber converter, SC connector, 2 kV isolation, IECEx, -40 to 85°C operating temperature
ICF-1150I-S-ST-T-IEX: Industrial RS-232/422/485 to single-mode fiber converter, ST connector, 2 kV isolation, IECEx, -40 to 85°C operating temperature

Optional Accessories (can be purchased separately)

DR-4524: 45 W, 2 A DIN-rail 24 VDC power supply with universal 85 to 264 VAC input

TCF-142 Series

RS-232/422/485 to fiber converters

- "Ring" and "Point- to-Point" transmission
- Extends RS-232/422/485 transmission up to:
  - 40 km with single-mode—TCF-142-S
  - 5 km with multi-mode—TCF-142-M
- Decreases signal interference
- Protects against electrical interference and chemical corrosion
- Supports baudrates up to 921.6 kbps
- Wide temperature range models available (-40 to 75°C)

Introduction

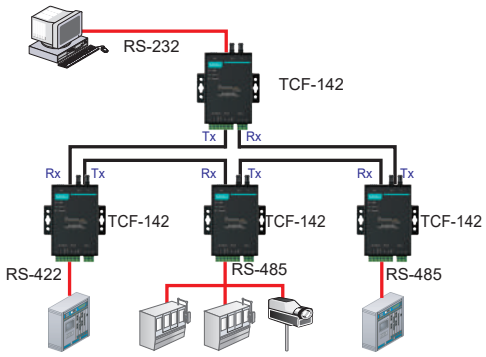
The TCF-142 media converters are equipped with a multiple interface circuit that can handle RS-232 or RS-422/485 serial interfaces and multi-mode or single-mode fiber. TCF-142 converters are used to extend serial transmission up to 5 km (TCF-142-M with multi-mode fiber) or up to 40 km (TCF-142-S with single-mode fiber). The TCF-142 converters can be configured to convert either RS-232 signals, or RS-422/485 signals, but not both at the same time.

Automatic Baudrate Detection

The TCF-142 converters can automatically detect the serial baudrate. This is an extremely convenient feature. Even if a device's baudrate is changed, the signal will still be transmitted through the media converter without any data loss.

Ring Operation

The TCF-142 converters can be used to connect serial devices to a fiber ring. To form the ring, connect the Tx port of one TCF-142 to the Rx port of a neighboring converter. Once the ring is set up, simply use the DIP switches to configure the TCF-142 converters for "ring mode." When one node transmits a signal, the signal travels around the ring until it returns back to the transmitting unit, which then blocks the signal. With the TCF-142, you can set up fiber rings that have a total circumference of up to 100 km.



Automatic Data Direction Control (ADDC®)

ADDC® is a patented hardware data flow solution developed by Moxa to handle RS-485 data direction control. ADDC® senses and controls RS-485 data direction automatically, making it unnecessary to use the handshaking signal.

Specifications

Optical-Fiber Side

Fiber Connector: SC or ST
Fiber Cable Requirements:

Low-Speed Fiber Module		Multi-Mode	Single-Mode
Fiber Cable Requirements		50/125 µm, 800 MHz 62.5/125 µm, 500 MHz	G.652
Typical Distance		5 km	40 km
Wave-length	Typical (nm)	850	1310
	TX Range (nm)	840 to 860	1290 to 1330
	RX Range (nm)	800 to 900	1100 to 1650
Optical Power	TX Range (dBm)	0 to -5	0 to -5
	RX Range (dBm)	0 to -20	0 to -25
	Link Budget (dB)	15	20
	Dispersion Penalty (dB)	1	1

Note: When using a power meter to measure the fiber TX power, set the baudrate to 9,600 bps and send data (00, …, 0h) to the serial converter's serial port.

Ring Transmission: Half-duplex
Point-to-Point Transmission: Half-duplex or full-duplex

RS-232/422/485 Side

Connector: Terminal Block
RS-232 Signals: Tx, Rx, GND
RS-422 Signals: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w Signals: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w Signals: Data+, Data-, GND
Baudrate: 50 bps to 921.6 kbps

Physical Characteristics

Housing: Metal
Dimensions:
Without ears: 67 x 100 x 22 mm (2.64 x 3.94 x 0.87 in)
With ears: 90 x 100 x 22 mm (3.54 x 3.94 x 0.87 in)
Weight: 320 g (0.71 lb)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
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: 140 mA @ 12 VDC
Power Line Protection:
1 kV Burst (EFT), EN61000-4-4
1 kV Surge, EN61000-4-5
Voltage Reversal Protection: Protects against V+/V- reversal
Overcurrent Protection: 1.1 A (protects against two signals shorted together)

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
EN 61000-4-2 (ESD): Contact: 6 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 10 V/m
EN 61000-4-4 (EFT): Power: 1 kV
EN 61000-4-5 (Surge): Power: 1 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

Time: 780,480 hrs
Standard: Telcordia (Bellcore), GB

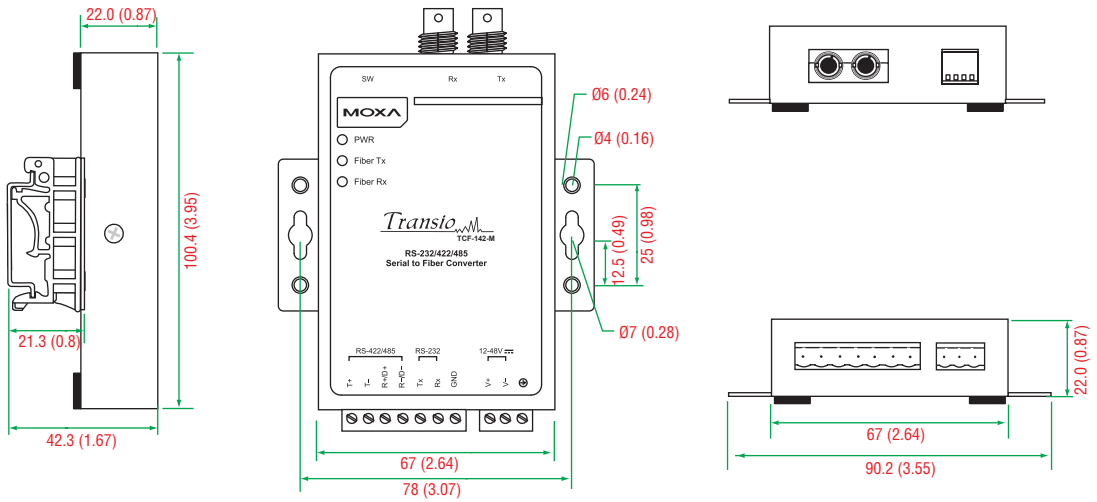
Warranty

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

Dimensions

Unit: mm (inch)

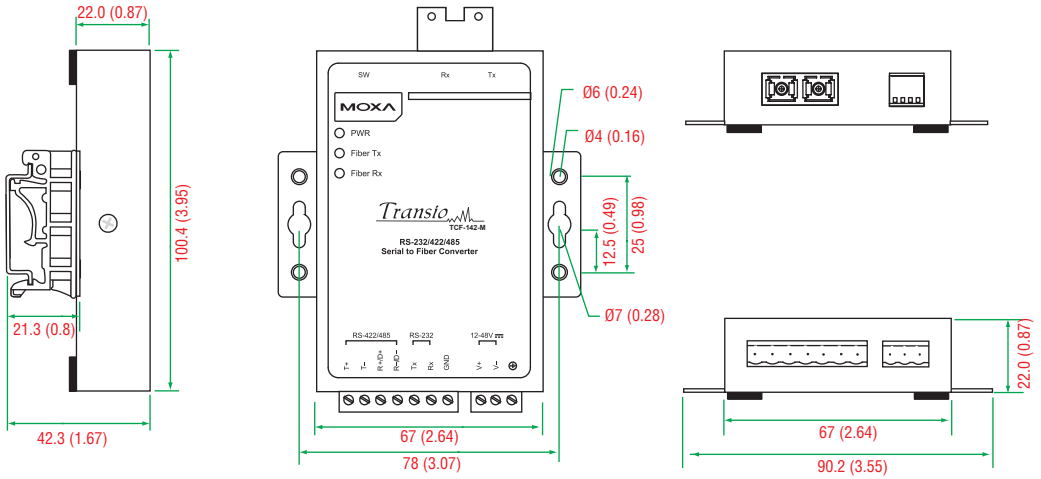
TCF-142-M/S-ST



Dimensions

Unit: mm (inch)

TCF-142-M/S-SC



Ordering Information

Available Models

TCF-142-M-SC: RS-232/422/485 to multi-mode optical-fiber media converter with fiber ring support and SC connector, 0 to 60°C operating temperature
TCF-142-M-ST: RS-232/422/485 to multi-mode optical-fiber media converter with fiber ring support and ST connector, 0 to 60°C operating temperature
TCF-142-S-SC: RS-232/422/485 to single-mode optical-fiber media converter with fiber ring support and SC connector, 0 to 60°C operating temperature
TCF-142-S-ST: RS-232/422/485 to single-mode optical-fiber media converter with fiber ring support and ST connector, 0 to 60°C operating temperature
TCF-142-M-SC-T: RS-232/422/485 to multi-mode optical-fiber media converter with fiber ring support and SC connector, -40 to 75°C operating temperature
TCF-142-M-ST-T: RS-232/422/485 to multi-mode optical-fiber media converter with fiber ring support and ST connector, -40 to 75°C operating temperature
TCF-142-S-SC-T: RS-232/422/485 to single-mode optical-fiber media converter with fiber ring support and SC connector, -40 to 75°C operating temperature
TCF-142-S-ST-T: RS-232/422/485 to single-mode optical-fiber media converter with fiber ring support and ST connector, -40 to 75°C operating temperature

Package Checklist

- 1 TCF-142 media converter
- Power wiring: CBL-PJTB-10
- Rubber pad
- Quick installation guide (printed)
- Warranty card

Optional Accessories (can be purchased separately)

DK35A: DIN-rail mounting clips, 35 mm, 2 DIN-rail plates with 4 screws
Note: Additional power adapters can be purchased separately. See Appendix A for details.

TCF-90 Series

Port-powered RS-232 to fiber converters

USB Power | Port Power | Ext. Power

- Use either external power or power over serial
- Extends RS-232 transmission up to:
  - 40 km with single-mode—TCF-90-S
  - 5 km with multi-mode—TCF-90-M
- Reduces signal interference
- Protects against electrical interference or chemical corrosion
- Compact size

RoHS | c UL us LISTED | CE | FC

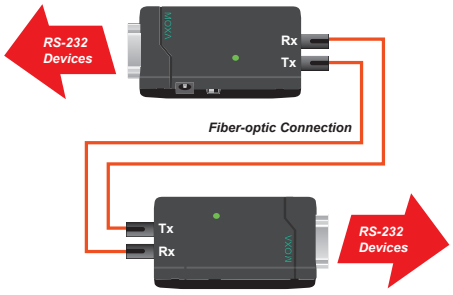
Specifications

The TCF-90 is a compact media converter that transmits RS-232 signals over optical fiber. Power is derived from either the serial port or an external power source. The TCF-90 extends RS-232 transmission up to 5 km with multi-mode fiber, or up to 40 km with single-mode fiber. A pair of TCF-90 converters can be used to connect two RS-232 devices with optical fiber in full-duplex mode. The optical fiber isolates the data signals from dangerous increases in ground potential, ground loops, and electrical EMI/RFI noise, and it enhances data security by eliminating the harmful effects of RF radiation and susceptibility to electromagnetic radiation.

Self-powered RS-232 to Optical Fiber

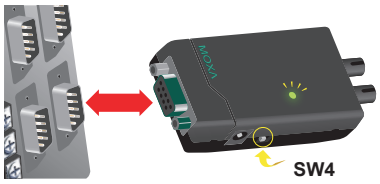
Connecting RS-232 devices to the TCF-90 is easy. The ST-type optical-fiber connector is designed especially for data communication applications that transmit data either between or within buildings. The TCF-90 can be used for industrial applications and for applications that require secure data transfer.

The RS-232 port on the TCF-90 uses a DB9 female socket to connect directly to the host PC, with power drawn from the TxD, RTS, and DTR lines. Although the TCF-90 can obtain enough power from the three data/handshake lines, whether the signal is high or low, we strongly recommend setting either the RTS or DTR signal to ON.



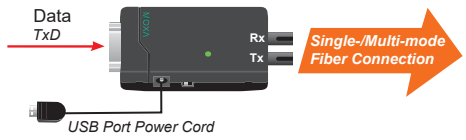
LED Port Power Indicator

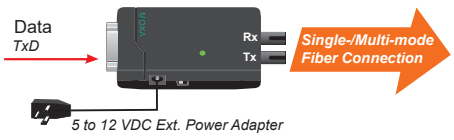
It's easy enough to use a multimeter to test if the serial device is supplying the TCF-90 with enough power through the serial connection, but why bother when the TCF-90 can do the testing for you? Connect the TCF-90 to the device's RS-232 port and set the SW4 switch to Test mode. If the port power LED indicator lights up, the TCF-90 is receiving enough power. If the LED does NOT light up, you will need to attach an external power source to the TCF-90.



Optional External Power Source

In most circumstances, the TCF-90 should be able to operate without using an external power source. However, an external USB power cord or DC power supply can be used in situations where the handshake lines are not available, both the RTS/DTR signals are set to OFF, or the attached device's serial interface chip provides less power than required.





Specifications

Optical-Fiber Side

Fiber Connector: ST

Fiber Cable Requirements:

Low-Speed Fiber Module		Multi-Mode	Single-Mode
Fiber Cable Requirements		50/125 µm, 800 MHz 62.5/125 µm, 500 MHz	G.652
Typical Distance		5 km	40 km
Wave-length	Typical (nm)	850	1310
	TX Range (nm)	840 to 860	1290 to 1330
	RX Range (nm)	800 to 900	1100 to 1650
Optical Power	TX Range (dBm)	0 to -5	0 to -5
	RX Range (dBm)	0 to -20	0 to -25
	Link Budget (dB)	15	20
	Dispersion Penalty (dB)	1	1

Note: When using a power meter to measure the fiber TX power, set the baudrate to 9,600 bps and send data (00, …, 0h) to the serial converter's serial port.

RS-232 Side

Connector: DB9 female

Signals:

RS-232 Tx, Rx, GND (Loop-back wiring: RTS to CTS, DTR to DSR and DCD)

Baudrate: 300 bps to 115.2 kbps

Physical Characteristics

Housing: ABS + PC

Dimensions: 42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in)

Weight: 150 g (0.33 lb)

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)

Storage Temperature: -20 to 75°C (-4 to 167°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Source of Input Power: RS-232 port (TxD, RTS, DTR) or power input jack

Input Voltage: 5 to 12 VDC

Input Current: 20 mA @ 5 VDC (with termination disabled)

Standards and Certifications

Safety: UL 60950-1

EMC: EN 55022/24

EMI: CISPR 22, FCC Part 15B Class B

EMS:

EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV

EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m

EN 61000-4-4 (EFT): Power: 0.5 kV; Signal: 0.5 kV

EN 61000-4-5 (Surge): Power: 2 kV; Signal: 1 kV

EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m

EN 61000-4-8 (PFMF)

Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

Time: 2,272,562 hrs

Standard: MIL-HDBK-217F

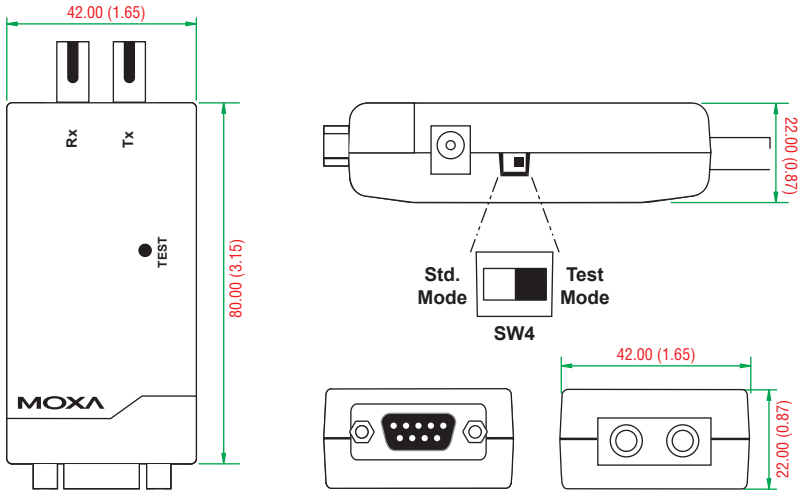
Warranty

Warranty Period: 5 years

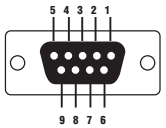
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



DB9 female connector



PIN	RS-232
1	DCD
2	TxD
3	RxD
4	DSR
5	GND
6	DTR
7	CTS
8	RTS

Ordering Information

Available Models

TCF-90-M: Port-powered RS-232 to multi-mode optical-fiber converter with ST connector for 5 km transmission

TCF-90-S: Port-powered RS-232 to single-mode optical-fiber converter with ST connector for 40 km transmission

Note: Models with SC/FC connectors or a 60 km range are available by request.

Optional Accessories (can be purchased separately)

Power Adapter: See Appendix A for details

CBL-F9M9-20: DB9 male to DB9 female RS-232 cable (20 cm)

Package Checklist

- 1 TCF-90 series media converter
- USB power cord, 50 cm
- Quick installation guide
- Warranty card

TCC-100/100I Series

Industrial RS-232 to RS-422/485 converters with optional 2 kV isolation

- RS-232 to RS-422 conversion with RTS/CTS support
- RS-232 to 2-wire or 4-wire RS-485 conversion
- 2 kV isolation protection (TCC-100I)
- Wall- and DIN-rail mounting
- Plug-in terminal block for easy RS-422/485 wiring
- LED indicators for power, Tx, Rx
- Wide temperature range model available (-40 to 85°C)

Ext. Power | 2 KV Isolation

RoHS | c UL us LISTED | CE | FC

Introduction

The TCC-100/100I series RS-232 to RS-422/485 converters increase networking capability by extending the RS-232 transmission distance. Both converters have a superior industrial-grade design that includes DIN-rail mounting, terminal block wiring, an external terminal block for power, and optical isolation (TCC-100I and TCC-100I-T only). The TCC-100/100I series converters are ideal solutions for converting RS-232 signals to RS-422/485 in critical industrial environments.

Specifications

RS-232 Side

Connector: DB9 female
Signals: TxD, RxD, RTS, CTS, GND

RS-422/485 Side

Connector: Terminal Block
Signals:
(interface selected by DIP switch)
RS-422: TxD+, TxD-, RxD+, RxD-, RTS, CTS, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

Serial Communication

Baudrate: 50 bps to 921.6 kbps
Optical Isolation: 2 kV (TCC-100I/100I-T)

Physical Characteristics

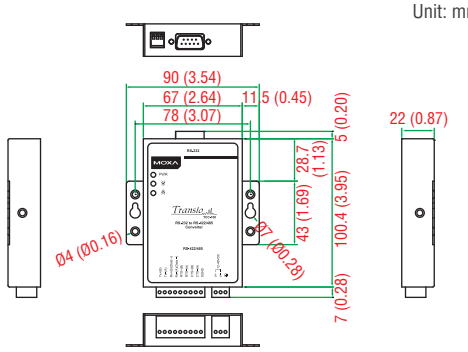
Housing: Metal
Dimensions: 67 x 100.4 x 22 mm (2.64 x 3.93 x 0.87 in)
Weight: 148 g (0.33 lb)

Environmental Limits

Operating Temperature:
Standard Models: -20 to 60°C (-4 to 140°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Dimensions

Unit: mm (inch)



Power Requirements

Source of Input Power: Power input jack
Input Voltage: 12 to 48 VDC
Input Current:
TCC-100/100-T: 85 mA @ 12 VDC
TCC-100I/100I-T: 150 mA @ 12 VDC
Voltage Reversal Protection: Protects against V+/V- reversal
Overcurrent Protection: Protects against two signals shorted together

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 1 kV; Signal: 0.5 kV
EN 61000-4-5 (Surge): Power: 1 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

Time: 3,017,857 hrs
Standard: MIL-HDBK-217F

Warranty

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

Ordering Information

Available Models

TCC-100: RS-232 to RS-422/485 converter, -20 to 60°C operating temperature
TCC-100I: RS-232 to RS-422/485 converter with optical isolation, -20 to 60°C operating temperature
TCC-100-T: RS-232 to RS-422/485 converter, -40 to 85°C operating temperature
TCC-100I-T: RS-232 to RS-422/485 converter with optical isolation, -40 to 85°C operating temperature

Package Checklist

- 1 TCC-100/100I media converter
- Power wiring: CBL-PJTB-10
- Mounting kit: DK35A
- Quick installation guide (printed)
- Warranty card
- Rubber pad

TCC-80/80I Series

Port-powered RS-232 to RS-422/485 converters with optional 2.5 kV isolation

- External power source supported but not required
- Compact size
- Converts RS-422, and both 2-wire and 4-wire RS-485
- RS-485 automatic data direction control
- Automatic baudrate detection
- Built-in 120-ohm termination resistors
- 2.5 kV isolation (for TCC-80I only)
- LED port power indicator

USB Power | Port Power | Ext. Power | 2.5KV Isolation

RoHS | C UL US LISTED | CE | FC

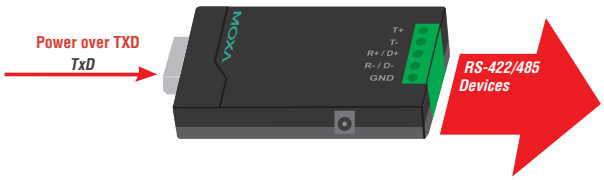
Introduction

The TCC-80/80I media converters provide complete signal conversion between RS-232 and RS-422/485, without requiring an external power source. The converters support both half-duplex 2-wire RS-485 and full-duplex 4-wire RS-422/485, either of which can be converted between RS-232's TxD and RxD lines. In addition, the TCC-80I is the world's first high-speed, port-powered converter with 2.5 kV isolation.

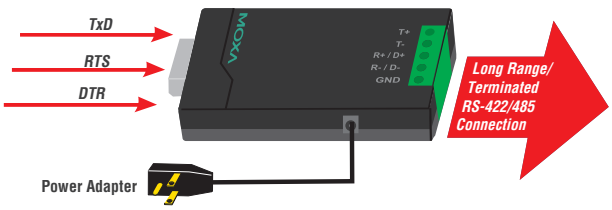
Automatic data direction control is provided for RS-485. In this case, the RS-485 driver is enabled automatically when the circuitry senses the TxD output from the RS-232 signal. This means that no programming effort is required to control the transmission direction of the RS-485 signal. Moreover, the TCC-80I's patented LED port power indicator lets you check whether or not the TCC-80I is receiving enough power.

Port Power over RS-232

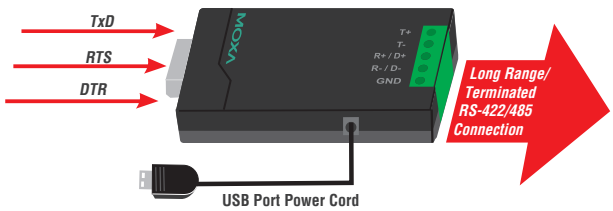
The RS-232 port of the TCC-80/80I is a DB9 female socket that can connect directly to the host PC, with power drawn from the TxD line. Regardless of whether the signal is high or low, the TCC-80/80I can obtain enough power from the data line. However, external power can be used if the handshake line is not available, if the serial cable is too long, or if the RS-232 device is a low-power device. For external power, a 5 to 12 VDC power supply can be connected using an adapter or a USB power cord.



External Power Adapter



USB Power

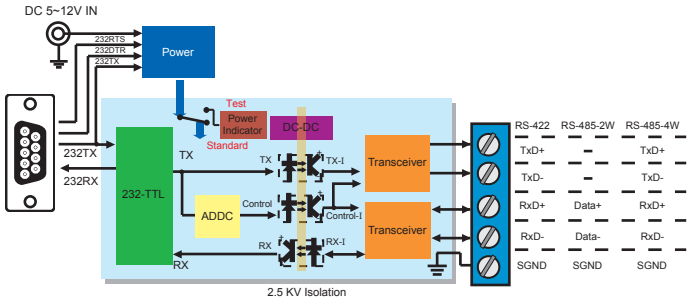


Port Power Dissipation

When installing a TCC-80 or TCC-80I converter, it is important to pay attention to power consumption, RS-232 cable length, and RS-422/485 transmission distance. In general, the TCC-80 and TCC-80I obtain 50 mW of power from the power source. Standard PC COM ports can provide 70 to 90 mW of power if the TxD, RTS, and DTR lines are connected. Moreover, the RS-232 cable should be shorter than 15 m (@ 9600 bps) to ensure that less power is lost from the host/device to the TCC-80. The remainder of the supplied power is used for transmitting the RS-422/485 signal.

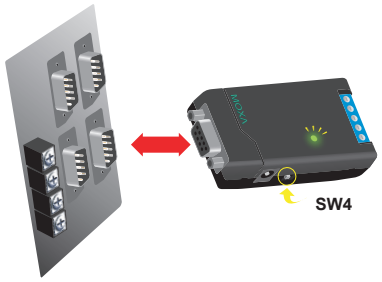
Port Power and Optical Isolation

The RS-232 port of the TCC-80/80I is a DB9 female socket that can connect directly to the host PC, with power drawn from the TxD line. Electrical 2.5 kV isolation for the TCC-80I is achieved with a photo coupler that transforms the electrical signal into light, and then re-transforms the light back into an electrical signal on the other side. In this way, the two electrical circuits are completely isolated from each other. This also protects the devices from ground loop currents, reduces damage caused by data loss, and prevents damage to the communication interfaces.



LED Port Power Indicator

It's easy enough to test the serial device with a multimeter to determine that the serial device will provide enough power to the media converter. However, it's even easier to let the TCC-80I test the device for you. Simply connect the TCC-80I to the device's RS-232 port and set the SW4 switch to Test mode. If the patented port power LED indicator lights up, the TCC-80I is receiving enough power. If the LED does not light up, you will need to attach an external power source to the TCC-80I.



Specifications

RS-232 Side

Connector: DB9 female
Signals:
RS-232: TxD, RxD, GND
(Loop-back wiring: RTS to CTS, DTR to DSR and DCD)

RS-422/485 Side

Connector: Terminal Block or DB9 male
Signals:
(interface selected by DIP switch)
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)

Serial Communication

Baudrate: 50 bps to 115.2 kbps
Optical Isolation: 2.5 kV rms for 1 minute (TCC-80I only)

Physical Characteristics

Housing: ABS + PC
Dimensions:
TCC-80/80I: 42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in)
TCC-80-DB9/80I-DB9: 42 x 91 x 23.6 mm (1.65 x 3.58 x 0.93 in)
Weight: 50 g (0.11 lb)

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Source of Input Power: RS-232 port (TxD, RTS, DTR) or power input jack
Input Voltage: 5 to 12 VDC
Input Current:
TCC-80: 10 mA @ 5 VDC (with termination disabled)
TCC-80I: 20 mA @ 5 VDC (with termination disabled)

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 1 kV
EN 61000-4-5 (Surge): Power: 1 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

Time: 2,781,161 hrs
Standard: Telcordia (Bellcore), GB

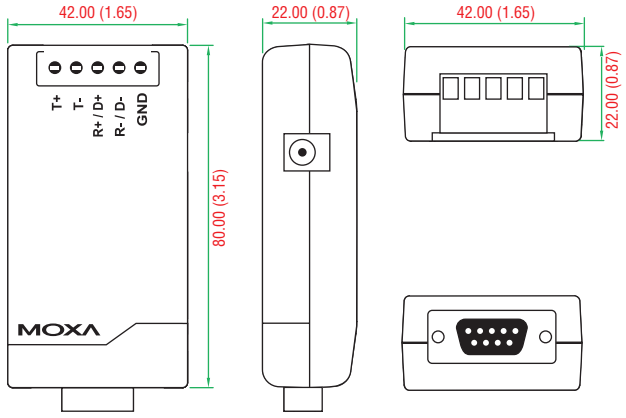
Warranty

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

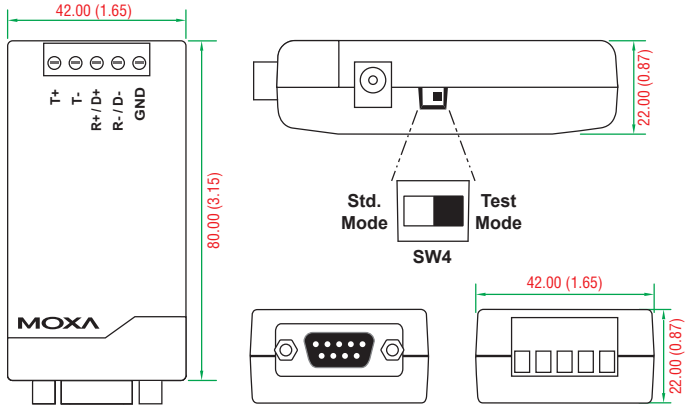
Dimensions

Unit: mm (inch)

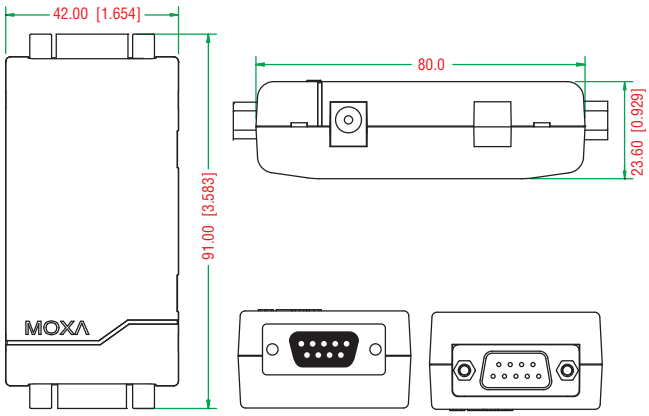
TCC-80



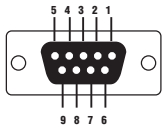
TCC-80I



TCC-80-DB9, TCC-80I-DB9



DB9 female connector

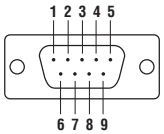


PIN	RS-232
1	DCD
2	TxD
3	RxD
4	DSR
5	GND
6	DTR
7	CTS
8	RTS

DIP Switch Settings

DIP Switch Settings			
RS-422 with Terminator	SW1	SW2	SW3
	OFF	OFF	ON
RS-422	SW1	SW2	SW3
	OFF	OFF	OFF
4-wire RS-485 with Terminator	SW1	SW2	SW3
	ON	OFF	ON
4-wire RS-485	SW1	SW2	SW3
	ON	OFF	OFF
2-wire RS-485 with Terminator	SW1	SW2	SW3
	ON	ON	ON
2-wire RS-485	SW1	SW2	SW3
	ON	ON	OFF

DB9 male RS-422/485 port



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

Ordering Information

Available Models

TCC-80: Port-powered RS-232 to RS-422/485 converter with terminal block on the RS-422/485 side
TCC-80-DB9: Port-powered RS-232 to RS-422/485 converter with DB9 male connector on the RS-422/485 side
TCC-80I: Port-powered RS-232 to RS-422/485 converter with terminal block on the RS-422/485 side, and 2.5 kV optical isolation
TCC-80I-DB9: Port-powered RS-232 to RS-422/485 converter with DB9 male connector on the RS-422/485 side, and 2.5 kV optical isolation

Optional Accessories (can be purchased separately)

CBL-F9M9-20: DB9 male to DB9 female RS-232 cable (20 cm)
Note: Additional power adapters can be purchased separately. See Appendix A for details.
Power Adapter: See Appendix A for details

Package Checklist

- 1 TCC-80 or TCC-80I media converter
- CBL-USBAP-50: USB A male, 2.1 mm DC jack cable, 50 cm
- Quick installation guide (printed)
- Warranty card

TCC-120/120I

Industrial RS-422/485 converters/repeaters with optional 2 kV isolation

- Boost serial signal to extend transmission distance
- Wall- or DIN-rail mounting
- Terminal block for easy wiring
- Power input from terminal block
- DIP switch setting for built-in terminator (120 ohm)
- Boost RS-422 or RS-485 signal, or convert RS-422 to RS-485
- 2 kV isolation protection (TCC-120I)

2 KV Isolation

Introduction

The TCC-120 and TCC-120I are RS-422/485 converters/repeaters designed to extend RS-422/485 transmission distance. Both products have a superior industrial-grade design that includes DIN-rail mounting, terminal block wiring, and an external terminal block for power. In addition, the TCC-120I supports optical isolation for system protection. The TCC-120 and TCC-120I are ideal RS-422/485 converters/repeaters for critical industrial environments.

Specifications

Serial Communication

Connectors: Terminal Block on both ends
Baudrate: 50 bps to 921.6 kbps
Signals:
RS-422/485-4w: TxD+, TxD-, RxD+, RxD-
RS-485-2w: Data+, Data-
RS-485 Data Direction Control: ADDC® (Automatic Data Direction Control)
Optical Isolation: 2 kV (TCC-120I only)

Physical Characteristics

Housing: Metal
Dimensions: 67 x 100.4 x 22 mm (2.64 x 3.93 x 0.87 in)
Weight: 148 g (0.33 lb)

Environmental Limits

Operating Temperature: -20 to 60°C (-4 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Source of Power Input: Power input jack
Input Voltage: 12 to 48 VDC
Input Current:
TCC-120: 65 mA @ 12 VDC
TCC-120I: 180 mA @ 12 VDC
Voltage Reversal Protection: Protects against V+/V- reversal
Overcurrent Protection: Protects against two signals shorted together

Standards and Certifications

Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 1 kV; Signal: 0.5 kV
EN 61000-4-5 (Surge): Power: 1 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)

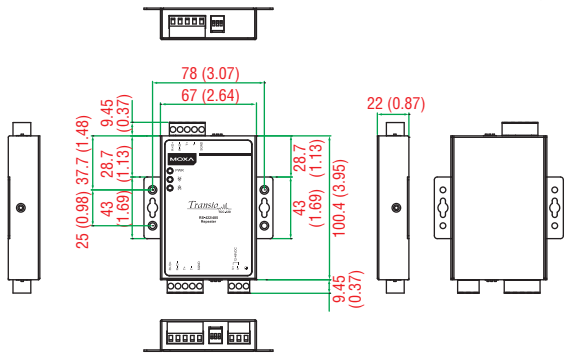
Time: 1,949,025 hrs
Standard: Telcordia (Bellcore), GB

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

TCC-120: RS-422/485 converter/repeater
TCC-120I: RS-422/485 converter/repeater with 2 kV optical isolation

Package Checklist

- 1 TCC-120 or TCC-120I media converter
- Power wiring: DBL-JTB-10
- Mounting kit: DK35A
- Quick installation guide (printed)
- Rubber pad

TCC-82

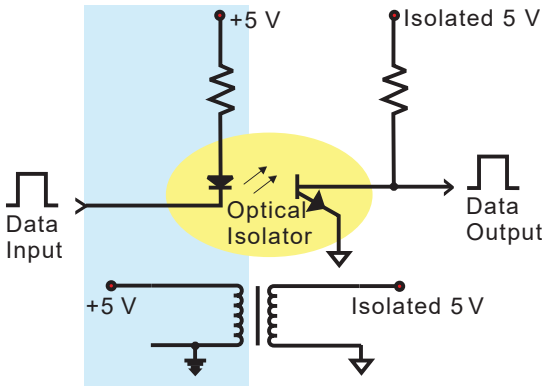
Port-powered RS-232 4-channel isolator

- 4 channels of 4 kV RMS isolation for 1 minute
- External power source supported but not required
- Automatic baudrate detection
- Compact size

USB Power | Port Power | Ext. Power | 4 KV Isolation

Introduction

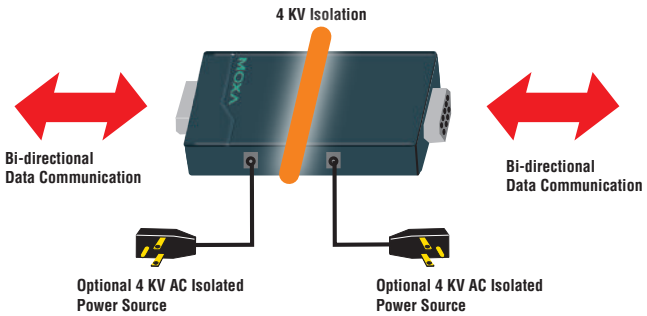
The TCC-82 provides full electrical isolation for bi-directional serial communication between two RS-232 devices in a compact, industrial-grade package. Both sides of an RS-232 connection are isolated optically to provide perfect protection against lightning surges, accidental high-voltage shorts, and ground loops. The built-in, wide range isolators are tested to ensure that they can withstand more than 4 kV rms input to output for 1 minute. This means that the TCC-82 not only meets the requirements of general serial data communications, but also the high standards required by industrial automation and medical applications. The TCC-82 protects the TxD and RxD data lines, and it also protects the RTS and CTS handshake lines for a total of 4 isolated channels to provide complete protection of your RS-232 applications.



External Power Source Not Required

The TCC-82 supports port-powered operation, which means that it can obtain power directly from the attached serial devices. Power is obtained from the RS-232 TxD, RTS, or DTR lines, regardless of whether the signal is high or low, eliminating the need for an external power supply. However, external power can be used if handshake lines are not available, if the serial cable is too long, or if the serial device is a low-power device. For external power, the TCC-82 can use a 5 to 12 VDC adapter or a USB power cord. Note that both sides of the connection are powered independently, so if necessary, one side can rely on port power and the other on an external power source.

When installing the TCC-82, we recommend that you connect all output signals. The TCC-82 obtains power from these signals even if they are not used by your system. Care should be taken when choosing the external power supply if your application requires the full 4 kV of isolation. Most commercial power supplies provide only 1500 VAC isolation between the primary and secondary windings. If you are using external power for both sides of the TCC-82, make sure that separate power sources are used, each with sufficient isolation protection.



Specifications

Serial Communication
Baudrate: 50 bps to 921.6 kbps
Optical Isolation: 4 kV for 1 minute

Serial Interface
Serial Standards:
RS-232: TxD, RxD, RTS, CTS, GND
(Loop-back wiring: DTR to DSR and DCD)
Connector: DB9 male and DB9 female

Physical Characteristics
Housing: ABS
Dimensions: 42 x 80 x 23.6 mm (1.65 x 3.15 x 0.93 in)
Weight: 60 g (0.13 lb)

Environmental Limits
Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements
Source of Input Power: RS-232 port (TxD, RTS, DTR) or power input jack
Input Voltage: 5 to 12 VDC
Input Current: 20 mA @ 5 VDC

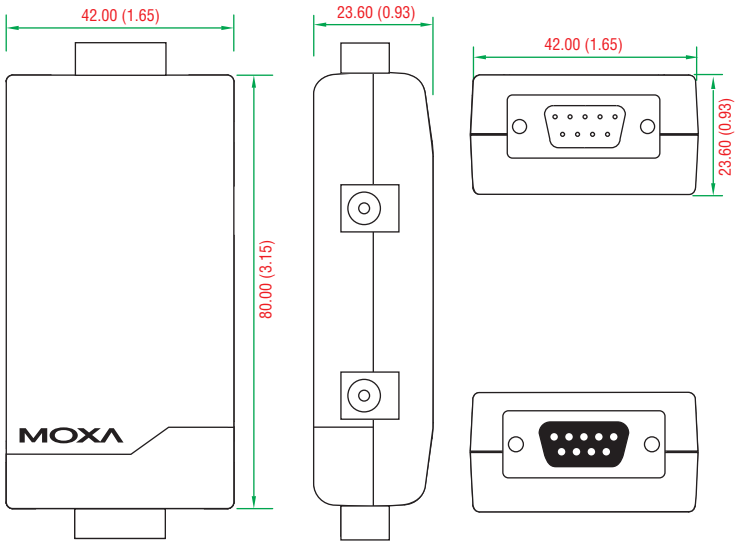
Standards and Certifications
Safety: UL 60950-1
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class B
EMS:
EN 61000-4-2 (ESD): Contact: 4 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 0.5 kV
EN 61000-4-5 (Surge): Power: 1 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE

MTBF (mean time between failures)
Time: 959,780 hrs
Standard: MIL-HDBK-217F

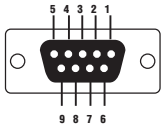
Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

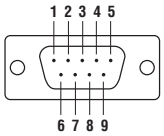


DB9 female connector



PIN	RS-232
1	DCD
2	TxD
3	RxD
4	DSR
5	GND
6	DTR
7	CTS
8	RTS

DB9 male connector



PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

Ordering Information

Available Models
TCC-82: Port-powered RS-232 isolator with 4 kV isolation

Optional Accessories (can be purchased separately)
CBL-F9M9-20: DB9 male to DB9 female RS-232 cable (20 cm)
Note: Additional power adapters can be purchased separately. See Appendix A for details.
Power Adapter: See Appendix A for details

Package Checklist
- 1 TCC-82 RS-232 isolator
- CBL-USBAP-50: USB A male, 2.1 mm DC jack cable, 50 cm
- Quick installation guide (printed)
- Warranty card

ISD-1100-T/1200-T Series

Data line surge protectors

- Plug and play
- Surge protection for serial data lines
  - ISD-1110-T/1130-T: EN 61000-4-5 Level 4
  - ISD-1210-T/1230-T: IEC 61632-21 C2 (20 kV protection)
- Supports RS-232 or RS-422/485
- Compact size for easy installation
- Wide temperature model available for -40 to 85°C environments

Introduction

The ISD-1100-T/1200-T series provides surge protection for serial data lines to prevent damage to devices such as modems, fax machines, I/O ports, terminals, instrumentation, hubs, and any other devices that use serial data connections. The ISD-1100-T/1200-T can add serial data line protection to a variety of serial connections: RS-232, RS-422, and RS-485.

Specifications

Data Line Surge Protection

Maximum Power Protection:
ISD-1110-T/1130-T: 400 watts
ISD-1210-T/1230-T: 5000 watts
Number of Protected Lines:
ISD-1110-T: 7
ISD-1130-T/1210-T/1230-T: 4
Surge Capacity:
ISD-1110-T/1130-T: 4 kV, 8/20 μs impulse per line
ISD-1210-T/1230-T: 20 kV, 8/20 μs impulse per line
Working Voltage:
ISD-1110-T/1210-T: 15 V
ISD-1130-T/1230-T: 5 V
Maximum Load Current:
ISD-1110-T: 0.1 A (23°C), 0.05 A (85°C)
ISD-1130-T: 0.12 A (23°C), 0.07 A (85°C)
ISD-1210-T/1230-T: 0.4 A (20°C), 0.13 A (85°C)
Response Time: < 1 ns
Protection Mode: Line to line, line to ground
Protection Rating: IP30
Bandwidth: 10 MHz loss < 1 dB

Connectors

ISD-1110-T:
Data in: DB9 male
Data out: DB9 female
ISD-1130-T:
Data in: Terminal block
Data out: Terminal block
ISD-1210-T/1230-T:
Data in: Terminal block
Data out: Terminal block

Physical Characteristics

Housing:
ISD-1110-T/1130-T: Plastic
ISD-1210-T/1230-T: Metal
Dimensions:
ISD-1110-T: 53 x 37 x 20.6 mm (2.01 x 1.46 x 0.81 in)
ISD-1130-T: 53 x 37 x 20.6 mm (2.01 x 1.46 x 0.81 in)
ISD-1210-T: 95 x 53 x 25 mm (3.74 x 2.01 x 0.98 in)
ISD-1230-T: 95 x 53 x 25 mm (3.74 x 2.01 x 0.98 in)
Weight:
Product only
ISD-1110-T: 58 g (0.13 lb)
ISD-1130-T: 30 g (0.07 lb)
ISD-1210-T: 214 g (0.47 lb)
ISD-1230-T: 212 g (0.46 lb)
Packaged
ISD-1110-T: 119 g (0.26 lb)
ISD-1130-T: 96 g (0.21 lb)
ISD-1210-T: 276 g (0.61 lb)
ISD-1230-T: 274 g (0.60 lb)

Environmental Limits

Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes.
Operating Temperature: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 95% max, non-condensing

Standards and Certifications

EMS:
ISD-1110-T/1130-T: EN 61000-4-5 (Surge): Signal: 4 kV
ISD-1210-T/1230-T: IEC 61643-21 C2 (20 kV 1.2/50, 10 kA 8/20)

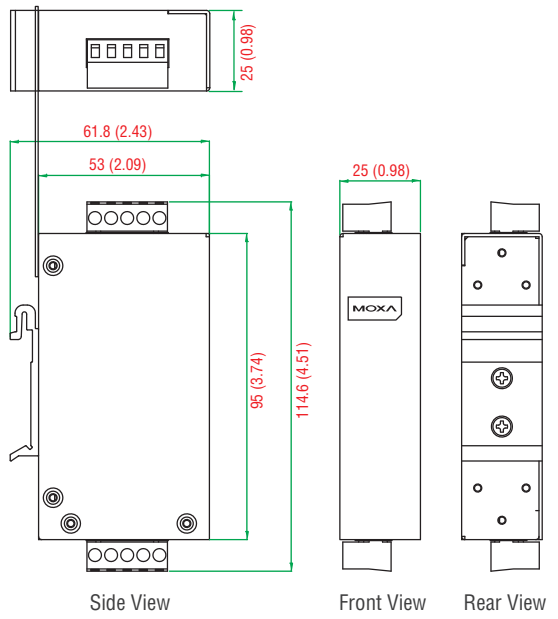
Warranty and RMA Policy

Warranty Period: 5 years (limited to 1-time use)
Warranty Details: See www.moxa.com/warranty
Note: ISD products will only be repaired once within 5 years of purchase. After the first repair, the product's warranty will no longer be valid.
RMA Policy: Moxa does not provide RMA service for ISD products whose PCB board was destroyed by a surge.
Note: Be sure to purchase the ISD product with maximum surge protection suitable for your environment.

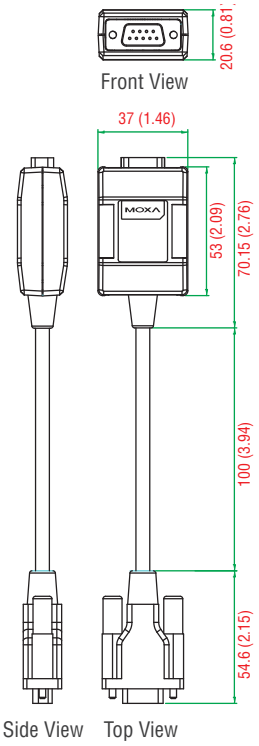
Dimensions

Unit: mm (inch)

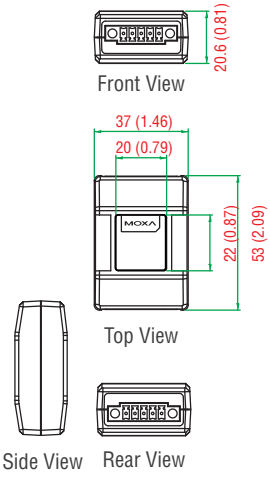
ISD-1210-T/ISD-1230-T



ISD-1110-T



ISD-1130-T



Ordering Information

Available Models

ISD-1110-T: 7 data line entry surge protector, RS-232, 4 kV surge protection, -40 to 85°C operating temperature

ISD-1130-T: 4 data line entry surge protector, RS-422/485, 4 kV surge protection, -40 to 85°C operating temperature

ISD-1210-T: 4 data line advanced surge protector, RS-232, 20 kV surge protection, -40 to 85°C operating temperature

ISD-1230-T: 4 data line advanced surge protector, RS-422/485, 20 kV surge protection, -40 to 85°C operating temperature

Package Checklist

- 1 surge protector
- Hardware installation guide (printed)
- Warranty card

Introduction to CAN-to-Fiber Media Converters

Introduction to CAN

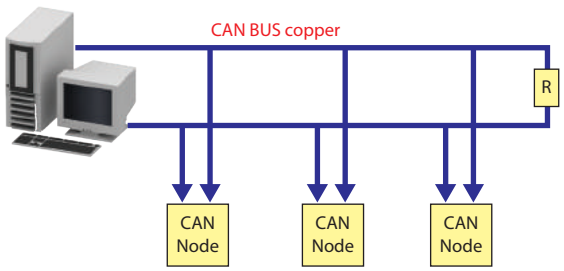
CAN is a serial communications bus defined by the International Standardization Organization (ISO). The CAN serial bus was introduced in 1986 as the "Automotive Serial Controller Area Network," a multimaster message broadcast system that specifies a maximum signaling rate of 1 Mbps. It was soon discovered that CANbus worked extremely well for many other applications, including weaving machines, elevator systems in large buildings, ships, trains, aircraft, X-ray machines and other medical equipment, logging equipment, tractors and combines, coffee makers, and major appliances. CAN systems are extremely versatile. Technicians find it easy to repair or replace computer hardware in a CAN system without affecting the rest of the network in any way, and design engineers can easily modify existing CAN systems for other uses by adding or remove network nodes.

Why CAN-to-Fiber Media Converters?

Many applications require connecting large numbers of CAN devices in a complex environment. However, since there is a limit to the driving capability of CANbus, users may not be able to set up as many CAN devices as they would like. In addition, variations in the allowed segment lengths, which result from the fact that different types of wire are used, pose additional limitations. Note that device numbers and segment lengths are dictated by the ISO 11898-2 standard.

CAN converters are used to get around the limitation on the number of CAN devices and the upper limit of segment lengths. Most installers use optical fiber to extend to longer transmission distances since the fiber will not corrupt the CANbus signal. CAN-to-fiber converters not only can solve the problem of extending transmission distance, but will also guarantee more secure data transmission and will not limit the number of CAN devices that can be used. The ICF-1170I is a CAN-to-fiber converter that secures data transmission by using fiber optic transmission to provide complete isolation and protection against EMI. The ICF-1170I series can separate and protect critical segments of the system from the rest of the CAN network and is protocol-independent, allowing it to work with all of the different CAN protocols and frame lengths.

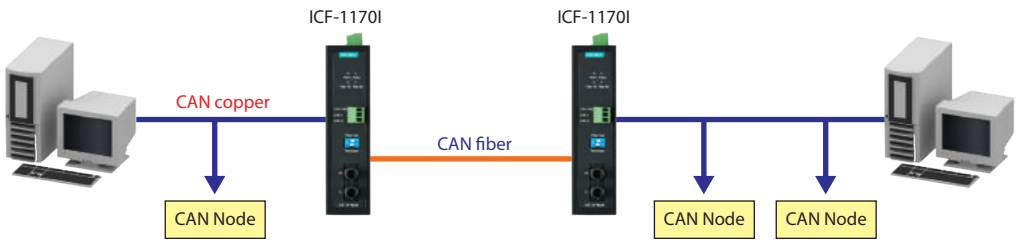
Typical Installation



Overview of the ICF-1170I CAN-to-Fiber Converter

The ICF-1170I series CAN-to-fiber converters provide secures data transmission by using fiber-optic transmission to provide complete isolation and protection against EMI. The ICF-1170I series can separate and protect critical segments of the system from the rest of the CAN network and is protocol-independent, allowing it to work with all of the different CAN protocols and frame lengths.

Typical CAN application that uses a CAN-to-fiber converter



Special Features

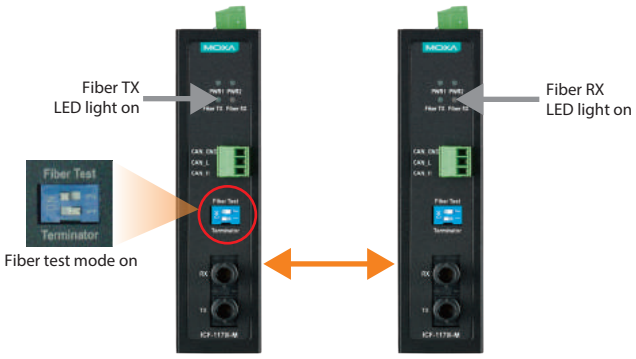
Fiber Test Mode

The ICF-1170I supports a special feature called Fiber Test Mode, which is easily activated with a DIP switch on the ICF-1170I's outer panel. Fiber Test Mode can be used to test the fiber cable between two ICF-1170I units and provides a simple way to determine if the fiber cable is transmitting data correctly.

When in Fiber Test Mode, the fiber transceiver (TX) will continuously send out a data signal and the "Fiber TX" LED will light up. On the other side of the connection, when the ICF-1170I fiber transceiver (RX) receives the data signal from the TX side, the "Fiber RX" LED will light up.

If both the "Fiber TX" and "Fiber RX" LEDs light up at the same time, it means the fiber transmission between the two converters is okay, and the fiber cable is connected properly. If the test fails, you should check the fiber cable and fiber connectors to determine the cause of the transmission error.

Fiber-optic communication is working properly when both the TX and RX LEDs light up.



Redundant Power

To help ensure that your system works nonstop, the ICF-1170I CAN-to-fiber converter comes with a built-in redundant power input that is activated automatically when the primary power input fails. In addition, an alarm contact will be activated when the redundant power input is activated.

Isolation Protection

A special feature of the ICF-1170I CAN-to-fiber converter is its 2 kV isolation protection to protect the converter in environments with high electromagnet activity.

ICF-1170I Series

Industrial CAN-to-fiber converters

- Transmits up to 2 km over optical fiber
- Converts CAN signals to fiber and fiber to CAN signals
- Baudrate up to 1 Mbps
- Dual power inputs for redundancy
- DIP switch for 120 ohm terminal resistance
- DIP switch for fiber test mode
- LEDs for Fiber TX, Fiber RX, Power 1, Power 2
- Wide temperature model available for -40 to 85°C environments
- Fully compatible with the ISO 11898 standard

15 KV ESD

Introduction

The ICF-1170I series CAN-to-fiber converters are used to convert CAN signals from copper to optical fiber. The converters come with 2 kV optical isolation for the CANbus system and dual power inputs with alarm contact relay to ensure that your CANbus system will remain online.

Fiber Test Mode

Fiber Test Mode can be used to test the fiber cable between two ICF-1170I units, and it provides a simple way to determine if the fiber cable is transmitting data correctly. When in Fiber Test Mode, the fiber transceiver (TX) will continuously send out a data signal and the "Fiber TX" LED will light up. On the other side of the connection, when the ICF-1170I fiber transceiver (RX) receives the data signal from the TX side, the "Fiber RX" LED will light up.

Specifications

CAN Communication

CAN Interface: ISO 11898-2, Terminals (CAN_H, CAN_L,CAN_GND)
Protocols: CAN 2.0A and 2.0B (ISO 11898-2)
Connector Type: 3-pin removable screw terminal x1
Termination Resistor: Dip switch selector for 120 Ω terminal resistor
Transfer Rate: Up to 1 Mbps
System Delay: 150 ns
Isolation Protection: 2 kV
Transmission Distance: Max 2 km (depends on the data rate and the protocol used)
Note: The transmission distance is limited by the signal rate, as indicated in the ISO 11898-2 standard.
LED Indicators: PWR1, PWR2, Fiber TX, Fiber RX

Fiber Communication

Connector Type: ST (multi-mode) fiber ports
Fiber Cable Requirements:

Low-Speed Fiber Module		Multi-Mode
Fiber Cable Requirements		50/125 µm, 800 MHz
		62.5/125 µm, 500 MHz
Typical Distance		5 km
Wave-length	Typical (nm)	850
	TX Range (nm)	840 to 860
	RX Range (nm)	800 to 900
Optical Power	TX Range (dBm)	0 to -5
	RX Range (dBm)	0 to -20
	Link Budget (dB)	15
	Dispersion Penalty (dB)	1

Physical Characteristics

Housing: Metal
Dimensions: 30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)
Weight: 178 g (0.39 lb)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC dual power for redundant power
Input Current:
ICF-1170I: 221 mA @ 12 VDC
Alarm Contact: 1 relay output with current-carrying capacity of 1 A @ 24 VDC
Voltage Reversal Protection: Protects against V+/V- reversal
Overcurrent Protection: 1.1 A (protects against two signals shorted together)

Standards and Certifications

Safety: UL 508
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
EN 61000-4-2 (ESD): Contact: 8 kV; Air: 15 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m
EN 61000-4-4 (EFT): Power: 4 kV; Signal: 2 kV
EN 61000-4-5 (Surge): Power: 2 kV; Signal: 1 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE
Freefall: IEC 60068-2-32

MTBF (mean time between failures)

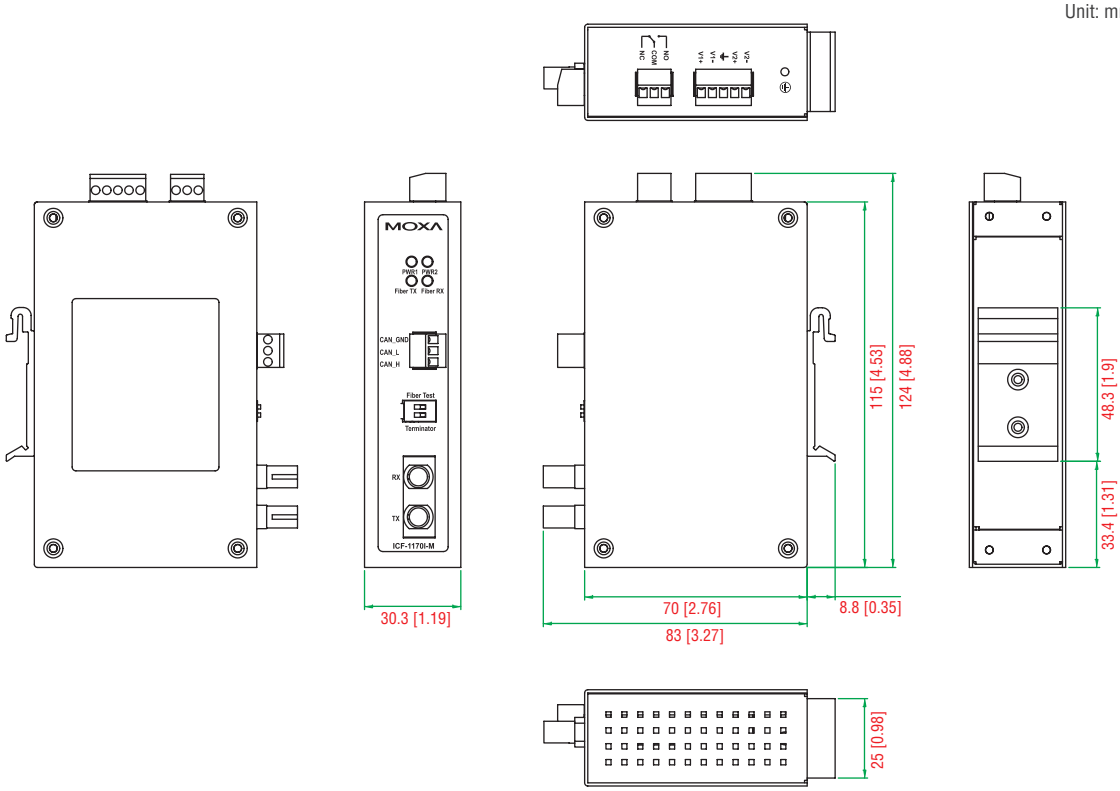
Time: 792,085 hrs
Standard: Telcordia (Bellcore), GB

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

ICF-1170I-M-ST: CAN-to-fiber converter, multi-mode, ST connector, 0 to 60°C
ICF-1170I-M-ST-T: CAN-to-fiber converter, multi-mode, ST connector, -40 to 85°C

Package Checklist

- 1 ICF-1170I CAN-to-fiber converter
- Quick installation guide (printed)
- Warranty card

ICF-1180I/1280I Series

Industrial PROFIBUS-to-fiber converters with redundant fiber ring

- Redundant fiber ring with zero recovery time
- Examine network-wide fiber communication from a single converter
- Auto baudrate detection and data speed up to 12 Mbps
- PROFIBUS Bus Fail prevents corrupted datagram in functioning segment
- Alarm by relay output
- 2 kV galvanic isolation protection
- Dual-power inputs for redundancy
- Extends PROFIBUS transmission distance up to 45 km
- Wide temperature range model available for -40 to 75°C environments
- Supports Fiber Signal Intensity Diagnosis
- Fiber inverse feature (ICF-1180I)
- Fiber cable test function validates fiber communication

Fiber Ring

Overview

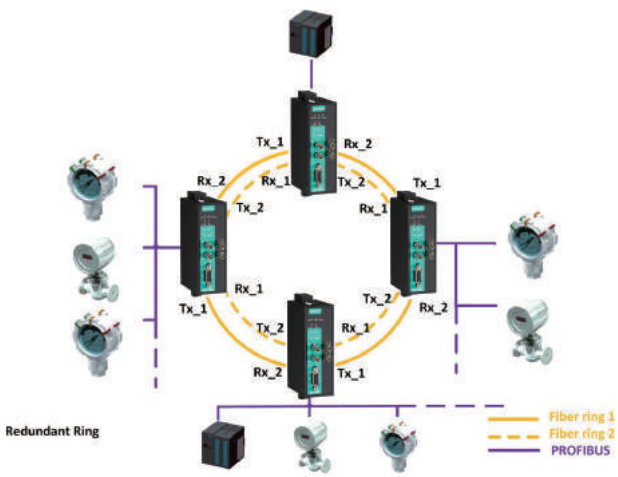
The ICF-1180I/1280I series industrial PROFIBUS-to-fiber converters are used to convert PROFIBUS signals from copper to optical fiber. The converters are used to extend serial transmission up to 4 km (multi-mode fiber) or up to 45 km (single-mode fiber). The ICF-1180I/1280I provides 2 kV isolation protection for the PROFIBUS system and dual-power inputs to ensure that your PROFIBUS device will perform uninterrupted.

Remote Fiber Diagnosis

Optical-fiber cables are often deployed for long distance communication, and a fiber optic inspection pen is used by engineers to ensure proper communication quality of the fiber cable. The ICF-1180I/1280I series converters eliminate the need for a fiber-optic inspection pen by providing a Remote Fiber Diagnosis function that uses DIP switch adjustments. There are two major functions provided by Remote Fiber Diagnosis: (1) determining which side (Tx or Rx) is causing the problem on the converter; (2) examining the fiber connections for the overall topology from any individual converter. Fiber cable abnormalities can be automatically detected and identified by the LED indicator even if it is not adjacent to the converter. Remote Fiber Diagnosis facilitates fiber cable deployment and management, and also significantly shortens troubleshooting time by examining fiber connections for the overall topology from any individual converter.

Redundant Ring

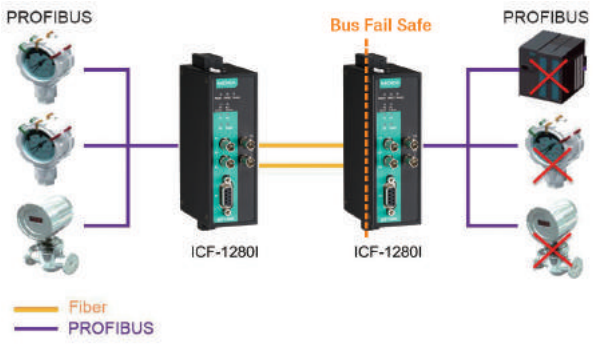
The ICF-1280I series converters can connect PROFIBUS devices in a redundant fiber ring topology. Use the DIP switch to configure all the ICF- 1280I converters to Redundant Ring mode. When a PROFIBUS master transmits a signal from one converter to the PROFIBUS slave devices, this signal will travel to all the converters around the ring until it returns to the original converter and terminate. The redundant ring structure ensures no packet loss with zero recovery time.



Redundant Ring

PROFIBUS Fail Safe

Electrical noise may be generated when a PROFIBUS device malfunctions or the serial interface fails, resulting in bus failure. Traditional media converters transmit noise signals through the fiber wire to the other converter. This not only disrupts data communication between the two buses, but will also bring communication across the entire system to a halt. When this occurs, the engineers will not be able to easily locate the failed device because the entire PROFIBUS network is down. To avoid this situation, the ICF-1180I/1280I series converter has a mechanism to detect and recognize noise signals. If the bus fails on one side, the noise signal will not propagate through the ICF-1180I/1280I converter and affect additional bus segments. In addition, the ICF-1280I converter will also trigger an alarm to provide the location of the failure to the field engineer.



Auto/Manual Baudrate Settings

The ICF-1180I/1280I series converters simply convert the signal back and forth between PROFIBUS and fiber at baudrates between 9.6 Kbps to 12 Mbps. Engineers do not need to know the baudrate of the connected PROFIBUS device; the ICF-1180I/1280I series converters can automatically detect the baudrate of the PROFIBUS device and apply this baudrate directly. This is an extremely convenient feature. If necessary, baudrates can be set to a fixed value via DIP switches to shorten the baudrate detection period when the system initializes.

Fiber Link Monitor

The ICF-1180I/1280I series converter provides a fiber link monitoring function to detect the communication errors on both sides of the fiber connection and determine which side (Tx or Rx) is causing the problem. When a communication error occurs, a red LED status indicator will turn on and the relay alarm will activate.

If a fiber abnormality occurs in a remote fiber segment, the Fault LED will flash to indicate the abnormality is happening in the remote segment. Engineers can use the fiber test function for troubleshooting.

Fiber Signal Intensity Diagnosis

In some circumstances, you may need to measure the receive level of the fiber-optic port with a voltmeter, which can be connected while the device is operating (doing so will not affect data transmission). The measurement can be taken with a voltmeter and read on a PLC that uses floating high-impedance analog inputs, which allows you to do the following:

1. Record the incoming optical power for later measurement (e.g., to indicate aging or damage).
2. Carry out a good/bad test (limit value).

Specifications

Technology

Standards: IEC 61158-2 for PROFIBUS DP

Interface

P1/P2/P3 Ports:
ICF-1180I:
P1 port: ST optical fiber
P2 port: PROFIBUS DP (DB9 female)
ICF-1280I:
P1/P2 ports: ST optical fiber
P3 port: PROFIBUS DP (DB9 female)
Relay Alarm: One relay output with current-carrying capacity of 2 A @ 30 VDC (Normal open)
LED Indicators: PWR1, PWR2, Ready, P1, P2, P3, Fault
DIP Switches:
DIPs 1 to 4: Baudrate setting
DIP 5: Fiber link monitor
ICF-1180I:
DIP 6: Fiber Inverse function
DIP 7: Reserved
DIP 8: Remote Fiber Diagnosis
ICF-1280I:
DIPs 6 to 7: Linear/Star mode (w/ optional P1/P2 disabled), Redundant Ring mode
DIP 8: Remote Fiber Diagnosis

PROFIBUS Communication

Data Rate: 9.6, 19.2, 45.45, 93.75, 187.5, 500, 1500, 3000, 6000, and 12000 Kbps
Auto Baudrate: Yes
Isolation Protection: 2 kV

Optical-Fiber Side

Point-to-Point, Linear (Bus), Star, Redundant Topologies:

Low-Speed Fiber Module		Multi-Mode
Fiber Cable Requirements		50/125 µm, 800 MHz
		62.5/125 µm, 500 MHz
Typical Distance		5 km
Wave-length	Typical (nm)	850
	TX Range (nm)	840 to 860
	RX Range (nm)	800 to 900
Optical Power	TX Range (dBm)	0 to -5
	RX Range (dBm)	0 to -20
	Link Budget (dB)	15
	Dispersion Penalty (dB)	1

Physical Characteristics

Housing: Metal
Mounting: DIN rail, wall (with optional kit)
Dimensions:
ICF-1180I: 30.3 x 115 x 70 mm (1.19 x 4.53 x 2.76 in)
ICF-1280I: 39 x 115 x 70 mm (1.54 x 4.53 x 2.76 in)
Weight:
ICF-1180I: 180 g (0.39 lb)
ICF-1280I: 225 g (0.49 lb)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 60°C (32 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
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:
ICF-1180I: 221 mA @ 12 VDC
ICF-1280I: 315 mA @ 12 VDC
Connector: Terminal Block
Power Line Protection: Level 3 (2 kV) Surge Protection
Overcurrent Protection: 1.1 A

Standards and Certifications

Safety: UL 508
Hazardous Location: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2 EEx nC IIC, IECEx
EMC: EN 55022/24
EMI: CISPR 22, FCC Part 15B Class A
EMS:
EN 61000-4-2 (ESD): Contact: 6 kV; Air: 8 kV
EN 61000-4-3 (RS): 80 MHz to 1 GHz: 10 V/m
EN 61000-4-4 (EFT): Power: 2 kV; Signal: 2 kV
EN 61000-4-5 (Surge): Power: 2 kV; Signal: 2 kV
EN 61000-4-6 (CS): 150 kHz to 80 MHz: 10 V/m
EN 61000-4-8 (PFMF)
Green Product: RoHS, CRoHS, WEEE
Freefall: IEC 60068-2-32

MTBF (mean time between failures)

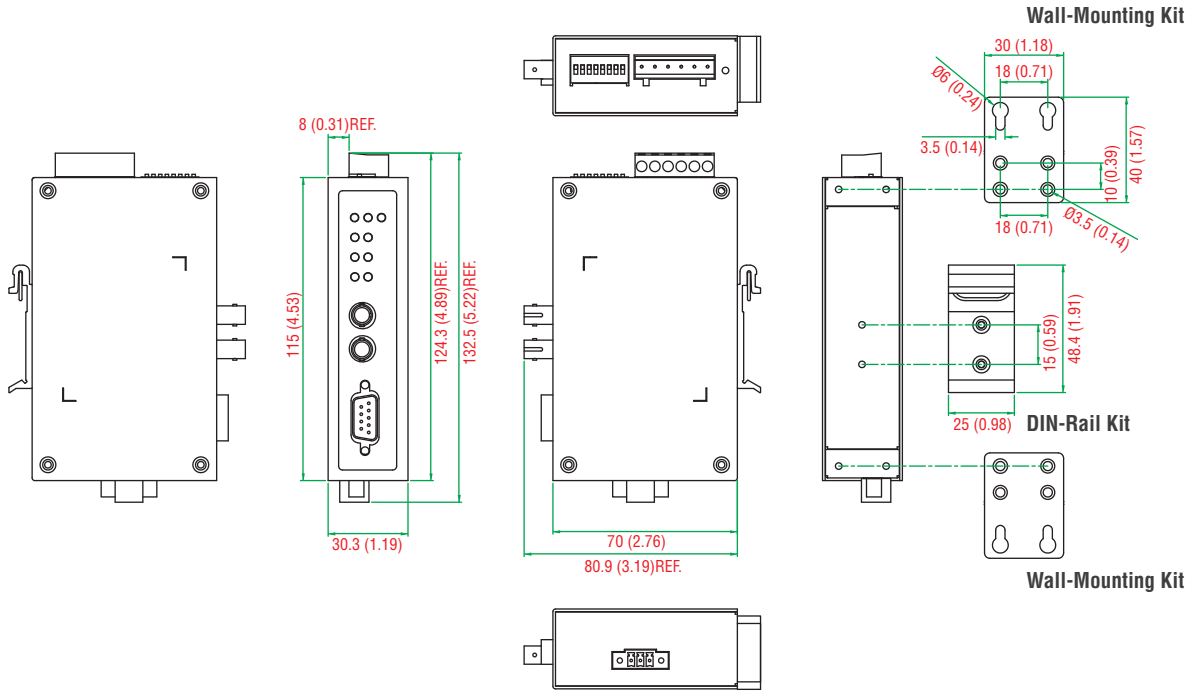
Time:
ICF-1180I: 1,870,854 hrs
ICF-1280I: 1,567,875 hrs
Standard: Telcordia (Bellcore), GB

Warranty

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

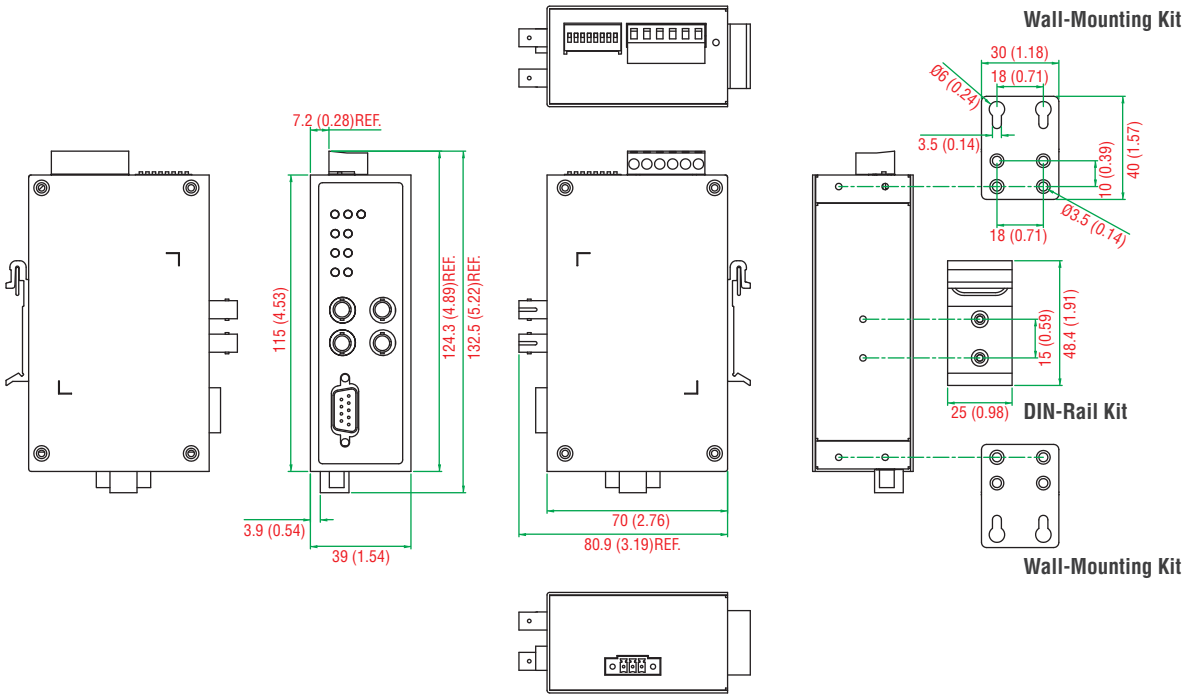
ICF-1180I Dimensions

Unit: mm (inch)



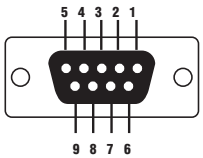
ICF-1280I Dimensions

Unit: mm (inch)



Pin Assignment

PROFIBUS Connector (DB9 Female)



PIN	Signal Name
1	N–C
2	N–C
3	Profibus D+
4	RTS
5	Signal common
6	5 V
7	N–C
8	Profibus D-
9	N–C

Ordering Information

Available Models

ICF-1180I-M-ST: PROFIBUS to fiber converter, multi-mode, ST connector, 0 to 60°C
ICF-1180I-S-ST: PROFIBUS to fiber converter, single-mode, ST connector, 0 to 60°C
ICF-1180I-M-ST-T: PROFIBUS to fiber converter, multi-mode, ST connector, -40 to 75°C
ICF-1180I-S-ST-T: PROFIBUS to fiber converter, single-mode, ST connector, -40 to 75°C
ICF-1280I-M-ST: PROFIBUS to fiber converter, multi-mode, 2 ST connector, 0 to 60°C
ICF-1280I-S-ST: PROFIBUS to fiber converter, single-mode, 2 ST connector, 0 to 60°C
ICF-1280I-M-ST-T: PROFIBUS to fiber converter, multi-mode, 2 ST connector, -40 to 75°C
ICF-1280I-S-ST-T: PROFIBUS to fiber converter, single-mode, 2 ST connector, -40 to 75°C

Package Checklist

- ICF-1180I/1280I series PROFIBUS-to-fiber converter
- Hardware installation guide (printed)
- Warranty card

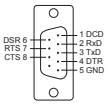
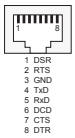
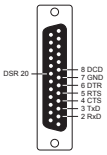
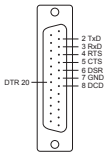
Accessories

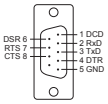
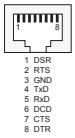
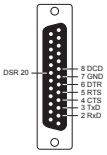
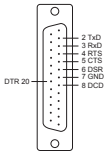
Serial Connection Options

Serial Board Connection Box/Cable Usage Chart

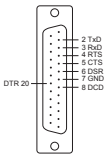
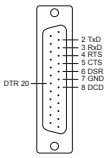
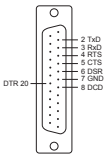
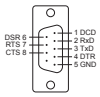
Serial Board Model Name	Connection Boxes						Connection Cables													
	8-port						8-port						4-port						2-port	
	OPT8-M9	OPT8-RJ45	OPT8A/B/S	OPT8-M9+	OPT8A+/B+/S+	OPT8-RJ45+	CBL-M68M25x8-100 (OPT8C+)	CBL-M68M9x8-100 (OPT8D+)	CBL-M62M25x8-100 (OPT8C)	CBL-M62M9x8-100 (OPT8D)	CBL-M78M25x8-100	CBL-M78M9x8-100	CBL-M44M9x4-50	CBL-M44M9x4-50(POS)	CBL-M44M25x4-50	CBL-M37M9x4-30 (OPT4C)	CBL-M37M9x4-30 (OPT4D)	CBL-F40M25x4-50	CBL-M25M9x2-50	CBL-F20M25x2-50
C218Turbo Series	✓	✓	✓	–	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–	–	–
C104H Series	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	–	–	–
CI-134 Series	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	–	–	–
CP-118U	✓	✓	✓	–	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–	–	–
CP-138U	✓	✓	✓	–	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–	–	–
CP-168U	✓	✓	✓	–	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–	–	–
C168H Series	✓	✓	✓	–	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–	–	–
CP-104UL	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–
CP-134U Series	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–
CP-114UL	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–
CP-114UL-I	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–
CP-104EL-A	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–
CP-114EL	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–
CP-114EL-I	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–
CP-112UL	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–
CP-112UL-I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–
CP-132UL Series	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–
CP-102UL	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–
CP-102EL	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–
CP-132EL	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–
CP-132EL-I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–
CP-118EL-A	–	–	–	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–	–	–	–
CP-168EL-A	–	–	–	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–	–	–	–
CP-118U-I	–	–	–	–	–	–	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–
CP-138U-I	–	–	–	–	–	–	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–
POS-104UL	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–	–	–	–	–
CA-108	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–
CB-108	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–
CA-114	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–
CB-114	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–
CA-134I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–
CB-134I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–
CA-104	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–
CA-132	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓
CA-132I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓

8-port RS-232 Connection Boxes

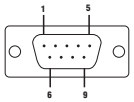
Model Name	OPT8-M9	OPT8-RJ45	OPT8A/S	OPT8B
Accessories Image				
Pin Assignment				
Board-Side Connector	DB62 male x 1			
Device-Side Connector	DB9 male x 8	8-pin RJ45 x 8	DB25 female x 8	DB25 male x 8
LEDs	TxD, RxD indicators for each device-side port	–	TxD, RxD indicators for each device-side port	
Baudrate	–	–	50 bps to 921.6 kbps	
Dimensions	90 x 111 x 27.5 mm (3.5 x 4.3 x 1 in)	152.8 x 32.8 x 32 mm (6 x 1.29 x 1.25 in)	247 x 108 x 35 mm (9.7 x 4.3 x 1.4 in)	
Protection	–	–	25 kV ESD, 2 kV EFT surge protection (OPT8S only)	–
Connnection Cable	DB62 male to DB62 female 150 cm connection cable for connecting to the serial board	–	DB62 male to DB62 male 150 cm connection cable for connecting to the serial board	
Related Products	See page A-2 for details			

Model Name	OPT8-M9+	OPT8-RJ45+	OPT8A+/S+	OPT8B+
Accessories Image				
Pin Assignment				
Board-Side Connector	VHDCI 68 x 1			
Device-Side Connector	DB9 male x 8	8-pin RJ45 x 8	DB25 female x 8	DB25 male x 8
LEDs	TxD, RxD indicators for each device-side port	–	TxD, RxD indicators for each device-side port	
Baudrate	–	–	50 bps to 921.6 kbps	
Dimensions	90 x 111 x 27.5 mm (3.5 x 4.3 x 1 in)	152.8 x 32.8 x 32 mm (6 x 1.29 x 1.25 in)	247 x 108 x 35 mm (9.7 x 4.3 x 1.4 in)	
Protection	–	–	25 kV ESD, 2 kV EFT surge protection (OPT8S only)	–
Connnection Cable	DB68 male to DB62 female 150 cm connection cable for connecting to the serial board	–	DB68 male to DB62 male 150 cm connection cable for the connecting to the serial board	
Related Products	See page A-2 for details			

8-port RS-232 Connection Cables

Model Name	CBL-M62M25x8-100 (OPT8C)	CBL-M62M9x8-100 (OPT8D)	CBL-M68M25x8-100 (OPT8C+)	CBL-M68M9x8-100 (OPT8D+)	CBL-M78M25x8-100	CBL-M78M9x8-100
Accessories Image						
Pin Assignment						
Board-Side Connector	DB62 male x 1		VHDCI 68 x 1		DB78 male x 1	
Device-Side Connector	DB25 male x 8	DB9 male x 8	DB25 male x 8	DB9 male x 8	DB25 male x 8	DB9 male x 8
Cable Length	100 cm (39.37 in)					
Related Products	See page A-2 for details					

2-port Connection Cables

Model Name	CBL-M25M9x2-50
Accessories Image	
Pin Assignment	
Description	DB25 male to DB9 male x 2
Cable Length	50 cm (19.69 in)
Related Products	See page A-2 for details

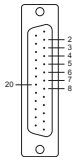
PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

4-port Connection Cables

Model Name	CBL-M44M9x4-50	CBL-M44M25x4-50
Accessories Image		
Description	DB44 male to DB9 male x4	DB44 male to DB25 male x4
Cable Length	50 cm (19.69 in)	
Related Products	See page A-2 for details	

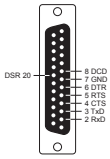
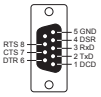
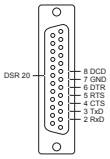
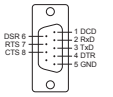
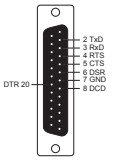
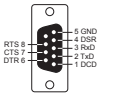
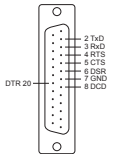
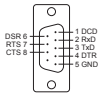
Pin Assignment

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD-(A)	TxD-(A)	–
2	RxD	TxD+(B)	TxD+(B)	–
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data-(A)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
9	–	–	–	–

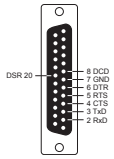
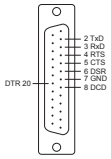
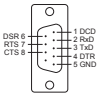
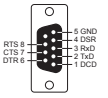


PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	TxD+(B)	–
4	RTS	–	–	–
5	CTS	–	–	–
6	DSR	–	–	–
7	GND	GND	GND	GND
8	DCD	TxD-(A)	TxD-(A)	–
20	DTR	RxD-(A)	RxD-(A)	Data-(A)
22	–	–	–	–

8-pin RJ45 to DB9/DB25 Connection Cables

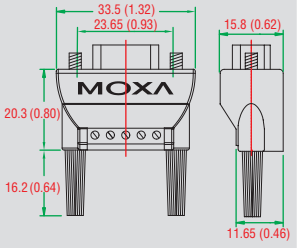
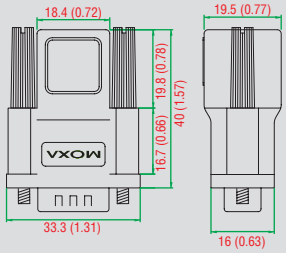
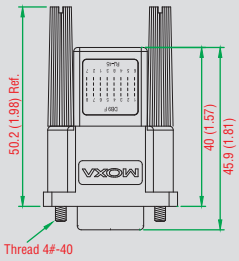
Model Name	CBL-RJ45F25-150	CBL-RJ45F9-150	CBL-RJ45M25-150	CBL-RJ45M9-150	CBL-RJ45SF25-150	CBL-RJ45SF9-150	CBL-RJ45SM25-150	CBL-RJ45SM9-150
Accessories Image								
Pin Assignment								
Cable Type	-	-	-	-	Shielded			
Board-Side Connector	8-pin RJ45 x 1							
Device-Side Connector	DB25 female x 1	DB9 female x 1	DB25 male x 1	DB9 male x 1	DB25 female x 1	DB9 female x 1	DB25 male x 1	DB9 male x 1
Cable Length	150 cm (59.06 in)							
Related Products	CP-104JU, OPT8-RJ45, NPort 5210, NPort 5600, NPort 6600, CN2510/2600							

10-pin RJ45 to DB9/DB25 Connection Cables

Model Name	CN20030	CN20040	CN20060	CN20070
Accessories Image				
Pin Assignment				
Board-Side Connector	10-pin RJ45 x 1			
Device-Side Connector	DB25 female x 1	DB25 male x 1	DB9 male x 1	DB9 female x 1
Cable Length	150 cm (59.06 in)			
Related Products	C320Turbo Series, A52, A53			

Wiring Kits

Model Name	TB-M9	TB-F9	TB-M25	TB-F25
Accessories Image				
Type	DB9 male DIN-rail wiring terminal	DB9 female DIN-rail wiring terminal	DM25 male DIN-rail wiring terminal	DB25 female DIN-rail wiring terminal
Connector	DB9 male	DB9 female	DB25 male	DB25 female
Rating	300 V, 20 A (IEC250V 10A)			
Operating Temperature	-40 to 105°C (-40 to 221°F)			
Suitable Wiring	24-12 AWG (IEC 0.5-2.5 mm²)			
Dimensions	77.5 x 45 x 51 mm (3.05 x 1.77 x 2.01 in)		77.5 x 90 x 51 mm (3.05 x 3.54 x 2.01 in)	

Model Name	Mini DB9F-to-TB	ADP-RJ458P-DB9M	ADP-RJ458P-DB9F	A-ADP-RJ458P-DB9F-ABC01
Accessories Image				
Pin Assignment	DB9-F / TB 1 / 2 2 / 1 3 / 3 4 / 4 5 / 5	DB9-M / RJ45 1 / 6 2 / 5 3 / 4 4 / 8 5 / 3 6 / 1 7 / 2 8 / 7	DB9-F / RJ45 1 / 6 2 / 4 3 / 5 4 / 1 5 / 3 6 / 8 7 / 7 8 / 2	DB9 / RJ45 1 / 6 2 / 5 3 / 4 4 / 8 5 / 7 6 / 1 7 / 2 8 / 7
Description	DB9 female to terminal block adapter for RS- 422/485 applications	RJ45-toDB9 male adapter	RJ45-toDB9 female adapter	RJ45-toDB9 female adapter
Operating Temperature	0 to 70°C (32 to 158°F)	-15 to 70°C (5 to 158°F)	-15 to 70°C (5 to 158°F)	0 to 70°C (32 to 158°F)
Dimensions				

Power Accessories

AC Power Supplies

Locking barrel plugs, 12 VDC 0.5 A, 100-240 VAC (Switch-Mode)

Model Name	PWR-12050-WPUSJP-S1	PWR-12050-WPEU-S1	PWR-12050-WPUK-S1	PWR-12050-WPAU-S1	PWR-12050-WPCN-S1
					
Input Rating					
I/P	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
O/P	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC
Output Plug					
Connector Type	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions (L x W x H)	64 x 40.5 x 47.5 mm (2.52 x 1.59 x 1.87 in)	64 x 40.5 x 68.7 mm (2.52 x 1.59 x 2.71 in)	64 x 40.5 x 56.2 mm (2.52 x 1.59 x 2.21 in)	64 x 40.5 x 58.5 mm (2.52 x 1.59 x 2.30 in)	64 x 40.5 x 46.5 mm (2.52 x 1.59 x 1.83 in)
Packaged Dimensions (L x W x H)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)
Weight	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)
Cord Length	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)
Regulatory Approvals					
Safety	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC
Related Products					
Related Products	NPort 5110A, NPort 5130A, NPort 5150A, NPort 5210A, NPort 5230A, NPort 5250A, NPort Z2150/Z3150, NPort W2150A/W2250A, NPort P5110A				

DC Power Cord

Locking barrel plug to bare wires

CBL-PJ21NOPEN-BK-30

Cable Length: 300±20 mm (11.81±0.79 in)

AC Power Supplies

Locking barrel plugs, 12 VDC, 3 A 100-240 VAC (Switch-Mode)

Model Name	PWR-12300-WPUSJP-S1	PWR-12300-WPEU-S1	PWR-12300-WPUK-S1	PWR-12300-WPAU-S1	PWR-12300-WPCN-S1
					
Input Rating					
I/P	100-240 VAC 50-60 Hz	100-240 VAC 50-60 Hz	100-240 VAC 50-60 Hz	100-240 VAC 50-60 Hz	100-240 VAC 50-60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
O/P	3 A @ 12 VDC	3 A @ 12 VDC	3 A @ 12 VDC	3 A @ 12 VDC	3 A @ 12 VDC
Output Plug					
Connector Type	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions (L x W x H)	74 x 43.5 x 52.3 mm (2.91 x 1.71 x 2.06 in)	74 x 43.5 x 73.5 mm (2.91 x 1.71 x 2.89 in)	74 x 43.5 x 61 mm (2.91 x 1.71 x 2.40 in)	74 x 43.5 x 63.3 mm (2.91 x 1.71 x 2.49 in)	74 x 43.5 x 51.3 mm (2.91 x 1.71 x 2.02 in)
Packaged Dimensions (L x W x H)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)
Weight	163 g (0.36 lb)	163 g (0.36 lb)	163 g (0.36 lb)	163 g (0.36 lb)	163 g (0.36 lb)
Cord Length	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)
Regulatory Approvals					
Safety	FCC/CE/UL/GS/CCC/RCM/PSE	FCC/CE/UL/GS/CCC/RCM/PSE	FCC/CE/UL/GS/CCC/RCM/PSE	FCC/CE/UL/GS/CCC/RCM/PSE	FCC/CE/UL/GS/CCC/RCM/PSE
Related Products					
Related Products	UPort 204, UPort 207, UPort 404, UPort 407				

DC Power Cord

Locking barrel plug to bare wires

CBL-PJ21NOPEN-BK-30

Cable Length: 300±20 mm (11.81±0.79 in)

AC Power Supplies

Non-locking barrel plugs, 12 VDC 0.5 A, 100-240 VAC (Switch-Mode)

Model Name	PWR-12050-WPUSJP-S2	PWR-12050-WPEU-S2	PWR-12050-WPUK-S2	PWR-12050-WPAU-S2	PWR-12050-WPCN-S2
					
Input Rating					
I/P	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
O/P	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC
Output Plug					
Connector Type	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Chracteristics					
Dimensions (L x W x H)	64 x 40.5 x 30 mm (2.52 x 1.59 x 1.18 in)	64 x 40.5 x 68.7 mm (2.52 x 1.59 x 2.71 in)	64 x 40.5 x 56.2 mm (2.52 x 1.59 x 2.21 in)	64 x 40.5 x 58.5 mm (2.52 x 1.59 x 2.30 in)	64 x 40.5 x 46.5 mm (2.52 x 1.59 x 1.83 in)
Packaged Dimensions (L x W x H)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)
Weight	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)
Cord Length	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)
Regulatory Approvals					
Safety	CE/FCC/UL/RMC/PSE/CCC	CE/FCC/UL/RMC/PSE/CCC	CE/FCC/UL/RMC/PSE/CCC	CE/FCC/UL/RMC/PSE/CCC	CE/FCC/UL/RMC/PSE/CCC
Regulatory Products					
Related Products	NPort 5110, NPort 5130, NPort 5150, NPort 5210, NPort 5230, NPort 5232, NPort 5232I, MGate MB3180, MGate MB3280, DE-211, DE-311, A52, A53, MiiNePort E1-ST				

DC Power Cord

Non-locking barrel plug to bare wires

CBL-PJTB-10

Cable Length: 100±20 mm (3.94±0.79 in)

AC Power Supplies

Non-locking barrel plugs, 12 VDC 1.25/1.5 A, 100-240 VAC

Model Name	PWR-12125-USJP-S1	PWR-12150-EU-S2	PWR-12150-UK-S2	PWR-12150-AU-S2	PWR-12150-CN-S1
					
Input Rating					
I/P	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
O/P	1.25 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC
Output Plug					
Connector Type	L-Type 5.5/2.1/9.5	L-Type 5.5/2.1/9.0	S-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions (L x W x H)	74 x 43.5 x 52.5 mm (2.91 x 1.71 x 2.07 in)	70 x 45 x 66.5 mm (2.76 x 1.77 x 2.62 in)	70 x 48 x 60 mm (2.76 x 1.89 x 2.36 in)	70 x 55 x 56 mm (2.76 x 2.17 x 2.21 in)	70 x 45 x 54 mm (2.76 x 1.77 x 2.13 in)
Packaged Dimensions (L x W x H)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)
Weight	108 g (0.24 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)
Cord Length	1530±100 mm (60.24±3.84 in)	1800±200 mm (70.87±7.87 in)	1800±200 mm (70.87±7.87 in)	1800±200 mm (70.87±7.87 in)	1800±200 mm (70.87±7.87 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)
Regulatory Approvals					
Safety	CE/FCC/UL/RMC/PSE/GS	CE/GS	CE	RMC	CCC
Related Products					
Related Products	NPort 5410, NPort 5430, NPort 5430I, NPort 5450, NPort 5450I, MGate MB3480				

DC Power Cord

Non-locking barrel plug to bare wires

CBL-PJTB-10

Cable Length: 100±20 mm (3.94±0.79 in)

AC Power Supplies

Desktop type power adapters

Model Name	PWR-12200-DT-S1	PWR-12125-DT-S2
		
Input Rating		
I/P	100 to 240 VAC 50 to 60 Hz	100 to 240 VAC 50 to 60 Hz
Input Plug		
Plug Type	Desktop	Desktop
Output Rating		
O/P	2 A @ 12 VDC	1.25 A @ 12 VDC
Output Plug		
Connector Type	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics		
Dimensions (L x W x H)	110.8 x 51.8 x 32 mm (4.36 x 2.04 x 1.26 in)	75 x 47.5 x 27.3 mm (2.95 x 1.87 x 1.07 in)
Packaged Dimensions (L x W x H)	135 x 75 x 35 mm (5.31 x 2.95 x 1.38 in)	100 x 70 x 51.5 mm (3.94 x 2.76 x 2.03 in)
Weight	200 g (0.44 lb)	200 g (0.44 lb)
Cord Length	1800±200 mm (70.87±7.87 in)	1530±100 mm (60.24±3.84 in)
Environmental Limits		
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)	-10 to 70°C (14 to 158°F)
Regulatory Approvals		
Safety	Efficiency Level 5: CE/FCC/UL/PSE/RCM/CCC Efficiency Level 6: CE/FCC/UL/PSE	CE/FCC/UL/PSE/GS
Related Products		
Related Products	NPort 5610-8-DT, NPort 5610-8-DT-J, NPort 5650-8-DT, NPort 5650-8-DT-J, NPort 5650I-8-DT, NPort 5610-8-DTL, NPort 5650-8-DTL, NPort 5650I-DTL	NPort 6150, NPort 6250-M-SC, NPort 6250, NPort 6250-S-SC, NPort 6450, UPort 1250I, UPort 1450, UPort 1450I, UPort 1610-8, UPort 1650-8

Note: PWR-12200-DT-S1and PWR-12125-DT-S2 not included with power cord

Model Name	PWC-C13US-3B-183	PWC-C-13EU-3B-183 (CEE 7/7 to IEC C13)	PWC-C13UK-3B-183	PWC-C13JP-3B-183	PWC-C13AU-3B-183	PWC-C13CN-3B-183
						
Region	US	EU	UK	JP	AU	CN
Voltage	125 V	250 V	250 V	125 V	250 V	250 V
Thickness	6.3±0.2 mm (0.25±0.01 in)	6.7±0.2 mm (0.26±0.01 in)	6.7±0.2 mm (0.26±0.01 in)	7.0±0.2 mm (0.28±0.01 in)	6.7±0.2 mm (0.26±0.01 in)	6.7±0.2 mm (0.26±0.01 in)
Max. Current	10 A	10 A	10 A	7 A	10 A	10 A
Length	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)
Related Products	CN2500 Series, NPort 6600 Series, NPort 5600 Series, PWR-12200-DT-S1					

Model Name	PWC-C7US-2B-183	PWC-C7EU-2B-183	PWC-C7UK-2B-183	PWC-C7JP-2B-183	PWC-C7AU-2B-183	PWC-C7CN-2B-183
						
Region	US	EU	UK	JP	AU	CN
Length	1830±200 mm (72.05±7.87 in)	1830±200 mm (72.05±7.87 in)	1830±200 mm (72.05±7.87 in)	1830±200 mm (72.05±7.87 in)	1830±200 mm (72.05±7.87 in)	1830±200 mm (72.05±7.87 in)
Related Products	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2

Locking barrel plug to bare wires

CBL-PJ21NOPEN-BK-30

Cable Length: 300±20 mm (11.81±0.79 in)

Wide Temperature AC Power Supplies

Locking barrel plug, 12VDC 1.5A, 100-240VAC (Switch-Mode)

Model Name	PWR-12150-USJP-SA-T	PWR-12150-EU-SA-T	PWR-12150-UK-SA-T	PWR-12150-AU-SA-T	PWR-12150-CN-SA-T
Accessories Image					
Input Rating					
I/P	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
O/P	1.5A @ 12VDC	1.5A @ 12VDC	1.5A @ 12VDC	1.5A @ 12VDC	1.5A @ 12VDC
Protection Requirements					
Protection	Over current protection/ Over voltage protecction				
Output Plug					
Connector Type	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions (L x W x H)	32 x 70.3 x 88 mm (1.26 x 2.77 x 3.46 in)	32 x 85.3 x 88 mm (1.26 x 3.36 x 3.46 in)	50 x 91 x 82.5 mm (1.97 x 3.58 x 2.25 in)	41 x 73.9 x 89.5 mm (1.61 x 2.91 x 3.52 in)	32 x 60 x 88 mm (1.26 x 2.36 x 3.46 in)
Weight	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)
Cord Length	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)
Environmental Limits					
Operating Temperature	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)
Regulatory Approvals					
Safty	FCC/UL/PSE	TUV/CE/GS	CE	RCM	CCC
Related Products					
Related Products	NPort 5110-T, NPort 5450-T,NPort 5450I-T, NPort 5110A-T, NPort 5610-8-DTL-T, NPort 5650-8-DTL-T, NPort 5650I-8-DTL-T, NPort 5130A-T, NPort 5150A-T, NPort 5210A-T, NPort 5230A-T, NPort 5250A-T, NPort 6100-T, NPort 6200-T, NPort 6400-T				

Power Supplies

24/48 VDC power supplies for installation on a DIN rail

	24 VDC DIN-Rail Power Supplies					48 VDC DIN-Rail Power Supplies			
Model Name	DR-4524	DR-75-24	DR-120-24	MDR-40-24	MDR-60-24	DR-75-48	DR-120-48	DRP-240-48	SDR-480P-48
Accessories Image									
Physical Characteristics and Temperature Limits									
Dimensions	78 x 67 x 93 mm (3.07 x 2.64 x 3.66 in)	55.5 x 100 x 125.2 mm (2.19 x 3.94 x 4.93 in)	65.5 x 100 x 125.2 mm (2.58 x 3.94 x 4.93 in)	40 x 90 x 100 mm (1.57 x 3.54 x 3.94 in)	40 x 90 x 100 mm (1.57 x 3.54 x 3.94 in)	55.5 x 100 x 125.2 mm (2.19 x 3.94 x 4.93 in)	65.5 x 100 x 125.2 mm (2.58 x 3.94 x 4.93 in)	125.5 x 125.5 x 100 mm (4.94 x 4.94 x 3.94 in)	85.5 x 125.2 x 128.5 mm (3.37 x 4.93 x 5.06 in)
Weight	400 g (0.88 lb)	550 g (1.21 lb)	650 g (1.43 lb)	260 g (0.57 lb)	280 g (0.62 lb)	550 g (1.21 lb)	650 g (1.43 lb)	1.2 kg (2.65 lb)	1.6 kg (3.53 lb)
Operating Temperature	-10 to 50°C (14 to 122°F)	-10 to 60°C (14 to 140°F)		-20 to 70°C (-4 to 158°F)		-10 to 60°C (14 to 140°F)		-10 to 70°C (14 to 158°F)	-25 to 70°C (-13 to 158°F)
Relative Humidity	20 to 90% RH	20 to 90% RH		20 to 90% RH		20 to 90% RH			10 to 95% RH
Power Requirements									
Wattage	45 W	75 W	120 W	40 W	60 W	75 W	120 W	240 W	480 W (current sharing up to 3840 W)
Input Voltage	85-264 VAC (47-63 Hz), or 120-370 VDC		88-132 VAC, or 176-264 VAC (47-63 Hz) by switch, or 248-370 VDC	85-264 VAC (47-63 Hz) or 120-370 VDC		85-264 VAC (27-63 Hz) or 120-370 VDC	88-132 VAC, or 176-264 VAC (47-63 Hz) by switch, or 248-370 VDC	85-264 VAC (47-63 Hz) or 120-370 VDC	90 to 264 VAC or 127 to 370 VDC
Output Power	48 W (24 VDC @ 0-2 A)	76.8 W (24 VDC @ 0-3.2 A)	120 W (24 VDC @ 0-5 A)	40 W (24 VDC @ 0-1.7 A)	60 W (24 VDC @ 0-2.5 A)	76.8 W (48 VDC @ 0-1.6 A)	120 W (48 VDC @ 0-2.5 A)	240 W (48 VDC @ 0-5 A)	480 W (48 VDC @ 0-10 A)
Over-voltage Protection	27.6 to 32.4 V	29 to 33 V		31.2 to 36 V		58 to 65 V		54 to 60 V	56-65 V
Overload Protection	105-150%								110-150%
Type	Constant Current Limiting								
Reset	Auto Recovery								
Inrush Current	30 A and 115 V, or 60 A and 230 V								40 A/115 VAC or 80 A/230 VAC
Reliability									
Safety Standards	EN 60950-1, UL 508 approved								
EMC Standards	EN 55022 Class B, EN 61000-4-2/3/4/5/6/8/11, ENV 50204, EN 61000-3-2, EN 50082-2								
Warranty	3 years (see www.moxa.com/warranty)								

Fiber Accessories

Fiber Optic Adapters

SC male to ST female duplex adapters

These SC male to ST female duplex adapters are provided as an optional accessory to give users of Moxa industrial Ethernet switches more fiber optic connection options. Simply plug the adapters directly into the SC connector of any Moxa industrial Ethernet switch to convert the original SC connector into an ST connector. This allows you to use an ST connector with any MOXA industrial Ethernet switch, but without the need for an extra patchcord.

ADP-SCm-STf-S

SC male to ST female duplex adapter for single-mode fiber

Single-mode: 9/125 µm
Ferrules and Sleeves: Zirconia Ceramic
Body Color: Blue
Insertion Loss: 0.5/1.1 (TYP/MAX)
SC-side Connector: SC male
ST-side Connector: ST female

ADP-SCm-STf-M

SC male to ST female duplex adapter for multi-mode fiber

Multi-mode: 62.5/125 µm
Ferrules and Sleeves: Zirconia Ceramic
Body Color: Gray
Insertion Loss: 0.1/0.3 (TYP/MAX)
SC-side Connector: SC male
ST-side Connector: ST female

Caps

Model Name	A-CAP-M12M-M	A-CAP-M12F-M	A-CAP-N-M	A-CAP-M30M-MIP67	A-CAP-WPRJ45-MC
Accessories Image					
Description	Metal cap to cover M12-male connector	Metal cap to cover M12-female connector	Metal cap to cover N-type connector	Metal cap to cover M30 connector	Metal cap with chain for RJ45 connector
Related Products	Power cap for the AWK-4121 AWK-4131-M12 AWK-6222 AWK-6232-M12 DI/O cap for the AWK-4131-M12 AWK-6232-M12 PM-7200-4M12 TN Series	DI/O cap for the AWK-4121 AWK-6222 LAN cap for the AWK-3121-M12-RTG AWK-3131-M12-RCC AWK-5232-M12-RCC AWK-4131-M12 AWK-6232-M12 TN Series	Antenna cap for the AWK-4121 AWK-4131-M12 AWK-6222 AWK-6232-M12	SFP cap for the AWK-4131-M12	Console & LAN caps for the AWK-4121 AWK-6222 Console cap for the AWK-4131-M12 AWK-6232-M12

Connectors

Model Name	CBL-M12(FF5P)/ OPEN-100 IP67	CBL-M12D(MM4P)/ RJ45-100 IP67	CBL-M23(FF6P)/ OPEN-BK-100 IP67	M12A-5P-IP68	M12A-8PMM-IP68	CBL-M12DFF4PRJ45-BK-10-IP67	CBL-M12MM8PRJ45-BK-100-IP67	M12A-8PFF-IP67
Accessories Image								
Description	1-meter M12-to-5-pin power cable with IP67-rated 5-pin female A-coded M12 connector	1-meter M12-to-RJ45 Cat-5C UTP Ethernet cable with IP67-rated 4-pin male D-coded M12 connector	1-meter M23-to-6-pin power cable with IP-67-rated female 6-pin M23 connector	Field-installation A-coded M12 screw-in 5-pin connector, female connector female pins	Field-installation A-coded M12 screw-in 8-pin connector, male connector male PIN	M12-to-RJ45 Cat-5E UTP Ethernet cable with IP67-rated female 4-pin D-coded M12 connector	M12-to-RJ45 Cat-5E UTP Ethernet cable with IP67-rated male 8-pin A-coded M12 connector	Field-installation A-coded M12 screw-in 8-pin connector, female connector female PIN
Cable Length	1 m (39.37 in)	–	–	–	–	10 m (393.70 in)	1 m (39.37 in)	–
Related Products	AWK-4121 AWK-4131-M12 AWK-6222 AWK-6232-M12	TN Series ioPAC 8000 Series	TN Series TAP-6226-TC	Power connector for the AWK-4121 AWK-4131-M12 AWK-6222 AWK-6232-M12	DI/O connector for the AWK-4121 AWK-6222 LAN connector for the AWK-4131-M12 AWK-6232-M12	AWK-4121 AWK-6222	AWK-4131-M12 AWK-6232-M12	DI/DO connector for the AWK-4131-M12 AWK-6232-M12

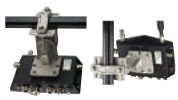
	Field-Installation Connectors	
Model Name	A-PLG-WPM30IP67-01	A-PLG-WPRJ
Accessories Image		
Description	Field-Installation for M30 plug	Field-installation RJ-type plug
Related Products	SFP LAN connector for the AWK-4131-M12	LAN connector for the AWK-4121 AWK-6222

Mounting Kits

	Wall-Mounting Kits							
Model Name	WK-30	WK-32	WK-35-01	WK-35-02	WK-36-02	WK-44-01	WK-45-01	WK-46
Accessories Image								
Dimensions	40 x 30 x 1 mm (1.57 x 1.18 x 0.04 in)	30.3 x 140 x 12.3 mm (1.19 x 5.51 x 0.48 in)	35 x 44 x 2.5 mm (1.38 x 1.73 x 0.10 in)	35 x 24 x 1.2 mm (1.38 x 0.94 x 0.05 in)	36 x 67 x 2 mm (1.42 x 2.64 x 0.08 in)	44 x 57.5 x 1.6 mm (1.73 x 2.26 x 0.06 in)	45 x 57 x 2.5 mm (1.77 x 2.24 x 0.10 in)	51.6 x 66.8 x 1 mm (2.03 x 2.63 x 0.04 in)
Related Products	EDS-205A Series EDS-G205 Series EDS-G205A-4PoE Series ICF-1170I Series	EDS-828 Series EDS-728 Series	NPort 6450, UPort 1410, UPort 1450, UPort 1450I	NPort 6150/6250 Series UPort 404 UPort 407	NPort IA5150A Series NPort IA5250A Series MGate 4101-MB-PBS MGate 4101I-MB-PBS	NPort 6600-8 Series NPort 6600-16 Series NPort 6600-32 Series UPort 1600-16 Series	NPort 5600-8 Series NPort 5600-16 Series NPort 5650-8-HV-T NPort 5650-16-HV-T CN2600-8 Series CN2600-16 Series CN2600-8-2AC Series CN2600-16-2AC Series	EDS-208A Series EDS-300 Series EDS-400A Series EDS-500A Series EDS-G308 Series EDS-G509 Series EDS-P206A-4PoE Series EDS-P308 Series EDS-P510 Series OBU-102 Series IMC-101G/101 Series PT-500 Series VPort 354 Series VPort 364A Series VPort 461A Series NPort S8455I-MM-SC NPort S8455I-MM-SC-T NPort S8455I-SS-SC NPort S8455I-SS-SC-T NPort S8458-4S-SC-T

	Wall-Mounting Kits				
Model Name	WK-51-01	WK-55	WK-75	WK-90	WK-195
Accessories Image					
Dimensions	55 x 67 x 1 mm (2.17 x 2.64 x 0.04 in)	55 x 34.5 x 2.5 mm (2.17 x 1.36 x 0.10 in)	75 x 90 x 2.5 mm (2.95 x 3.54 x 0.10 in)	99 x 62 x 2.5 mm (3.90 x 2.44 x 0.10 in)	195 x 17.5 x 52.5 mm (7.68 x 0.69 x 2.07 in)
Related Products	AWK-1000 Series AWK-3000 Series AWK-5222 Series AWK-1000A Series AWK-3000A Series OnCell 5104-HSPA OnCell G3470A-LTE WDR-3124A WAC-1001 EDR-G902 Series EDR-G903 Series EDS-P506A-4PoE Series EDS-316 Series IMC-101/IMC-P101 Series PTC-101 Series NPort IA5450A Series ioPAC 5500 Series	AWK-4121 AWK-4131-M12 AWK-6222 AWK-6232-M12	EDS-600 Series ioPAC 8000 Series	ioLogik E1500 Series	PT-7710 Series

Mounting Kits

	DIN-Rail Mounting Kits					Pole-Mounting Kit
Model Name	DK-DC50131	DK-TN-5308	DK-M12-305	DK-25-01	DK-35A	PK-DC2DOF
Accessories Image						
Dimensions	50 x 131 x 1 mm (1.97 x 5.16 x 0.05 in)	66 x 174 x 12.8 mm (2.60 x 6.85 x 0.50 in)	60 x 125 x 12.8 mm (2.36 x 4.92 x 0.50 in)	25 x 48.3 mm (0.98 x 1.90 in)	42.5 x 10 x 19.34 mm (1.67 x 0.39 x 0.76 in)	–
Related Products	TN-5500 Series AWK-4121 AWK-4131-M12 AWK-6222 AWK-6232-M12 ioPAC 5500 Series ioPAC 8000 Series ioLogik E1500 Series MxNVR-MO4 Series	TN-5308 Series	TN-5305 Series	UPort 404 UPort 407	MGate™ 3x80 Series NPort Express DE-211 NPort Express DE-311 NPort 5100 Series NPort 5100A Series NPort 5200 Series NPort 5200A Series NPort 5400 Series NPort 6150/6250/6450 NPort W2x50A UPort 1150I UPort 404/407 UPort 1250/1250I TCF-142 Series TCC-100/100I TCC-120/120I	AWK-4121 AWK-4131-M12 AWK-6222 AWK-6232-M12

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Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With over 25 years of industry experience, Moxa has connected more than 40 million devices worldwide and has a distribution and service network that reaches customers in more than 70 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures.

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