



# Enabling Connectivity for the Industrial Internet of Things

• Edge Connectivity • Industrial Computing • Network Infrastructure

# 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.

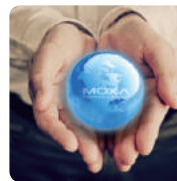
## Reliable Networks



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.

2  
Headquarters

**USA:** Sales and Marketing Headquarters

**Taiwan:** Design and Engineering Headquarters

## 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.

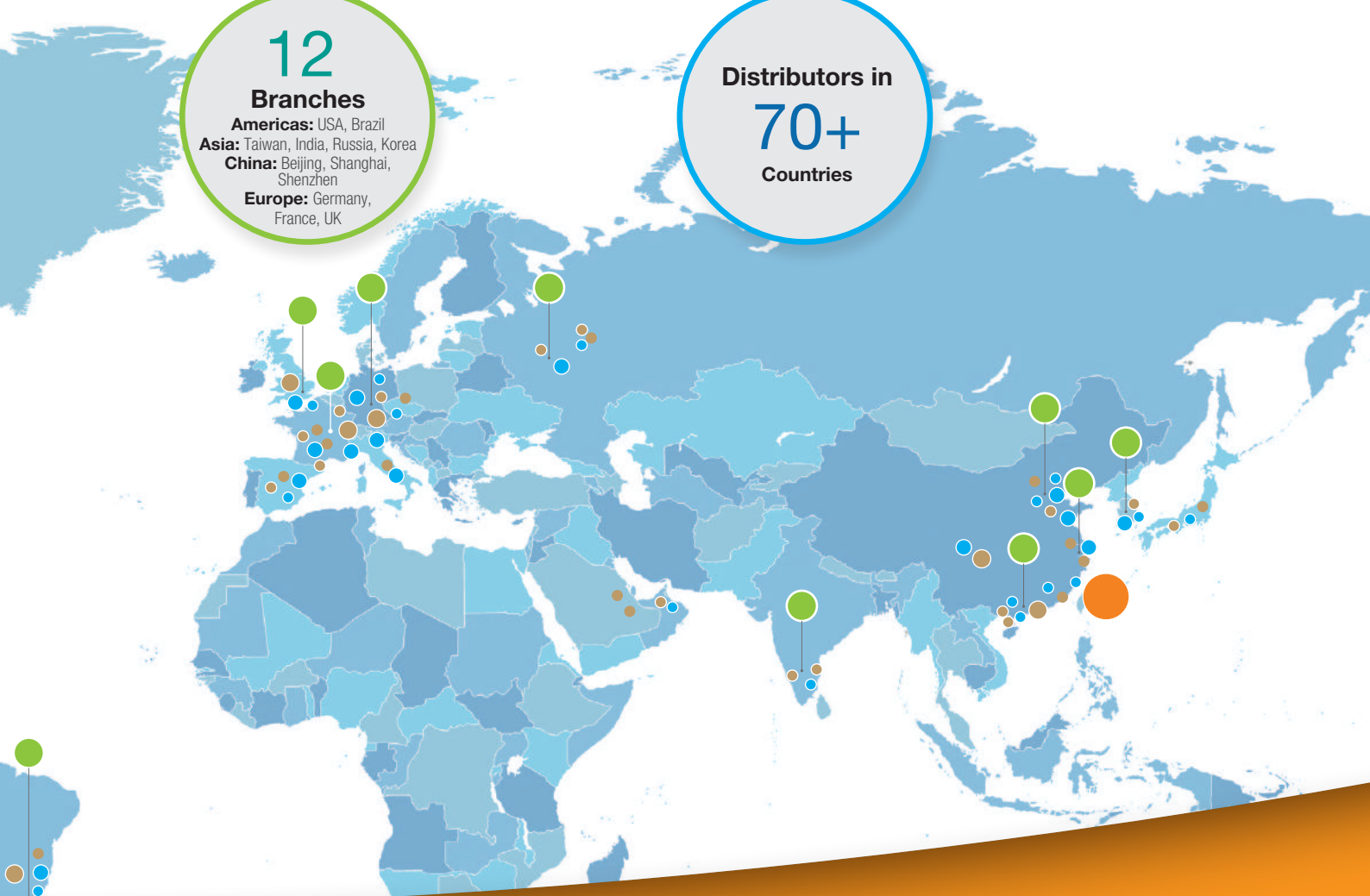
### ■ Continuous Improvement

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.



**12**  
**Branches**  
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**Asia:** Taiwan, India, Russia, Korea  
**China:** Beijing, Shanghai, Shenzhen  
**Europe:** Germany, France, UK

**Distributors in**  
**70+**  
**Countries**



## 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

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### Accessories

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# 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

## Network Infrastructure



### Industrial Computers

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



### Industrial Ethernet

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



### Industrial Wireless



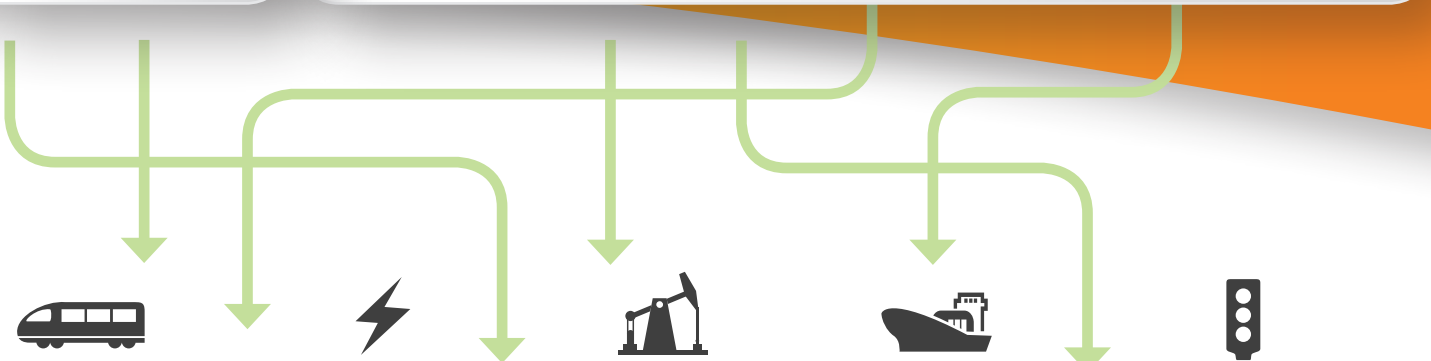
### Industrial Routers

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.

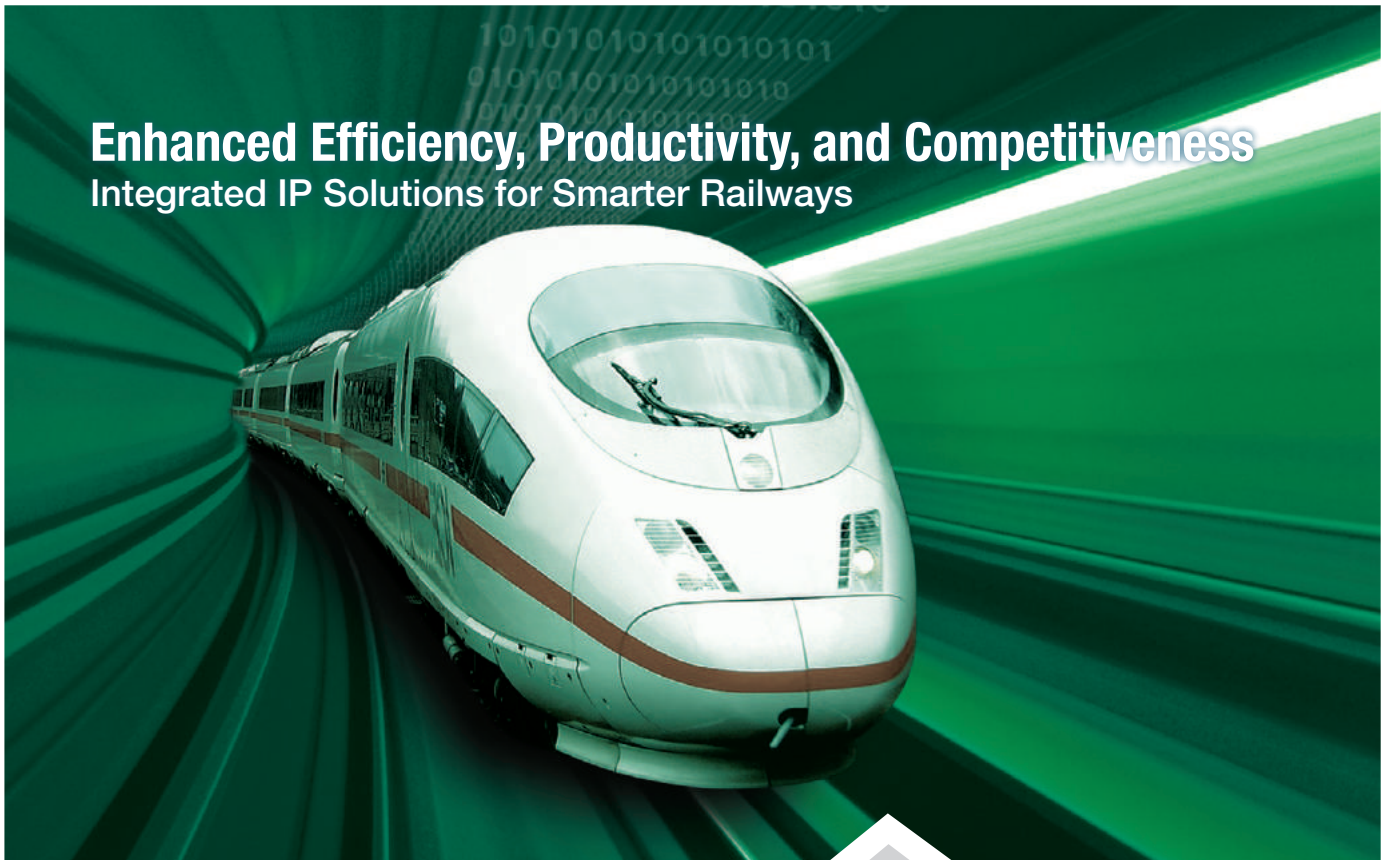


### Intelligent Transportation Systems

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.

# Enhanced Efficiency, Productivity, and Competitiveness

## Integrated IP Solutions for Smarter Railways



### 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



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**ToughNet, EDS Series**  
Industrial Ethernet Switches  
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**TAP, AWK-RCC/RTG Series**  
Industrial Wireless AP/Bridge/Client  
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**NPort 5000AI-M12 Series**  
RS-232/422/485 Serial Device Servers  
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**TC-6000, V2000 Series**  
Industrial Embedded Computers  
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**VPort Series**  
Industrial IP Cameras  
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**ioPAC Series**  
Industrial RTU Controllers  
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**ioLogik E1500 Series**  
Remote I/Os  
▶Page 71



# 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](http://www.moxa.com/SmartGrid)



- 
**PT-7528 Series**  
 IEC 61850 28-port IEEE 1613 Class 2 Managed Ethernet Switches  
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- 
**PT-7728-PTP Series**  
 IEC 61850 14-port IEEE 1588v2 Managed PRP/HSR Switches  
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**PT-G503-PHR-PTP Series**  
 IEC 61850 3-port Full Gigabit Managed PRP/HSR Redundancy Boxes  
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**DA-820 Series**  
 x86 IEC 61850-3 Certified i7 Rackmount Computers  
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**NP0rt S8000 Series**  
 Combo Switches / Serial Device Servers  
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**UC-8100 Series**  
 RISC Energy Monitoring Computers  
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**ioLogik E1200 Series**  
 Compact Ethernet Remote I/O  
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**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



- 
**EDS/IKS/ICS Series**  
 Edge-to-Core Ethernet Switches  
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- 
**EDR Series**  
 VPN/Firewall Secure Routers
- 
**AWK Series**  
 IEEE 802.11a/b/g/n Wireless AP/Bridge/Client  
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- 
**MGate and NPort Series**  
 Industrial Gateways and Device Servers  
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**ICF Series**  
 Industrial Serial/PROFIBUS-to-Fiber Converters  
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**ioLogik 2500 Series and ioLogik E1200 Series**  
 Smart Remote I/O and Ethernet Remote I/O  
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**VPort Series**  
 HD IP Cameras  
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- 
**EXPC-1519 Series**  
 Zone 2 Panel Computers  
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# 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](http://www.moxa.com/marine)



#### MPC-2150/2190/2240/2260 Series

Marine Panel Computers

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#### MD-219/224/226 Series

Marine Displays

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#### MC-7200 Series

Marine ECDIS Computers

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#### MGate 5101-PBM-MN Series

PROFIBUS-to-Modbus TCP Gateways

►Page 28



#### ioLogik E1200H Series

Ethernet Remote I/O

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#### EDS-408A Series

Managed Ethernet Switches

►Page 18



# 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  
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**EDS Series**  
Industrial Ethernet Switches  
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**MGate Series**  
Industrial Ethernet Gateways  
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**NPort Series**  
Serial-to-Ethernet Device Servers  
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**ioLogik 2500-WL1 Series**  
Smart Wireless I/O  
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**EDR-810 Series**  
Industrial 8+2G Multiport Secure Routers



**AWK-A Series**  
Industrial Wireless AP/Bridge/Client  
▶Page 30



# 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
- Intelligent E-Bus
- Tunnels
- Electronic Toll Collection (ETC)

### Leading Technologies

#### High Bandwidth

- 1GbE/10GbE switching and routing
- Up to 300 Mbps wireless transmission
- Up to 500 Mbps router throughput
- 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](http://www.moxa.com/ITS)



#### ICS Series

Industrial 10GbE Ethernet Switches

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#### AWK-A Series

Industrial 802.11n AP/Bridge/Client

►Page 30



#### EDS-G512E-8PoE

8-port PoE+ Full Gigabit Managed Switch

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#### VPort Series

Industrial HD IP Cameras

►Page 74



#### IEX-408E-2VDSL2 Series

Copper Extender Switches

►Page 26



#### NPport IA5000A Series

2-Port Industrial Serial Device Servers

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#### MXstudio

Industrial Network Management Suite

# Rackmount Ethernet Switches

Managed Rackmount Switches



|  | ICS-G7852A | ICS-G7850A | ICS-G7848A | ICS-G7752A | ICS-G7750A | ICS-G7748A | ICS-G7828A | ICS-G7826A |
|--|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Supported Modules</b>                 |            |            |            |            |            |            |            |            |
| Gigabit Media Modules                    | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | –          | –          |
| Fast Media Modules                       | –          | –          | –          | –          | –          | –          | –          | –          |
| SFP+ 10 Gigabit Ethernet Modules         | ✓          | ✓          | –          | ✓          | ✓          | –          | ✓          | ✓          |
| SFP Gigabit Ethernet Modules             | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| SFP Fast Ethernet Modules                | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| <b>Number of Ports</b>                   |            |            |            |            |            |            |            |            |
| Max. Number of Ports                     | 52         | 50         | 48         | 52         | 50         | 48         | 28         | 26         |
| 10 Gigabit Ethernet                      | 4          | 2          | –          | 4          | 2          | –          | 4          | 2          |
| Gigabit Ethernet, 10/100/1000 Mbps       | up to 48   | up to 48   | up to 48   | up to 48   | up to 48   | up to 48   | 24         | 24         |
| Fast Ethernet, 10/100 Mbps               | –          | –          | –          | –          | –          | –          | –          | –          |
| <b>Available Power Input</b>             |            |            |            |            |            |            |            |            |
| 24 VDC                                   | –          | –          | –          | –          | –          | –          | –          | –          |
| 24 VAC                                   | –          | –          | –          | –          | –          | –          | –          | –          |
| 48 VDC                                   | –          | –          | –          | –          | –          | –          | –          | –          |
| 12/24/48 VDC                             | –          | –          | –          | –          | –          | –          | –          | –          |
| 85 to 264 VAC                            | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| 88 to 300 VDC or 85 to 264 VAC, isolated | –          | –          | –          | –          | –          | –          | –          | –          |
| <b>Installation Options</b>              |            |            |            |            |            |            |            |            |
| DIN-Rail Mounting                        | –          | –          | –          | –          | –          | –          | –          | –          |
| Panel Mounting                           | –          | –          | –          | –          | –          | –          | –          | –          |
| Rack Mounting                            | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| <b>Supported Operating Temperatures</b>  |            |            |            |            |            |            |            |            |
| -10 to 60°C (14 to 140°F)                | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| -40 to 75°C (-40 to 167°F)               | –          | –          | –          | –          | –          | –          | –          | –          |
| <b>Redundancy and Backup Options</b>     |            |            |            |            |            |            |            |            |
| Turbo Ring                               | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| Turbo Chain                              | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| V-ON                                     | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| STP/RSTP                                 | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| Automatic Backup Configurator (ABC-02)   | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| <b>Network Management and Control</b>    |            |            |            |            |            |            |            |            |
| Layer 3 Switching                        | ✓          | ✓          | ✓          | –          | –          | –          | ✓          | ✓          |
| Port Trunking                            | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| Modbus/TCP                               | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| SNMP/RMON                                | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| LLDP                                     | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| DHCP Option 66/67/82                     | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| IGMP/GMRP                                | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| QoS                                      | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| VLAN                                     | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| Access Control Lists (ACL)               | ✓          | ✓          | ✓          | –          | –          | –          | ✓          | ✓          |
| IEEE 802.1X                              | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| Port Lock                                | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| IPv6                                     | –          | –          | –          | ✓          | ✓          | ✓          | –          | –          |
| Relay Warning                            | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| <b>Standards and Certifications</b>      |            |            |            |            |            |            |            |            |
| CE/FCC                                   | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| UL 60950-1                               | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |
| UL 508                                   | –          | –          | –          | –          | –          | –          | –          | –          |
| DNV/GL                                   | –          | –          | –          | –          | –          | –          | –          | –          |
| ABS/LR/NK                                | –          | –          | –          | –          | –          | –          | –          | –          |
| NEMA TS2                                 | –          | –          | –          | –          | –          | –          | –          | –          |
| EN 50121-4                               | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          | ✓          |

# Rackmount Ethernet Switches

Managed Rackmount Switches



|  | ICS-G7528A | ICS-G7526A | IKS-G6824A | IKS-G6624A | IKS-6728A | IKS-6726A |
|--|------------|------------|------------|------------|-----------|-----------|
| <b>Supported Modules</b>                 |            |            |            |            |           |           |
| Gigabit Media Modules                    | -          | -          | -          | -          | -         | -         |
| Fast Media Modules                       | -          | -          | -          | -          | ✓         | ✓         |
| SFP+ 10 Gigabit Ethernet Modules         | ✓          | ✓          | -          | -          | -         | -         |
| SFP Gigabit Ethernet Modules             | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| SFP Fast Ethernet Modules                | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| <b>Number of Ports</b>                   |            |            |            |            |           |           |
| Max. Number of Ports                     | 28         | 26         | 24         | 24         | 28        | 26        |
| 10 Gigabit Ethernet                      | 4          | 2          | -          | -          | -         | -         |
| Gigabit Ethernet, 10/100/1000 Mbps       | 24         | 24         | 24         | 24         | 4         | 2         |
| Fast Ethernet, 10/100 Mbps               | -          | -          | -          | -          | up to 24  | up to 24  |
| <b>Available Power Input</b>             |            |            |            |            |           |           |
| 24 VDC                                   | -          | -          | -          | -          | ✓         | ✓         |
| 24 VAC                                   | -          | -          | -          | -          | -         | -         |
| 48 VDC                                   | -          | -          | -          | -          | ✓         | ✓         |
| 12/24/48 VDC                             | -          | -          | -          | -          | -         | -         |
| 85 to 264 VAC                            | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| 88 to 300 VDC or 85 to 264 VAC, isolated | -          | -          | -          | -          | -         | -         |
| <b>Installation Options</b>              |            |            |            |            |           |           |
| DIN-Rail Mounting                        | -          | -          | -          | -          | -         | -         |
| Panel Mounting                           | -          | -          | -          | -          | -         | -         |
| Rack Mounting                            | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| <b>Supported Operating Temperatures</b>  |            |            |            |            |           |           |
| -10 to 60°C (14 to 140°F)                | ✓          | ✓          | ✓          | ✓          | -         | -         |
| -40 to 75°C (-40 to 167°F)               | -          | -          | ✓          | ✓          | ✓         | ✓         |
| <b>Redundancy and Backup Options</b>     |            |            |            |            |           |           |
| Turbo Ring                               | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| Turbo Chain                              | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| V-ON                                     | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| STP/RSTP                                 | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| Automatic Backup Configurator (ABC-02)   | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| <b>Network Management and Control</b>    |            |            |            |            |           |           |
| Layer 3 Switching                        | -          | -          | ✓          | -          | -         | -         |
| Port Trunking                            | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| Modbus/TCP                               | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| SNMP/RMON                                | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| LLDP                                     | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| DHCP Option 66/67/82                     | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| IGMP/GMRP                                | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| QoS                                      | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| VLAN                                     | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| Access Control Lists (ACL)               | -          | -          | ✓          | -          | -         | -         |
| IEEE 802.1X                              | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| Port Lock                                | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| IPv6                                     | ✓          | ✓          | -          | ✓          | ✓         | ✓         |
| Relay Warning                            | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| <b>Standards and Certifications</b>      |            |            |            |            |           |           |
| CE/FCC                                   | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| UL 60950-1                               | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |
| UL 508                                   | -          | -          | -          | -          | -         | -         |
| DNV/GL                                   | -          | -          | -          | -          | ✓         | ✓         |
| ABS/LR/NK                                | -          | -          | -          | -          | ✓         | ✓         |
| NEMA TS2                                 | -          | -          | -          | -          | -         | -         |
| EN 50121-4                               | ✓          | ✓          | ✓          | ✓          | ✓         | ✓         |



# DIN-Rail Ethernet Switches

Managed DIN-Rail Switches



|   | EDS-828         | EDS-728         | EDS-619         | EDS-616         | EDS-611         | EDS-608         | EDS-G516E       | EDS-G512E       | EDS-G508E       |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Supported Modules</b>                |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Gigabit Media Modules                   | ✓               | ✓               | –               | –               | –               | –               | –               | –               | –               |
| Fast Media Modules                      | ✓               | ✓               | –               | ✓               | ✓               | ✓               | –               | –               | –               |
| SFP Gigabit Ethernet Modules            | ✓               | ✓               | ✓               | –               | ✓               | –               | ✓               | ✓               | –               |
| SFP Fast Ethernet Modules               | –               | –               | ✓               | –               | ✓               | –               | ✓               | ✓               | –               |
| <b>Number of Ports</b>                  |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Max. Number of Ports                    | 28              | 28              | 19              | 16              | 11              | 8               | 16              | 12              | 8               |
| Gigabit Ethernet, 10/100/1000 Mbps      | up to 4         | up to 4         | 3               | –               | 3               | –               | 16              | 12              | 8               |
| Fast Ethernet, 10/100 Mbps              | up to 24        | up to 24        | up to 16        | up to 16        | up to 8         | up to 8         | –               | –               | –               |
| <b>Available Power Input</b>            |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| 24 VDC                                  | ✓               | ✓               | –               | –               | –               | –               | –               | –               | –               |
| 12/24/48 VDC                            | –               | –               | ✓               | ✓               | ✓               | ✓               | –               | –               | –               |
| 12/24/48/-48 VDC                        | –               | –               | –               | –               | –               | –               | ✓               | ✓               | ✓               |
| <b>Installation Options</b>             |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| DIN-Rail Mounting                       | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Panel Mounting                          | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit |
| Rack Mounting                           | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit |
| <b>Supported Operating Temperatures</b> |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| 0 to 60°C (32 to 140°F)                 | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | –               | –               | –               |
| -10 to 60°C (14 to 140°F)               | –               | –               | –               | –               | –               | –               | ✓               | ✓               | ✓               |
| -40 to 75°C (-40 to 167°F)              | –               | –               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| <b>Redundancy and Backup Options</b>    |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Turbo Ring                              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Turbo Chain                             | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| V-ON                                    | –               | –               | –               | –               | –               | –               | ✓               | ✓               | ✓               |
| STP/RSTP                                | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| MSTP                                    | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Automatic Backup Configurator (ABC-01)  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | –               | –               | –               |
| Automatic Backup Configurator (ABC-02)  | –               | –               | –               | –               | –               | –               | ✓               | ✓               | ✓               |
| <b>Network Management and Control</b>   |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Layer 3 Switching                       | ✓               | –               | –               | –               | –               | –               | –               | –               | –               |
| Port Trunking                           | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Modbus/TCP                              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Ethernet/IP                             | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| PROFINET                                | –               | –               | –               | –               | –               | –               | ✓               | ✓               | ✓               |
| SNMP/RMON                               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| LLDP                                    | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| DHCP Option 66/67/82                    | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| IGMP Snooping/GMRP                      | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| QoS                                     | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| IEEE 802.1Q VLAN                        | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Port-based VLAN                         | –               | –               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Access Control Lists (ACL)              | ✓               | –               | –               | –               | –               | –               | ✓               | ✓               | ✓               |
| IEEE 802.1X                             | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Port Lock                               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| IPv6                                    | –               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Relay Warning                           | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| <b>Standards and Certifications</b>     |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| CE/FCC                                  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| UL 60950-1                              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | –               | –               | –               |
| UL 508                                  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| UL 61010-2-201                          | –               | –               | –               | –               | –               | –               | –               | –               | –               |
| EN 60950-1                              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | –               | –               | –               |
| UL/cUL Class 1 Div. 2                   | –               | –               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| ATEX Zone 2                             | –               | –               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| DNV/GL                                  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| ABS/LR/NK                               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| NEMA TS2                                | –               | –               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| EN 50121-4                              | –               | –               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| IEEE 1613                               | –               | –               | –               | –               | –               | –               | –               | –               | –               |
| IEC 61850-3                             | –               | –               | –               | –               | –               | –               | ✓               | ✓               | ✓               |

# DIN-Rail Ethernet Switches

Managed DIN-Rail Switches



|   | EDS-G509        | EDS-518E        | EDS-510E        | EDS-516A        | EDS-508A        | EDS-505A        | EDS-408A                     | EDS-405A                | EDS-405A-PTP    |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------------------|-------------------------|-----------------|
| <b>Supported Modules</b>                |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| Gigabit Media Modules                   | -               | -               | -               | -               | -               | -               | -                            | -                       | -               |
| Fast Media Modules                      | -               | -               | -               | -               | -               | -               | -                            | -                       | ✓               |
| SFP Gigabit Ethernet Modules            | ✓               | ✓               | ✓               | -               | -               | -               | -                            | -                       | -               |
| SFP Fast Ethernet Modules               | ✓               | ✓               | ✓               | -               | -               | -               | -                            | -                       | -               |
| <b>Number of Ports</b>                  |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| Max. Number of Ports                    | 9               | 18              | 10              | 16              | 8               | 5               | 8                            | 5                       | 5               |
| Gigabit Ethernet, 10/100/1000 Mbps      | 9               | 4               | 3               | -               | -               | -               | -                            | -                       | -               |
| Fast Ethernet, 10/100 Mbps              | -               | 14              | 7               | 16              | 8               | 5               | 8                            | 5                       | 5               |
| <b>Available Power Input</b>            |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| 24 VDC                                  | -               | -               | -               | ✓               | ✓               | ✓               | ✓                            | ✓                       | -               |
| 12/24/48 VDC                            | ✓               | -               | -               | -               | -               | -               | -                            | -                       | ✓               |
| 12/24/48/-48 VDC                        | -               | ✓               | ✓               | -               | -               | -               | -                            | -                       | -               |
| <b>Installation Options</b>             |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| DIN-Rail Mounting                       | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Panel Mounting                          | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit              | w/ optional kit         | w/ optional kit |
| Rack Mounting                           | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit              | w/ optional kit         | w/ optional kit |
| <b>Supported Operating Temperatures</b> |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| 0 to 60°C (32 to 140°F)                 | ✓               | -               | -               | ✓               | ✓               | ✓               | ✓                            | ✓                       | -               |
| -10 to 60°C (14 to 140°F)               | -               | ✓               | ✓               | -               | -               | -               | -                            | -                       | ✓               |
| -40 to 75°C (-40 to 167°F)              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| <b>Redundancy and Backup Options</b>    |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| Turbo Ring                              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Turbo Chain                             | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| V-ON                                    | -               | ✓               | ✓               | -               | -               | -               | -                            | -                       | -               |
| STP/RSTP                                | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| MSTP                                    | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | -                            | -                       | ✓               |
| Automatic Backup Configurator (ABC-01)  | ✓               | -               | -               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Automatic Backup Configurator (ABC-02)  | -               | ✓               | ✓               | -               | -               | -               | -                            | -                       | -               |
| <b>Network Management and Control</b>   |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| Layer 3 Switching                       | -               | -               | -               | -               | -               | -               | -                            | -                       | -               |
| Port Trunking                           | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Modbus/TCP                              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Ethernet/IP                             | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| PROFINET                                | -               | ✓               | ✓               | -               | -               | -               | EDS-408A-PN series only      | EDS-405A-PN series only | ✓               |
| SNMP/RMON                               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| LLDP                                    | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| DHCP Option 66/67/82                    | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| IGMP Snooping/GMRP                      | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| QoS                                     | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| IEEE 802.1Q VLAN                        | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Port-based VLAN                         | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Access Control Lists (ACL)              | -               | -               | -               | -               | -               | -               | -                            | -                       | -               |
| IEEE 802.1X                             | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | -                            | -                       | ✓               |
| Port Lock                               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | -                            | -                       | ✓               |
| IPv6                                    | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| Relay Warning                           | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| <b>Standards and Certifications</b>     |                 |                 |                 |                 |                 |                 |                              |                         |                 |
| CE/FCC                                  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| UL 60950-1                              | -               | -               | -               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| UL 508                                  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| UL 61010-2-201                          | -               | -               | -               | -               | -               | -               | -                            | -                       | -               |
| EN 60950-1                              | ✓               | -               | -               | ✓               | ✓               | ✓               | -                            | -                       | -               |
| UL/cUL Class 1 Div. 2                   | -               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| ATEX Zone 2                             | -               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| DNV/GL                                  | ✓               | -               | -               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| ABS/LR/NK                               | ✓               | -               | -               | -               | -               | -               | EDS-408A 3 Fiber series only | -                       | -               |
| NEMA TS2                                | -               | ✓               | ✓               | -               | -               | -               | ✓                            | ✓                       | ✓               |
| EN 50121-4                              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓                            | ✓                       | ✓               |
| IEEE 1613                               | -               | ✓               | ✓               | -               | -               | -               | -                            | -                       | -               |
| IEC 61850-3                             | -               | ✓               | -               | -               | -               | -               | -                            | -                       | -               |

# DIN-Rail Ethernet Switches








## Unmanaged DIN-Rail Switches



|   | EDS-G308        | EDS-G205        | EDS-316         | EDS-309         | EDS-308         | EDS-305         | EDS-210A        | EDS-208A        | EDS-205A        | EDS-208         | EDS-205         |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| <b>Supported Modules</b>                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| SFP Gigabit Ethernet Modules            | ✓               | ✓               | -               | -               | -               | -               | ✓               | -               | -               | -               | -               |
| SFP Fast Ethernet Modules               | ✓               | ✓               | -               | -               | -               | -               | ✓               | -               | -               | -               | -               |
| <b>Number of Ports</b>                  |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| Max. Number of Ports                    | 8               | 5               | 16              | 9               | 8               | 5               | 10              | 8               | 5               | 8               | 5               |
| Gigabit Ethernet, 10/100/1000 Mbps      | 8               | 5               | -               | -               | -               | -               | up to 2         | -               | -               | -               | -               |
| Fast Ethernet, 10/100 Mbps              | -               | -               | 16              | 9               | 8               | 5               | up to 9         | 8               | 5               | 8               | 5               |
| <b>Available Power Input</b>            |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| 24 VDC                                  | -               | -               | -               | ✓               | ✓               | ✓               | -               | -               | -               | ✓               | ✓               |
| 24 VAC                                  | -               | -               | -               | -               | -               | -               | -               | ✓               | ✓               | ✓               | ✓               |
| 12/24/48 VDC                            | ✓               | ✓               | ✓               | -               | -               | -               | ✓               | ✓               | ✓               | -               | -               |
| <b>Installation Options</b>             |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| DIN-Rail Mounting                       | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| Panel Mounting                          | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | -               | -               |
| Rack Mounting                           | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit | w/ optional kit |
| <b>Supported Operating Temperatures</b> |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| 0 to 60°C (32 to 140°F)                 | -               | -               | ✓               | ✓               | ✓               | ✓               | -               | -               | -               | -               | -               |
| -10 to 60°C (14 to 140°F)               | ✓               | ✓               | -               | -               | -               | -               | ✓               | ✓               | ✓               | ✓               | ✓               |
| -40 to 75°C (-40 to 167°F)              | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | -               | -               |
| <b>Standards and Certifications</b>     |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| CE/FCC                                  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| UL 60950-1                              | -               | -               | ✓               | ✓               | ✓               | ✓               | -               | -               | -               | -               | -               |
| UL 508                                  | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               |
| UL 61010-2-201                          | -               | -               | -               | -               | -               | -               | -               | -               | -               | -               | -               |
| EN 60950-1                              | -               | ✓               | ✓               | ✓               | ✓               | -               | -               | -               | ✓               | ✓               | ✓               |
| UL/cUL Class 1 Div. 2                   | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | -               | ✓               | ✓               | -               | -               |
| ATEX Zone 2                             | ✓               | ✓               | ✓               | ✓               | ✓               | ✓               | -               | ✓               | ✓               | ✓               | -               |
| DNV/GL                                  | -               | -               | ✓               | ✓               | ✓               | ✓               | -               | ✓               | ✓               | -               | -               |
| ABS/LR/NK                               | -               | -               | -               | -               | -               | -               | -               | ✓               | ✓               | -               | -               |
| NEMA TS2                                | -               | -               | -               | -               | -               | -               | -               | ✓               | ✓               | -               | -               |
| EN 50121-4                              | ✓               | ✓               | -               | -               | -               | -               | -               | ✓               | ✓               | -               | -               |
| IEC 61850-3                             | -               | -               | -               | -               | -               | -               | -               | -               | -               | -               | -               |



# PoE Switches

|   | Managed Rackmount PoE Switches  |   | Managed DIN-Rail PoE Switches   |   |   | Unmanaged DIN-Rail PoE Switches   |   |   |
|---|---|---|---|---|---|---|---|---|
|   |  |  |  |  |  |  |  |  |
|   | IKS-6728A-8PoE  | EDS-G512E-8PoE  | EDS-P510A-8PoE  | EDS-P510  | EDS-P506A-4PoE  | EDS-G205A-4PoE  | EDS-P206A-4PoE  | EDS-P308  |
| Supported Modules                       |   |   |   |   |   |   |   |   |
| Gigabit Media Modules                   | -   | -   | -   | -   | -   | -   | -   | -   |
| Fast Media Modules                      | ✓   | ✓   | -   | -   | -   | -   | -   | -   |
| SFP Gigabit Ethernet Modules            | ✓   | ✓   | ✓   | ✓   | -   | ✓   | -   | -   |
| SFP Fast Ethernet Modules               | ✓   | ✓   | ✓   | ✓   | -   | ✓   | -   | -   |
| Number of Ports                         |   |   |   |   |   |   |   |   |
| Max. Number of Ports                    | 28  | 12  | 10  | 10  | 6   | 5   | 6   | 8   |
| Gigabit Ethernet, 10/100/1000 Mbps      | up to 4   | 12  | 2   | 3   | -   | 5   | -   | -   |
| PoE, Gigabit Ethernet, 10/100/1000 Mbps | -   | 8 (PoE+)  | -   | -   | -   | 4 (PoE+)  | -   | -   |
| Fast Ethernet, 10/100 Mbps              | up to 24  | -   | 8   | 7   | 6   | -   | 6   | 8   |
| PoE, Fast Ethernet, 10/100 Mbps         | up to 24 (PoE+)   | -   | 8 (PoE+)  | 4   | 4 (PoE+)  | -   | 4 (PoE+)  | 4   |
| Available Power Input                   |   |   |   |   |   |   |   |   |
| 24 VDC                                  | -   | -   | -   | -   | ✓   | -   | ✓   | -   |
| 48 VDC                                  | ✓   | ✓   | ✓   | ✓   | ✓   | -   | ✓   | ✓   |
| 12/24/48 VDC                            | ✓   | -   | -   | -   | -   | ✓   | -   | -   |
| 85-264 VAC                              | ✓   | -   | -   | -   | -   | -   | -   | -   |
| Installation Options                    |   |   |   |   |   |   |   |   |
| DIN-Rail Mounting                       | -   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| Panel Mounting                          | -   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   |
| Rack Mounting                           | ✓   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   | w/ optional kit   |
| Supported Operating Temperatures        |   |   |   |   |   |   |   |   |
| 0 to 60°C (32 to 140°F)                 | -   | -   | -   | ✓   | ✓   | ✓   | ✓   | ✓   |
| -10 to 60°C (14 to 140°F)               | -   | ✓   | ✓   | -   | -   | -   | -   | -   |
| -40 to 75°C (-40 to 167°F)              | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| Redundancy and Backup Options           |   |   |   |   |   |   |   |   |
| Turbo Ring                              | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| Turbo Chain                             | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| V-ON                                    | ✓   | ✓   | ✓   | ✓   | -   | -   | -   | -   |
| STP/RSTP                                | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| MSTP                                    | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| Automatic Backup Configurator (ABC-01)  | -   | -   | ✓   | ✓   | ✓   | -   | -   | -   |
| Automatic Backup Configurator (ABC-02)  | ✓   | ✓   | -   | -   | -   | -   | -   | -   |
| Network Management and Control          |   |   |   |   |   |   |   |   |
| Port Trunking                           | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| Modbus/TCP                              | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| Ethernet/IP                             | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| IEEE 1588 PTP                           | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| SNMP/RMON                               | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| LLDP                                    | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| DHCP Option 66/67/82                    | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| IGMP Snooping/GMRP                      | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| QoS                                     | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| VLAN                                    | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| IEEE 802.1X                             | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| Port Lock                               | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| IPv6                                    | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| Relay Warning                           | ✓   | ✓   | ✓   | ✓   | ✓   | -   | -   | -   |
| Standards and Certifications            |   |   |   |   |   |   |   |   |
| CE/FCC                                  | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| UL 60950-1                              | ✓   | -   | -   | -   | -   | -   | -   | -   |
| UL 508                                  | -   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| UL 61010-2-201                          | -   | -   | -   | -   | -   | -   | -   | -   |
| EN 60950-1                              | ✓   | ✓   | -   | ✓   | ✓   | ✓   | ✓   | ✓   |
| UL/cUL Class 1 Div. 2                   | -   | -   | ✓   | -   | -   | -   | -   | -   |
| ATEX Zone 2                             | -   | -   | -   | -   | -   | -   | -   | -   |
| DNV/GL                                  | -   | -   | -   | ✓   | -   | -   | -   | ✓   |
| ABS/LR/NK                               | -   | -   | -   | ✓   | -   | -   | -   | ✓   |
| NEMA TS2                                | -   | -   | ✓   | -   | -   | -   | -   | -   |
| EN 50121-4                              | -   | ✓   | ✓   | -   | ✓   | ✓   | -   | -   |
| IEC 61850-3                             | -   | -   | -   | -   | -   | -   | -   | -   |

# EN 50155 Ethernet Switches

|  |                      |                                  |                              |                         |   |                      |                            |
|--|----------------------|----------------------------------|------------------------------|-------------------------|---|----------------------|----------------------------|
|  | NAT Router           | L3 Managed Switches              | L2 Managed Ethernet Switches |                         |   |                      |                            |
|  | Fast Ethernet Series | Gigabit and Fast Ethernet Series | Power-over-Ethernet Series   | Gigabit Ethernet Series | Gigabit Ethernet and Power-over-Ethernet Series | Fast Ethernet Series | Power-over-Ethernet Series |



|  | TN-5916 Series  | TN-5816ABP/5818A Series | TN-5524-8PoE Series | TN-5510A/5518A Series | TN-5510A/5518A-8PoE Series | TN-5508A/5516A Series | TN-5508A/5516A-8PoE Series |
|--|-----------------|-------------------------|---------------------|-----------------------|----------------------------|-----------------------|----------------------------|
| <b>Number of Ports</b>                   |                 |                         |                     |                       |                            |                       |                            |
| Max. Number of Ports                     | 16              | 16/18                   | 24                  | 10/18                 | 10/18                      | 8/16                  | 8/16                       |
| Gigabit Ethernet, 10/100/1000 Mbps       | -               | 2 (TN-5818A)            | -                   | 2                     | 2                          | -                     | -                          |
| Gigabit Fiber Ethernet, 1000 Mbps        | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| Fast Ethernet, 10/100 Mbps               | 16              | 16                      | 24 (8 PoE)          | 8/16                  | 8 (8 PoE) / 16 (8 PoE)     | 8/16                  | 8 (8 PoE) / 16 (8 PoE)     |
| <b>Power Supply</b>                      |                 |                         |                     |                       |                            |                       |                            |
| 24 to 110 VDC                            | ✓               | ✓                       | -                   | ✓                     | ✓                          | ✓                     | ✓                          |
| 12/24/36/48 VDC                          | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| 72/96/110 VDC                            | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| 80 to 300 VDC                            | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| 85 to 264 VAC                            | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| 24 VDC                                   | -               | -                       | ✓                   | -                     | -                          | -                     | -                          |
| 48 VDC                                   | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| 24 VAC                                   | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| <b>Installation Options</b>              |                 |                         |                     |                       |                            |                       |                            |
| DIN-Rail Mounting                        | w/ optional kit | w/ optional kit         | w/ optional kit     | w/ optional kit       | w/ optional kit            | w/ optional kit       | w/ optional kit            |
| Panel Mounting                           | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| <b>Operating Temperature</b>             |                 |                         |                     |                       |                            |                       |                            |
| -25 to 60°C (-13 to 140°F)               | -               | -                       | -                   | -                     | -                          | -                     | -                          |
| -40 to 75°C (-40 to 167°F)               | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| <b>Redundancy and Backup Options</b>     |                 |                         |                     |                       |                            |                       |                            |
| Turbo Ring (Recovery Time < 20 ms)       | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Turbo Chain (Recovery Time < 20 ms)      | -               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Turbo Ring v2 with Dynamic Ring Coupling | -               | ✓                       | -                   | ✓                     | ✓                          | ✓                     | ✓                          |
| STP/RSTP/MSTP                            | STP/RSTP        | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Bypass Relay                             | ✓               | ✓                       | -                   | ✓                     | ✓                          | -                     | -                          |
| <b>Network Management and Control</b>    |                 |                         |                     |                       |                            |                       |                            |
| IPv6                                     | -               | -                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| DHCP Option 66/67/82                     | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| LLDP                                     | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Modbus/TCP                               | -               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| IGMP/GMRP                                | IGMP v1/v2      | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Port Trunking                            | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| IEEE 802.1X                              | -               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Port Lock                                | -               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| SNMP/RMON                                | SNMP            | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| VLAN                                     | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| QoS                                      | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Relay Warning                            | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| <b>Standards and Certifications</b>      |                 |                         |                     |                       |                            |                       |                            |
| CE/FCC                                   | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| UL 508                                   | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| Railway Applications:                    |                 |                         |                     |                       |                            |                       |                            |
| EN 50155                                 | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |
| EN 50121-4                               | ✓               | ✓                       | ✓                   | ✓                     | ✓                          | ✓                     | ✓                          |

# EN 50155 Ethernet Switches

|  |                               |  |                             |                            |  |
|--|-------------------------------|--|-----------------------------|----------------------------|--|
|  | L2 Managed Ethernet Switches  |  | Unmanaged Ethernet Switches |                            |  |
|  | Gigabit Fiber Ethernet Series | Gigabit Fiber and Power-over-Ethernet Series | Fast Ethernet Series        | Power-over-Ethernet Series |  |



|  | TN-5510A-2GLSX-ODC Series | TN-5510A-8PoE-2GLSX-ODC Series | TN-5308 Series  | TN-5305 Series  | TN-5308-4PoE/8PoE Series |
|--|---------------------------|--------------------------------|-----------------|-----------------|--------------------------|
| <b>Number of Ports</b>                     |                           |                                |                 |                 |                          |
| Max. Number of Ports                       | 8                         | 8                              | 8               | 5               | 8                        |
| Gigabit Ethernet, 10/100/1000 Mbps         | -                         | -                              | -               | -               | -                        |
| Gigabit Fiber Ethernet, 1000 Mbps          | 2                         | 2                              | -               | -               | -                        |
| Fast Ethernet, 10/100 Mbps                 | 8                         | 8 (8 PoE)                      | 8               | 5               | 8 (4 PoE) / 8 (8 PoE)    |
| <b>Power Supply</b>                        |                           |                                |                 |                 |                          |
| 24 to 110 VDC                              | ✓                         | ✓                              | -               | -               | -                        |
| 12/24/36/48 VDC                            | -                         | -                              | ✓               | -               | -                        |
| 72/96/110 VDC                              | -                         | -                              | ✓               | -               | -                        |
| 80 to 300 VDC                              | -                         | -                              | -               | -               | -                        |
| 85 to 264 VAC                              | -                         | -                              | -               | -               | -                        |
| 24 VDC                                     | -                         | -                              | -               | ✓               | -                        |
| 48 VDC                                     | -                         | -                              | -               | -               | ✓                        |
| 24 VAC                                     | -                         | -                              | -               | ✓               | -                        |
| <b>Installation Options</b>                |                           |                                |                 |                 |                          |
| Din-Rail Mounting                          | w/ optional kit           | w/ optional kit                | w/ optional kit | w/ optional kit | w/ optional kit          |
| Panel Mounting                             | ✓                         | ✓                              | ✓               | ✓               | ✓                        |
| <b>Operating Temperature</b>               |                           |                                |                 |                 |                          |
| -25 to 60°C (-13 to 140°F)                 | -                         | -                              | ✓               | ✓               | ✓                        |
| -40 to 75°C (-40 to 167°F)                 | ✓                         | ✓                              | ✓               | ✓               | ✓                        |
| <b>Redundancy and Backup Options</b>       |                           |                                |                 |                 |                          |
| Turbo Ring (Recovery Time < 20 ms)         | ✓                         | ✓                              | -               | -               | -                        |
| Turbo Chain (Recovery Time < 20 ms)        | ✓                         | ✓                              | -               | -               | -                        |
| Turbo Ring v2 with Dynamic Ring Coupling   | ✓                         | ✓                              | -               | -               | -                        |
| STP/RSTP/MSTP                              | ✓                         | ✓                              | -               | -               | -                        |
| Bypass Relay                               | -                         | -                              | -               | -               | -                        |
| <b>Network Management and Control</b>      |                           |                                |                 |                 |                          |
| IPv6                                       | ✓                         | ✓                              | -               | -               | -                        |
| DHCP Option 66/67/82                       | ✓                         | ✓                              | -               | -               | -                        |
| LLDP                                       | ✓                         | ✓                              | -               | -               | -                        |
| Modbus/TCP                                 | ✓                         | ✓                              | -               | -               | -                        |
| IGMP/GMRP                                  | ✓                         | ✓                              | -               | -               | -                        |
| Port Trunking                              | ✓                         | ✓                              | -               | -               | -                        |
| IEEE 802.1X                                | ✓                         | ✓                              | -               | -               | -                        |
| Port Lock                                  | ✓                         | ✓                              | -               | -               | -                        |
| SNMP/RMON                                  | ✓                         | ✓                              | -               | -               | -                        |
| VLAN                                       | ✓                         | ✓                              | -               | -               | -                        |
| QoS  | ✓                         | ✓                              | -               | -               | -                        |
| Relay Warning                              | ✓                         | ✓                              | -               | -               | -                        |
| <b>Standards and Certifications</b>        |                           |                                |                 |                 |                          |
| CE/FCC                                     | ✓                         | ✓                              | ✓               | ✓               | ✓                        |
| UL 508                                     | ✓                         | ✓                              | ✓               | ✓               | ✓                        |
| Railway Applications: EN 50155, EN 50121-4 | ✓                         | ✓                              | ✓               | ✓               | ✓                        |



# IEC 61850-3 Ethernet Switches

Managed Ethernet Switches



|  | PT-7728-PTP | PT-7828  | PT-7728  | PT-7528  | PT-7710  | PT-G7509 | PT-508/510      | PT-G503-PHR-PTP                        |
|--|-------------|----------|----------|----------|----------|----------|-----------------|--|
| <b>Number of Ports</b>                         |             |          |          |          |          |          |                 |  |
| Max. Number of Ports                           | 28          | 28       | 28       | 28       | 10       | 9        | 8/10            | 3                                      |
| Max. Number of Hardware PTP Ports              | 14          | -        | -        | -        | -        | -        | -               | 3                                      |
| Gigabit Ethernet, 10/100/1000 Mbps             | Up to 4     | Up to 4  | Up to 4  | Up to 4  | Up to 2  | 9        | -               | 3                                      |
| Fast Ethernet, 10/100 Mbps                     | Up to 28    | Up to 28 | Up to 28 | Up to 28 | Up to 10 | 9        | 8/10            | 3                                      |
| <b>Power Supply</b>                            |             |          |          |          |          |          |                 |  |
| 24 VDC, isolated                               | ✓           | ✓        | ✓        | -        | -        | ✓        | ✓               | -                                      |
| 48 VDC, isolated                               | ✓           | ✓        | ✓        | -        | -        | ✓        | ✓               | -                                      |
| 12/24/48 VDC                                   | -           | -        | -        | -        | ✓        | -        | -               | -                                      |
| 24/48 VDC, isolated                            | -           | -        | -        | ✓        | -        | -        | -               | ✓                                      |
| 88 to 300 VDC or 85 to 264 VAC, isolated       | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| <b>Installation Options</b>                    |             |          |          |          |          |          |                 |  |
| Rack Mounting                                  | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | -               | -                                      |
| Panel Mounting                                 | -           | -        | -        | -        | ✓        | -        | w/ optional kit | w/ optional kit                        |
| DIN-Rail Mounting                              | -           | -        | -        | -        | -        | -        | ✓               | ✓                                      |
| <b>Operating Temperature</b>                   |             |          |          |          |          |          |                 |  |
| -40 to 85°C (-40 to 185°F)                     | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| <b>Redundancy and Backup Options</b>           |             |          |          |          |          |          |                 |  |
| PRP/HSR (Recovery Time ≈ 0 ms)                 | ✓           | -        | -        | -        | -        | -        | -               | ✓                                      |
| Turbo Ring/Turbo Chain (Recovery Time < 20 ms) | ✓           | ✓        | ✓        | ✓        | ✓        | -        | ✓               | -                                      |
| Turbo Ring/Turbo Chain (Recovery Time < 50 ms) | -           | -        | -        | -        | -        | ✓        | -               | -                                      |
| STP/RSTP                                       | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| Automatic Backup Configurator (ABC-01)         | ✓           | ✓        | ✓        | -        | ✓        | ✓        | ✓               | -                                      |
| Automatic Backup Configurator (ABC-02)         | -           | -        | -        | ✓        | -        | -        | -               | ✓                                      |
| Ethernet console port                          | -           | -        | -        | -        | -        | -        | -               | ✓                                      |
| <b>Network Management and Control</b>          |             |          |          |          |          |          |                 |  |
| Layer 3 Switching                              | -           | ✓        | -        | -        | -        | -        | -               | -                                      |
| IPv6   | ✓           | -        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| DHCP Option 66/67/82                           | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| NTP/SNTP                                       | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| Software-based IEEE 1588v2 PTP                 | ✓           | ✓        | ✓        | -        | ✓        | ✓        | ✓               | -                                      |
| Hardware-based IEEE 1588v2 PTP                 | ✓           | -        | -        | -        | -        | -        | -               | ✓                                      |
| LLDP   | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| Modbus TCP                                     | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| EtherNet/IP                                    | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| IGMP/GMRP                                      | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| Port Trunking                                  | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| IEEE 802.1X                                    | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| Port Lock                                      | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| TACACS+/RADIUS                                 | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | Later release by Ethernet console port |
| Port Mirror                                    | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| SNMP/RMON                                      | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| VLAN   | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| QoS  | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | -                                      |
| Relay Warning                                  | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| <b>Standards and Certifications</b>            |             |          |          |          |          |          |                 |  |
| CE/FCC   | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| UL/cUL 60950-1                                 | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | -               | -                                      |
| UL 508   | -           | -        | -        | ✓        | -        | -        | ✓               | ✓                                      |
| IEC 61850-3 (Power Substation)                 | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| IEEE 1613 (Power Substation)                   | ✓           | ✓        | ✓        | ✓        | ✓        | ✓        | ✓               | ✓                                      |
| 50121-4 (Way-side Applications)                | -           | ✓        | ✓        | ✓        | ✓        | -        | -               | ✓                                      |
| EN 50155 (Railway Applications)                | -           | ✓        | ✓        | -        | ✓        | -        | -               | -                                      |
| NEMA TS2 (Traffic Control System)              | -           | ✓        | ✓        | ✓        | ✓        | -        | -               | -                                      |

# Chassis Media Converters



|                                     | TRC-190-AC<br>TRC-190-DC-48  | CSM-200-1213<br>CSM-200-1214   | CSM-200-1218  |
|-------------------------------------|--|--|---|
| <b>Optical Fiber Interface</b>      |  |  |   |
| Fiber Connector                     | –  | SC or ST   | SC  |
| Cable Requirements                  | –  | Multi-mode: 50/125, 62.5/125, or 100/140 μm  | Single-mode: 8.3/125, 8.7/125, 9/125, or 10/125 μm      |
| Transmission Distance               | –  | 5 km   | 40 km   |
| Wavelength                          | –  | 1300 nm  | 1310 nm   |
| Tx Output                           | –  | -10 to -20 dBm   | 0 to -5 dBm   |
| Rx Sensitivity                      | –  | -32 dBm  | -34 dBm   |
| Point-to-Point Transmission         | –  | Point-to-Point Transmission: Half-duplex or full-duplex  | Point-to-Point Transmission: Half-duplex or full-duplex |
| <b>Fast Ethernet Interface</b>      |  |  |   |
| Connector                           | –  | RJ45   |   |
| Speed                               | –  | 10/100BaseT(X)   |   |
| <b>Physical Characteristics</b>     |  |  |   |
| Housing                             | SECC (1.2 mm)  | –  |   |
| Dimensions (mm)                     | 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 4.89 x 0.83 in)   |   |
| Weight                              | 5.2 kg (11.4 lb), with one power module installed  | CSM-200-1213: 115 g (0.25 lb)<br>CSM-200-1214: 125 g (0.28 lb)   | 125 g (0.28 lb)   |
| Number of Slots                     | 19 slots in the front for slide-in modules, 2 slots in the back for power supply modules   | –  |   |
| <b>Environmental Limits</b>         |  |  |   |
| Operating Temperature               | 0 to 60°C (32 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)   |  |   |
| <b>Power Requirements</b>           |  |  |   |
| Input Voltage                       | 100 to 240 VAC or 36 to 72 VDC   | 12 VDC   |   |
| Input Current                       | 3.2 A @ 36 VDC   | 180 mA @ 12 VDC  |   |
| <b>Standards and Certifications</b> |  |  |   |
| 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<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 | EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 |   |
| Freefall                            | –  | IEC 60068-2-32   |   |
| MTBF                                | Time: 1,055,112 hrs<br>Standard: Telcordia (Bellcore), GB  | Time: 1,454,560 hrs<br>Standard: Telcordia (Bellcore), GB  |   |
| <b>Reliability</b>                  |  |  |   |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |   |

# Ethernet-to-Fiber Media Converters



|  | PTC-101 Series (LV models)  | PTC-101 Series (HV models)                                | IMC-P101 Series   | IMC-101G Series  | IMC-21GA Series  | IMC-101 Series   | IMC-21A Series   | IMC-21 Series  |                            |
|--|---|---|---|--|--|--|--|--|----------------------------|
| <b>IEEE Standards</b>                    |   |   |   |  |  |  |  |  |                            |
| IEEE 802.3af                             | -   | -   | ✓   | -  | -  | -  | -  | -  |                            |
| <b>Interface</b>                         |   |   |   |  |  |  |  |  |                            |
| RJ45 Ports                               | 10/100BaseT(X)  |   |   | 10/100/1000BaseT(X)  | 10/100/1000BaseT(X), auto MDI/MDI-X  | 10/100BaseT(X)   |  |  |                            |
| M12 Port                                 | ✓   | -   | -   | -  | -  | -  | -  | -  |                            |
| Fiber Modes                              | Multi-mode Fiber / Single-mode Fiber  |   |   | Multi-mode Fiber / Single-mode Fiber   |  |  |  |  |                            |
| Fiber Ports                              | 100BaseFX (SC, ST, or LC connectors)  |   | 100BaseFX (SC or ST connectors)   | Optional 1000BaseSX/LSX/LX/LH/LHX/ZX/EZX (LC connector)  | 100/1000BaseSX/LX or 100/1000BaseSFP slot  | 100BaseFX (SC or ST connectors)  |  | 100BaseFX (SC or ST)   |                            |
| LED Indicators                           | PWR1, PWR2, Fiber Link/Act, 10/100M (TP port)   | PWR, Fiber Link/Act, 10/100M (TP port)                    | PWR1, PWR2, Fiber Link/Act, PSE Indicator, 10/100M (TP port)  | PWR1, PWR2, FAULT, 10/100M (TP port), 1000M (TP and Fiber port)  | PWR1, PWR2, G1 (copper port 10M/100M/1000M), G2 (fiber port 100M/1000M), 10/100M (TP port), 1000M (TP and Fiber port)  | PWR1, PWR2, FAULT, 10/100M (TP port), 100M (Fiber port), FDX/COL (Fiber port)  |  | Power, 10/100M (TP port), 100M (fiber port), FDX/COL (fiber port)  |                            |
| DIP Switches                             | Auto Negotiation, Force TP Speed, Force TP Duplex, Link Fault Pass Through, Operating Mode  |   | Auto Negotiation, Force TP Speed, Force TP Duplex, Link Fault Pass Through, Operating Mode, PSE, P.R.R. (PD Remote Reset)   | Port break alarm, Fault Pass-Through, Fiber AN/Force   | Fiber speed 100M/1000M, Link Fault Pass-through, Energy Efficient Ethernet   | 100BaseFX Full/Half duplex selection, Port break alarm   |  | TP port's 10/100M, Half/Full modes, and Force/Auto modes, fiber connection's Full/Half mode, Link Fault Pass-Through (LFP)   |                            |
| Alarm Contact                            | Relay output: 1 A @ 24 VDC  |   |   |  |  |  |  | -  |                            |
| <b>Multi-mode Transmission Distance</b>  |   |   |   |  |  |  |  |  |                            |
| 1000BaseSX                               | -   |   |   | See SFP-1G series datasheet  | See SFP-1G series datasheet (IMC-21GA-SX-SC) 100/1000BaseSX: 0 to 500 m, 850 nm (50/125 μm, 400 MHz*km)  | -  |  |  |                            |
| 1000BaseLX                               | -   |   |   | See SFP-1G series datasheet  | See SFP-1G series datasheet  | -  |  |  |                            |
| <b>Single-mode Transmission Distance</b> |   |   |   |  |  |  |  |  |                            |
| 1000BaseLX                               | -   |   |   | See SFP-1G series datasheet  | See SFP-1G series datasheet (IMC-21GA-LX-SC) 100/1000BaseLX: 0 to 10 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))  | -  |  |  |                            |
| 1000BaseLHX                              | -   |   |   | See SFP-1G series datasheet  | See SFP-1G series datasheet  | -  |  |  |                            |
| 1000BaseZX                               | -   |   |   | See SFP-1G series datasheet  | See SFP-1G series datasheet  | -  |  |  |                            |
| <b>Physical Characteristics</b>          |   |   |   |  |  |  |  |  |                            |
| Housing                                  | Metal (IP30)  |   |   |  |  |  |  | Plastic (IP30)   |                            |
| Dimensions (mm)                          | 66.65 x 135.1 x 101.4 mm (5.99 x 4.86 x 2.62 in)  | 66.65 x 135.1 x 101.4 mm (5.99 x 4.86 x 2.62 in)          | 51.65 x 144.45 x 110.2 mm (2.03 x 5.69 x 4.34 in)   | 53.6 x 135 x 105 mm (2.11 x 5.32 x 4.13 in)  | 30 x 125 x 79 mm (1.19 x 4.92 x 3.11 in)   | 53.6 x 135 x 105 mm (2.11 x 5.32 x 4.13 in)  | 30 x 125 x 79 mm (1.19 x 4.92 x 3.11 in)   | 25 x 109 x 97 mm (0.98 x 4.29 x 3.82 in)   |                            |
| Weight                                   | 690 g (1.52 lb)   | 690 g (1.52 lb)   | 525 g (1.16 lb)   | 630 g (1.39 lb)  | 170 g (0.37 lb)  | 630 g (1.39 lb)  | 170 g (0.37 lb)  | 125 g (0.27 lb)  |                            |
| Installation                             | DIN-rail mounting, wall mounting (with optional kit)  |   |   |  |  |  |  | DIN-rail mounting  |                            |
| <b>Environmental Limits</b>              |   |   |   |  |  |  |  |  |                            |
| Operating Temperature                    | -40 to 85°C (-40 to 185°F)  |   | Standard Models: 0 to 60°C (32 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F)   |  |  | -10 to 60°C (14 to 140°F)  |  |  |                            |
| Operating 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 70°C (-40 to 158°F) |
| <b>Power Requirements</b>                |   |   |   |  |  |  |  |  |                            |
| Input Voltage                            | 20 to 72 VDC  | 85 to 264 VAC<br>88 to 300 VDC                            | 48 VDC (46 to 57 VDC), redundant inputs   | 12 to 45 VDC redundant inputs  | 12 to 48 VDC redundant inputs  | 12 to 45 VDC redundant inputs  | 12 to 48 VDC   |  |                            |
| Input Current                            | 170 mA @ 20 VDC   | 73 mA @ 85 VAC<br>47 mA @ 88 VDC                          | 130 mA @ 46 VDC   | 220 mA @ 12 VDC  | 285 mA @ 12 VDC  | 320 mA @ 12 VDC  | 265 mA @ 12 VDC  | 300 mA @ 12 VDC  |                            |
| Connection                               | Removable terminal block  |   |   |  |  |  |  |  |                            |
| Overload Current Protection              | 1.6 A   | 1.6 A   | 1.6 A   | 2.5 A  | 1.5 A  | 1.1 A  | 1.1 A  | 1.1 A  |                            |
| Reverse Polarity Protection              | ✓   | ✓   | ✓   | ✓  | ✓  | ✓  | ✓  | ✓  |                            |
| PoE                                      | -   | -   | PSE, provides up to 15.4 W for PD   | -  | -  | -  | -  | -  |                            |
| <b>Standards and Certifications</b>      |   |   |   |  |  |  |  |  |                            |
| Safety                                   | UL 60950-1  | UL 60950-1  | UL 508  | UL 508   | UL 60950-1   | UL 508, UL 60950-1   | UL 60950-1   | UL 508   |                            |
| 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<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>EN 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 |   | EN 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>EN 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 | EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 | EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>EN 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 | EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 | EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 1 V/m<br>EN 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 | EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 1 V/m<br>EN 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 |                            |
| Hazardous Location                       | -   | -   | -   | UL/cUL Class1, Division 2, Groups A, B, C, and D, ATEX Class1, Zone 2, Ex nC IIC   | -  | UL/cUL Class1, Division 2, Groups A, B, C, and D, ATEX Class1, Zone 2, Ex nC IIC   | -  | -  |                            |
| Electrical Substation                    | IEC 61850-3, IEEE 1613  | IEC 61850-3, IEEE 1613                                    | -   | -  | -  | -  | -  | -  |                            |
| Rail Traffic                             | EN 50121-4  | EN 50121-4  | -   | -  | -  | -  | -  | -  |                            |
| Freefall                                 | IEC 60068-2-32  | -   | -   | -  | -  | -  | -  | -  |                            |
| Shock                                    | IEC 60068-2-27  | -   | -   | -  | -  | -  | -  | -  |                            |
| Vibration                                | IEC 60068-2-6   | -   | -   | -  | -  | -  | -  | -  |                            |
| Maritime                                 | -   | -   | -   | -  | -  | DNV, GL  | -  | -  |                            |
| MTBF                                     | Time: 1,211,613 hrs<br>Standard: Telcordia (Bellcore), GB   | Time: 1,211,613 hrs<br>Standard: Telcordia (Bellcore), GB | Time: 435,210 hrs<br>Standard: Telcordia (Bellcore), GB   | Time: 500,540 hrs<br>Standard: Telcordia (Bellcore), GB  | Time: 2,573,203 hrs<br>Standard: Telcordia (Bellcore), GB  | Time: 401,000 hrs<br>Standard: MIL-HDBK-217F   | Time: 353,000 hrs<br>Standard: MIL-HDBK-217F   | Time: 353,000 hrs<br>Standard: MIL-HDBK-217F   |                            |
| Reliability                              | 5 years (see <a href="http://www.moxa.com/warranty">http://www.moxa.com/warranty</a> )  |   |   |  |  |  |  |  |                            |

Ethernet Media Converters and Extenders > Ethernet-to-Fiber Media Converters



# Managed DSL Ethernet Extenders

Preliminary



|   | IEX-408E-2VDSL2 | IEX-402-SHDSL   | IEX-402-VDSL2   |
|---|-----------------|-----------------|-----------------|
| <b>Number of Ports</b>  |                 |                 |                 |
| Fast Ethernet, 10/100 Mbps  | 6               | 1               | 1               |
| DSL Port  | 2               | 1               | 1               |
| <b>Available Power Input</b>  |                 |                 |                 |
| 12/24/48 VDC  | ✓               | ✓               | ✓               |
| 110/220 VDC/VAC   | ✓               | –               | –               |
| <b>Installation Options</b>   |                 |                 |                 |
| DIN-Rail Mounting   | ✓               | ✓               | ✓               |
| Panel Mounting  | w/ optional kit | w/ optional kit | w/ optional kit |
| Rack Mounting   | w/ optional kit | w/ optional kit | w/ optional kit |
| <b>Supported Operating Temperatures</b>                               |                 |                 |                 |
| -10 to 60°C   | ✓               | ✓               | ✓               |
| -40 to 75°C   | ✓               | ✓               | ✓               |
| <b>Redundancy and Backup Options</b>                                  |                 |                 |                 |
| Turbo Ring  | ✓               | –               | –               |
| Turbo Chain   | ✓               | –               | –               |
| STP/RSTP  | ✓               | –               | –               |
| MSTP  | ✓               | –               | –               |
| Automatic Backup Configurator (ABC-01)                                | –               | ✓               | ✓               |
| Automatic Backup Configurator (ABC-02)                                | ✓               | –               | –               |
| <b>Network Management and Control</b>                                 |                 |                 |                 |
| SNMP v1/v2c/v3  | ✓               | ✓               | ✓               |
| LLDP  | ✓               | ✓               | ✓               |
| IPv6  | ✓               | ✓               | ✓               |
| Layer 3 Switching   | –               | –               | –               |
| Port Trunking   | ✓               | –               | –               |
| Modbus/TCP  | ✓               | –               | –               |
| Ethernet/IP   | ✓               | –               | –               |
| PROFINET  | ✓               | –               | –               |
| SNMP/RMON   | ✓               | –               | –               |
| DHCP Option 66/67/82  | ✓               | –               | –               |
| IGMP Snooping/GMRP  | ✓               | –               | –               |
| QoS   | ✓               | –               | –               |
| IEEE 802.1Q VLAN  | ✓               | –               | –               |
| Port-based VLAN   | ✓               | –               | –               |
| IEEE 802.1X   | ✓               | –               | –               |
| Port Lock   | ✓               | –               | –               |
| Relay Warning   | ✓               | –               | –               |
| <b>Maximum Support Speed / Distance over Twisted-Pair Copper Wire</b> |                 |                 |                 |
| 100 Mbps / 3 km   | ✓               | –               | ✓               |
| 15.3 Mbps / 8 km  | –               | ✓               | –               |
| <b>Standards and Certifications</b>                                   |                 |                 |                 |
| CE/FCC  | ✓               | ✓               | ✓               |
| UL 61010-2-201  | ✓               | –               | –               |
| EN 60950-1 (LVD)  | ✓               | –               | –               |
| UL 508  | –               | ✓               | ✓               |
| NEMA TS2  | ✓               | –               | ✓               |
| EN 50121-4  | ✓               | ✓               | ✓               |

# Industrial Ethernet Gateways (Modbus)



|                                     | MGate MB3180   | MGate MB3280 | MGate MB3480                                | MGate MB3170<br>MGate MB3170-T<br>MGate MB3170I<br>MGate MB3170I-T | MGate MB3170-M-SC (-T)<br>MGate MB3170-M-ST (-T)<br>MGate MB3170-S-SC (-T)<br>MGate MB3170I-M-SC (-T)<br>MGate MB3170I-S-SC (-T)  | MGate MB3270<br>MGate MB3270-T<br>MGate MB3270I<br>MGate MB3270I-T | MGate MB3660-8-2AC<br>MGate MB3660-8-2DC<br>MGate MB3660I-8-2AC<br>MGate MB3660-16-2AC<br>MGate MB3660-16-2DC  |   |   |
|-------------------------------------|--|--------------|---|--|---|--|--|---|---|
| <b>Ethernet Interface</b>           |  |              |   |  |   |  |  |   |   |
| Protocols                           | Modbus TCP   |              |   |  |   |  |  |   |   |
| Number of Ports                     | 1  |              |   | 2 (1 IP, Cascade)  |   | 2 (1 IP, Cascade)  |  |   |   |
| Number of Fiber Ports               | -  |              |   |  |   |  |  |   |   |
| Speed                               | 10/100 Mbps, Auto MDI/MDIX   |              |   |  | 100 Mbps  |  | 10/100 Mbps, Auto MDI/MDIX   |   |   |
| Connector                           | RJ45   |              |   |  | SC, ST  |  | RJ45   |   |   |
| Magnetic Isolation Protection       | 1.5 kV (built-in)  |              |   |  |   |  |  |   |   |
| <b>Serial Interface</b>             |  |              |   |  |   |  |  |   |   |
| Protocols                           | Modbus RTU/ASCII   |              |   |  |   |  |  |   |   |
| Number of Ports                     | 1  |              | 2   |  | 4   |  | 1  |   |   |
| Serial Standards                    | RS-232/422/485   |              |   |  |   |  |  |   |   |
| Connectors                          | DB9-M  |              |   |  | RS-232: DB9-M, RS-422/485: Terminal block   |  | DB9-M  |   |   |
| ESD Protection                      | 15 kV  |              |   |  |   |  |  |   |   |
| RS-485 Data Direction Control       | ADDC®  |              |   |  |   |  |  |   |   |
| Serial Communication Parameters     | Data Bits: 7, 8<br>Stop Bits: 1, 2   |              |   |  |   |  |  |   |   |
| Parity                              | None, Even, Odd, Space, Mark   |              |   |  |   |  |  |   |   |
| Flow Control                        | RTS/CTS, DTR/DSR, RTS Toggle (RS-232 only)   |              |   |  |   |  |  |   |   |
| Baudrate                            | 50 bps to 921.6 kbps   |              |   |  |   |  |  |   |   |
| Isolation                           | -  |              |   |  | 2 kV (built-in, -I model only)  |  |  |   |   |
| <b>Software</b>                     |  |              |   |  |   |  |  |   |   |
| Utility                             | MGate Manager for Windows 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows 7/8/8.1 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2   |              |   |  |   |  | Device Search Utility (DSU) for Windows O.S.   |   |   |
| Smart Routing                       | ✓  |              | ✓   |  | ✓   |  | ✓  |   |   |
| Serial Redirection                  | -  |              | -   |  | -   |  | -  |   |   |
| ProCOM                              | -  |              | -   |  | -   |  | -  |   |   |
| Priority Control                    | -  |              | -   |  | -   |  | -  |   |   |
| MXview/MXconfig                     | ✓  |              | ✓   |  | ✓   |  | ✓  |   |   |
| SNMP                                | v1 (read only)   |              |   |  |   |  |  |   |   |
| <b>Physical Characteristics</b>     |  |              |   |  |   |  |  |   |   |
| Housing                             | Metal (IP30)   |              |   | Plastic (IP30)   |   |  | Metal (IP30)   |   |   |
| Dimensions                          | 22 x 52 x 80 mm<br>(0.87 x 2.05 x 3.15 in)   |              | 22 x 77 x 111 mm<br>(0.87 x 3.03 x 4.37 in) |  | 35.5 x 102.7 x 157.2 mm<br>(1.40 x 4.04 x 6.19 in)  |  | 29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in)   |   |   |
| Weight                              | 340 g (0.75 lb)  |              | 360 g (0.79 lb)                             |  | 740 g (1.63 lb)   |  | 360 g (0.79 lb)    360 g (0.79 lb)    380 g (0.84 lb)  |   |   |
| <b>Environmental Limits</b>         |  |              |   |  |   |  |  |   |   |
| Operating Temperature               | 0 to 60°C (32 to 140°F)  |              |   |  | Standard Models: 0 to 60°C (32 to 140°F)<br>Wide Temp. Models: -40 to 75°C (-40 to 167°F)   |  |  | 0 to 60°C (32 to 140°F)   |   |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   |              |   |  |   |  |  |   |   |
| Ambient Relative Humidity           | 5 to 95% RH (non-condensing)   |              |   |  |   |  |  |   |   |
| Shock                               | -  |              |   | IEC 60068-2-27   |   |  |  |   |   |
| Drop                                | -  |              |   | IEC 60068-2-32   |   |  |  |   |   |
| Vibration                           | -  |              |   | IEC 60068-2-6, IEC 60068-2-64                                      |   |  |  |   |   |
| <b>Power Requirements</b>           |  |              |   |  |   |  |  |   |   |
| Input Voltage                       | 12 to 48 VDC   |              |   |  |   |  |  | For DC models: Dual 20 to 60 VDC<br>For AC models: Dual 100 to 240 VAC, 47 to 63 Hz |   |
| Input Current                       | 200 mA @ 12 VDC  |              | 250 mA @ 12 VDC                             |  | 385 mA @ 12 VDC   |  | MGate MB3170-M-SC: 510 mA @ 12 VDC<br>MGate MB3170-M-ST: 435 mA @ 12 VDC<br>MGate MB3170-S-SC: 555 mA @ 12 VDC<br>MGate MB3170I-M-SC: 555 mA @ 12 VDC<br>MGate MB3170I-S-SC: 555 mA @ 12 VDC<br>MGate MB3270: 435 mA @ 12 VDC<br>MGate MB3270I: 510 mA @ 12 VDC<br>MGate MB3660-8-2AC: 144 mA @ 110 VAC<br>MGate MB3660-8-2DC: 312 mA @ 24 VDC<br>MGate MB3660I-8-2AC: 244 mA @ 110 VAC<br>MGate MB3660-16-2AC: 178 mA @ 110 VAC<br>MGate MB3660-16-2DC: 390 mA @ 24 VDC |   |   |
| Power Connector                     | Power jack   |              | Power jack and terminal block               |  |   | Terminal block   |  | Terminal block (for DC models)  |   |
| <b>Standards and Certifications</b> |  |              |   |  |   |  |  |   |   |
| Safety                              | UL 60950-1, EN 60950-1   |              |   |  | UL 508, EN 60950-1  |  |  | UL 60950-1, EN 60950-1  |   |
| Hazardous Location                  | -  |              |   |  | UL/cUL Class 1 Division 2 Groups A/B/C/D, ATEX Zone 2 Ex na IIC T3 Gc, IECEx  |  |  | -   |   |
| EMC                                 | EN 55022/24  |              |   |  | EN 55022/24   |  |  |   |   |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |              |   |  | CISPR 22, FCC Part 15B Class A  |  |  |   |   |
| EMS                                 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV (MB3180/MB3280)<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 2 kV (MB3480)<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |              |   |  | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |  |  |   | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m<br>IEC 61000-4-8 PFMF |
| Marine                              | -  |              |   |  | DNV   |  |  |   |   |
| Reliability                         | -  |              |   |  |   |  |  |   |   |
| Warranty                            | 5 years (see www.moxa.com/warranty)  |              |   |  |   |  |  |   |   |

Industrial Ethernet Gateways > Industrial Ethernet Gateways (Modbus)

# Industrial Ethernet Gateways



|                                     | MGate 4101-MB-PBS<br>MGate 4101-MB-PBS-T<br>MGate 4101I-MB-PBS<br>MGate 4101I-MB-PBS-T  | MGate 5101-PBM-MN<br>MGate 5101-PBM-MN-T   | MGate 5102-PBM-PN<br>MGate 5102-PBM-PN-T   | MGate 5105-MB-EIP<br>MGate 5105-MB-EIP-T   | MGate EIP3170<br>MGate EIP3170-T<br>MGate EIP3170I<br>MGate EIP3170I-T  | MGate EIP3270<br>MGate EIP3270-T<br>MGate EIP3270I  |
|-------------------------------------|---|--|--|--|---|---|
| <b>Ethernet Interface</b>           |   |  |  |  |   |   |
| Protocols                           | –   | Modbus TCP   | PROFINET RT  | EtherNet/IP, Modbus TCP  | CIP (PCCC) on EtherNet/IP   |   |
| Number of Ports                     | –   | 1  | 2 (1 IP, Ethernet cascade)   |  | –   |   |
| Connectors                          | –   | RJ45   | –  |  |   |   |
| Magnetic Isolation Protection       | –   | 1.5 kV (built-in)  | –  |  |   |   |
| Speed                               | –   | 10/100 Mbps, Auto MDI/MDIX   |  |  |   |   |
| <b>Serial Interface 1: PROFIBUS</b> |   |  |  |  |   |   |
| Protocols                           | PROFIBUS DP-VO Slave  | PROFIBUS DP-V1 Master  | –  |  |   |   |
| Number of Ports                     | 1   | –  |  |  |   |   |
| Data Rate                           | 9600 bps to 12 Mbps   | –  |  |  |   |   |
| Connector                           | DB9-F   | –  |  |  |   |   |
| Isolation Protection                | 2 kV (built-in)   | –  |  |  |   |   |
| <b>Serial Interface 2: Modbus</b>   |   |  |  |  |   |   |
| Protocols                           | Modbus RTU/ASCII  | –  | –  | Modbus RTU/ASCII   | DF1 (full-duplex)   |   |
| Number of Ports                     | 1   | –  | –  | 1  | 1   | 2   |
| Serial Standards                    | RS-232/422/485, software selectable   | –  | –  | RS-232/422/485, software selectable  | RS-232/422  |   |
| Connectors                          | DB9-M   | –  | –  | DB9-M  | RS-232: DB9-M,<br>RS-422: Terminal block  | DB9-M   |
| ESD Protection                      | 15 kV   | –  | –  | –  | 15 kV   |   |
| RS-485 Data Direction Control       | ADDC®   | –  | –  | ADDC®  | –   |   |
| Serial Communication Parameters     | Data Bits: 7, 8<br>Stop Bits: 1, 2  | –  | –  | Data Bits: 7, 8<br>Stop Bits: 1, 2   | Data Bits: 8<br>Stop Bits: 1, 2   |   |
| Parity                              | None, Even, Odd, Space, Mark  | –  | –  | None, Even, Odd, Space, Mark   | None, Even, Odd   |   |
| Flow Control                        | RTS/CTS, DTR/DSR (RS-232 only)  | –  | –  | RTS/CTS, RTS Toggle (RS-232 only)  | RTS/CTS, DTR/DSR (RS-232 only)  |   |
| Baudrate                            | 50 bps to 921.6 Kbps  | –  | –  | 50 bps to 921.6 kbps   | 1200 bps to 921.6 Kbps  |   |
| Isolation Protection                | 2 kV (built-in, -I model only)  | –  | –  | 2 kV (built-in)  | 2 kV (built-in, -I model only)  |   |
| <b>Software</b>                     |   |  |  |  |   |   |
| Utility                             | MGate Manager for Windows 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows 7/8.1 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2  |  |  |  |   |   |
| QuickLink                           | ✓   | –  | –  | –  | –   |   |
| Paging                              | ✓   | –  | –  | –  | –   |   |
| AutoScan                            | –   | ✓  | ✓  | –  | –   |   |
| MXview/Mxconfig                     | –   | ✓  | ✓  | ✓  | ✓   |   |
| SNMP                                | –   | v1, v2, v3, Private MIB  |  |  | v1 (read only)  |   |
| <b>Physical Characteristics</b>     |   |  |  |  |   |   |
| Housing                             | Metal (IP30)  |  |  |  | Plastic (IP30)  |   |
| Dimensions                          | 36 x 105 x 140 mm (1.42 x 4.14 x 5.51 in)   |  |  |  | 29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in)  |   |
| Weight                              | 500 g (1.10 lb)   |  |  | 507 g (1.12 lb)  | 360 g (0.79 lb)   | 380 g (0.84 lb)   |
| Storage Card Slot                   | –   |  |  | 1 microSD (SDHC) card slot (supports up to 32 GB)  | –   |   |
| <b>Environmental Limits</b>         |   |  |  |  |   |   |
| 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 85°C (-40 to 185°F)  |  |  |  |   |   |
| Ambient Relative Humidity           | 5 to 95% RH (non-condensing)  |  |  |  |   |   |
| Shock                               | IEC 60068-2-27  |  |  |  |   |   |
| Drop                                | IEC 60068-2-32  |  |  |  |   |   |
| Vibration                           | IEC 60068-2-6, IEC 60068-2-64   |  |  |  |   |   |
| <b>Power Requirements</b>           |   |  |  |  |   |   |
| Input Voltage                       | 12 to 48 VDC  |  |  |  |   |   |
| Input Current                       | MGate 4101-MB-PBS: 340 mA @ 12 VDC; 130 mA @ 48 VDC<br>MGate 4101I-MB-PBS: 375 mA @ 12 VDC; 140 mA @ 48 VDC   | 365 mA @ 12 VDC  | 430 mA @ 12 VDC  | 455 mA @ 12 VDC;<br>125 mA @ 48 VDC  | MGate EIP3170:<br>435 mA @ 12 VDC<br>MGate EIP3170I:<br>555 mA @ 12 VDC   | MGate EIP3270:<br>435 mA @ 12 VDC<br>MGate EIP3270I: 510 mA @ 12 VDC  |
| Power Connector                     | Terminal block  |  |  |  |   |   |
| <b>Standards and Certifications</b> |   |  |  |  |   |   |
| Safety                              | UL 60950-1, EN 60950-1  |  | UL 508, EN 60950-1   |  |   |   |
| Hazardous Location                  | Class 1 Division 2, ATEX, IECEx   |  |  |  |   |   |
| EMC                                 | EN 55022/24   |  |  |  |   |   |
| EMI                                 | CISPR 22, FCC Part 15B Class A  |  |  | 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz; 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz; 3 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz; 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz; 10 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz; 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz; 10 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz; 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz; 10 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz; 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 4 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz; 10 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz; 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 4 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz; 10 V/m<br>IEC 61000-4-8 PFMF |
| <b>Reliability</b>                  |   |  |  |  |   |   |
| Warranty                            | 5 years (see www.moxa.com/warranty)   |  |  |  |   |   |

Industrial Ethernet Gateways > Industrial Ethernet Gateways

# Industrial Ethernet Gateways (Wireless)

Preliminary



\*Available in March, 2016

Preliminary



\*Available in March, 2016

|  | MGate W5108<br>MGate W5108-T   | MGate W5208<br>MGate W5208-T               |
|--|--|--|
| <b>Ethernet Interface</b>                |  |  |
| Protocols                                | Modbus TCP, DNP3, TCP Server/Client modes supported  |  |
| Number of Ports                          | 1  |  |
| Connectors                               | RJ45   |  |
| Magnetic Isolation Protection            | 1.5 kV (built-in)  |  |
| Speed                                    | 10/100 Mbps, Auto MDI/MDIX   |  |
| <b>Serial Interface</b>                  |  |  |
| Protocols                                | Modbus RTU/ASCII, DNP3   |  |
| Number of Ports                          | 1  | 2  |
| Serial Standards                         | RS-232/422/485, software selectable  |  |
| Baudrate                                 | 50 bps to 921.6 kbps   |  |
| Flow Control                             | RTS/CTS, RTS Toggle (for RS-232 only), XON/XOFF (for RAW TCP only)   |  |
| Serial Communication Parameters          | Data Bits: 7, 8<br>Stop Bits: 1, 2   |  |
| Parity                                   | None, Even, Odd, Space, Mark   |  |
| Connector                                | DB9-M  |  |
| Isolation Protection                     | 2 kV (built-in)  |  |
| <b>Wireless Interface</b>                |  |  |
| Standards                                | 802.11 a/b/g/n   |  |
| Number of Antenna                        | 1  |  |
| Network Mode                             | Infrastructure, Ad-Hoc   |  |
| Antenna Connector                        | Reverse SMA  |  |
| Transmission Rate                        | 802.11a/g: 65, 54, 48, 36, 24, 18, 12, 9, 6 Mbps, auto rate; 802.11b: 11, 5.5, 2, 1 Mbps, auto rate; 802.11n 2.4 GHz: HT20, MCS 0-7; 802.11n 5 GHz: HT20 & HT40 MCS 0-7  |  |
| Transmission Distance                    | Up to 100 meters (in open areas)   |  |
| <b>Inputs and Outputs</b>                |  |  |
| Digital Input                            | 2 channel  |  |
| Digital Output                           | 2 channel  |  |
| Contact Type                             | 6-pin terminal block   |  |
| DI: Dry Contact                          | On: Short to GND<br>Off: Open  |  |
| DI: Wet Contact (source type, COM to DI) | Sensor Type: NPN<br>Off: +3 VDC max.<br>On: +10 to 30 V  |  |
| Digital Output (Sink Type):              | On: Short to GND<br>Off: OPEN to GND<br>Driver Current: Max. 200 mA per channel<br>On-state voltage: 24 VDC nominal, open collector to 30 V  |  |
| <b>Software</b>                          |  |  |
| Utility                                  | Device Search Utility (DSU) for Windows 95, 98, ME, NT, 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows 7/8/8.1 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2   |  |
| Network Protocols                        | TCP/IP, UDP, HTTP, SMTP, NTP, DNS, DHCP Client, ARP, Telnet  |  |
| Security                                 | Authentication: WEP encryption ( 64 or 128 bit), WPA / WPA2-Personal and Enterprise (IEEE 802.1X/RADIUS, TKIP and AES)<br>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+F120 |  |
| MXview/Mxconfig                          | ✓  |  |
| SNMP                                     | v1, v2, v3, Private MIB  |  |
| <b>Physical Characteristics</b>          |  |  |
| Housing                                  | Metal (IP30)   |  |
| Dimensions                               | 45.8 x 105 x 134 mm (1.8 x 4.13 x 5.28 in)   | 59.6 x 101.7 x 134 mm (2.35 x 4 x 5.28 in) |
| Weight                                   | 589 g (1.30 lb)  | 738 g (1.63 lb)                            |
| Storage Card Slot                        | 1 microSD (SDHC) card slot (supports up to 32 GB)  |  |
| <b>Environmental Limits</b>              |  |  |
| 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 85°C  |  |
| Ambient Relative Humidity                | 5 to 95% (non-condensing)  |  |
| Shock                                    | IEC 60068-2-27   |  |
| Drop                                     | IEC 60068-2-32   |  |
| Vibration                                | IEC 60068-2-6, IEC 60068-2-64  |  |
| <b>Power Requirements</b>                |  |  |
| Input Voltage                            | 9 to 60 VDC  |  |
| Input Current                            | 495 mA @ 9 VDC; 202 mA @ 24 VDC; 114 mA @ 48 VDC; 99 mA @ 60 VDC   |  |
| Power Connector                          | 3-pin terminal block   |  |
| <b>Standards and Certifications</b>      |  |  |
| Safety                                   | UL 508, EN 60950-1   |  |
| Hazardous Location                       | Class 1 Division 2, ATEX, and IECEx certification processes are underway. Please contact a Moxa sales representative for details.  |  |
| 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: 10 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: 10 V/m<br>IEC 61000-4-8 PFMF  |  |
| Radio                                    | EN 300328, EN 301893, TELECOM CE (ETSI EN 301 893, ETSI EN 300 328), ARIB RCR STD-33, ARIB STD-66  |  |
| <b>Reliability</b>                       |  |  |
| Warranty                                 | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |

Industrial Ethernet Gateways > Industrial Ethernet Gateways (Wireless)



# Industrial Wireless IEEE 802.11 Solutions



|   | Single-RF Wireless Tranceiver                                      |  |  |   | Dual-RF Wireless Tranceiver  |  |
|---|--|--|--|---|--|--|
|   | AWK-1131A  | AWK-3131A  | AWK-4131A  | AWK-3191  | AWK-5232   | AWK-6232   |
| <b>WLAN</b>                                   |  |  |  |   |  |  |
| Wireless Standard                             | 802.11a/b/g/n  | 802.11a/b/g/n  | 802.11a/b/g/n  | 900 MHz   | 802.11a/b/g/n  | 802.11a/b/g/n  |
| Number of RF Modules                          | 1  | 1  | 1  | 1   | 2  | 2  |
| Maximum Data Rate                             | 300 Mbps   | 300 Mbps   | 300 Mbps   | 54 Mbps   | 300 Mbps   | 300 Mbps   |
| Transmission Distance (with Default Antennas) | Up to 100 meters (in open areas)                                   | Up to 100 meters (in open areas)                                   | Up to 100 meters (in open areas)                                   | Up to 30 km point-to-point (with high gain Yagi-antennas) | Up to 100 meters (in open areas)                                   | Up to 100 meters (in open areas)                                   |
| <b>Interfaces</b>                             |  |  |  |   |  |  |
| Total Number of Antenna Ports                 | 2 (2x2 MIMO)   | 2 (2x2 MIMO)   | 2 (2x2 MIMO)   | 2 (2R1T Diversity)  | 4 (2x2 MIMO)   | 4 (2x2 MIMO)   |
| Antenna Port Type                             | RP-SMA (female)  | RP-SMA (female)  | N-Type (female)  | RP-SMA (female)   | RP-SMA (female)  | N-Type (female)  |
| Total Number of LAN Ports                     | 1  | 1  | 1  | 1   | 2  | 2  |
| LAN Port Type                                 | RJ45   | RJ45   | Waterproof RJ45  | RJ45  | RJ45   | M12 (female 8-pin A-coded)   |
| LAN Port Speed                                | 10/100/1000BaseT(X)  | 10/100/1000BaseT(X)  | 10/100/1000BaseT(X)  | 10/100BaseT(X)  | 10/100/1000BaseT(X)  | 10/100/1000BaseT(X)  |
| RS-232 Console Ports                          | 1, RJ45  | 1, RJ45  | 1, waterproof RJ45   | 1, RJ45   | 1, RJ45  | 1, waterproof RJ45   |
| DI/DO   | -  | ✓  | ✓  | ✓   | ✓  | ✓  |
| DI/DO Connection Type                         | -  | 10-pin terminal block  | M12 (female 8-pin A-coded)   | 10-pin terminal block                                     | 10-pin terminal block  | M12 (male 8-pin A-coded)   |
| <b>Housing Protection</b>                     |  |  |  |   |  |  |
| IP-rating                                     | IP30   | IP30   | IP68   | IP30  | IP30   | IP68   |
| <b>Installation Options</b>                   |  |  |  |   |  |  |
| DIN-Rail Mounting                             | ✓  | ✓  | ✓ (optional)   | ✓   | ✓  | ✓ (optional)   |
| Wall Mounting                                 | ✓ (optional)   | ✓ (optional)   | ✓  | ✓ (optional)  | ✓ (optional)   | ✓  |
| Pole Mounting                                 | -  | -  | ✓ (optional)   | -   | -  | ✓ (optional)   |
| <b>Supported Operating Temperatures</b>       |  |  |  |   |  |  |
| -25 to 60°C (-13 to 140°F)                    | -  | ✓  | -  | ✓   | ✓  | -  |
| 0 to 60°C (32 to 140°F)                       | ✓  | -  | -  | -   | -  | -  |
| -40 to 75°C (-40 to 167°F)                    | ✓  | ✓  | ✓  | ✓   | ✓  | ✓  |
| <b>Power Requirements</b>                     |  |  |  |   |  |  |
| Input Voltage                                 | 12 to 48 VDC   | 12 to 48 VDC   | 12 to 48 VDC   | 12 to 48 VDC  | 12 to 48 VDC   | 12 to 48 VDC   |
| Connector Type                                | 4-pin terminal block   | 10-pin terminal block  | M12 (male 5-pin A-coded)   | 10-pin terminal block                                     | 10-pin terminal block  | M12 (male 5-pin A-coded)   |
| PoE Support                                   | -  | ✓  | ✓  | ✓   | ✓  | ✓  |
| Reverse Polarity Protection                   | ✓  | ✓  | ✓  | ✓   | ✓  | ✓  |
| <b>Standards and Certifications</b>           |  |  |  |   |  |  |
| Safety  | UL 60950-1, EN 60950-1   | UL 60950-1, EN 60950-1   | UL 60950-1, EN 60950-1   | UL 60950-1  | UL 60950-1, EN 60950-1   | UL 60950-1, EN 60950-1   |
| Hazardous Location                            | -  | UL/cUL Cl D2, ATEX Zone 2, IECEx                                   | -  | UL/cUL Cl D2  | -  | -  |
| EMC   | EN 55022/24  | EN 61000-6-2/6-4   | EN 61000-6-2/6-4   | -   | EN 55022/55024   | EN 55022/24  |
| Radio   | EN 301 489-1/17, EN 300 328, EN 301 893, TELEC, FCC ID SLE-WAPN005 | EN 301 489-1/17, EN 300 328, EN 301 893, TELEC, FCC ID SLE-WAPN005 | EN 301 489-1/17, EN 300 328, EN 301 893, TELEC, FCC ID SLE-WAPN008 | FCC ID SLE-WAFS001  | EN 301 489-1/17, EN 300 328, EN 301 893, TELEC, FCC ID SLE-WAPN001 | EN 301 489-1/17, EN 300 328, EN 301 893, TELEC, FCC ID SLE-WAPN001 |

Industrial Wireless LAN Solutions > Industrial Wireless IEEE 802.11 Solutions

# Cellular Routers & LTE Cellular Gateway



|                                     | Cellular Router  |   |   | Cellular Advanced IP Gateway   |
|-------------------------------------|--|---|---|--|
|                                     | WDR-3124A  | OnCell 5004-HSPA  | OnCell 5104-HSPA                          | OnCell G3470A-LTE  |
| <b>Cellular Interface</b>           |  |   |   |  |
| Standards                           | GSM/GPRS/EDGE/UMTS/HSPA  |   |   | GSM/GPRS/EDGE/UMTS/HSPA/LTE  |
| 4G Band Options                     | -  | -   | -   | EU model: 2100/1800/2600/900/800 MHz (B1/B3/B7/B8/B20)<br>US model: 1900/AWS/850/700/1900 MHz (B2/B4/B5/B13/B17/B25)   |
| LTE Data Rate                       | -  | -   | -   | 20 MHz bandwidth: 100 Mbps DL, 50 Mbps UL<br>10 MHz bandwidth: 50 Mbps DL, 25 Mbps UL  |
| 3G Band Options                     | 800/850/900/1900/2100 MHz  | 800/850/AWS/1900/2100 MHz   |   | EU model: 800/850/900/1900/2100 MHz<br>US model: 850/900/AWS/1900/2100 MHz   |
| HSPA Data Rate                      | 14.4 Mbps DL, 5.76 Mbps UL (Category 6, 7)   | 14.4 Mbps DL, 5.76 Mbps UL  |   | 42 Mbps DL, 5.76 Mbps UL (Category 24, 6)  |
| 2G Band Options                     | 850/900/1800/1900 MHz  |   |   | 850/900/1800/1900 MHz  |
| EDGE Data Rate                      | 237 kbps DL, 237 kbps UL (Class 12)  | 237 kbps DL, 237 kbps UL  |   | 237 kbps DL, 237 kbps UL (Class 10, 12)  |
| GPRS Data Rate                      | 85.6 kbps DL, 85.6 kbps UL   | 85.6 kbps DL, 85.6 kbps UL  |   | 85.6 kbps DL, 42.8 kbps UL   |
| <b>Ethernet WAN Interface</b>       |  |   |   |  |
| Number of Ports                     | -  | 1   | -   | -  |
| Ethernet                            | -  | 10/100M (RJ45)  | -   | -  |
| <b>Wireless Interface</b>           |  |   |   |  |
| Standards                           | 802.11a/b/g/n  | -   | -   | -  |
| Number of RF Modules                | 1  | -   | -   | -  |
| <b>LAN Interface</b>                |  |   |   |  |
| Number of Ports                     | 4  | -   | -   | 4  |
| Ethernet                            | 10/100/1000M (RJ45)  | 10/100M (RJ45)  | -   | 10/100/1000M (RJ45)  |
| <b>SIM Interface</b>                |  |   |   |  |
| Number of SIMs                      | 2  | -   | -   | -  |
| SIM Control                         | 3 V  | -   | -   | -  |
| <b>I/O Interface</b>                |  |   |   |  |
| Alarm Contacts                      | 1  | -   | 1   | 1  |
| Digital Inputs                      | 2  | -   | 2   | 2  |
| <b>Software</b>                     |  |   |   |  |
| Protocols                           | ICMP, DDNS, TCP/IP, UDP, DHCP, Telnet, DNS, SNMP, HTTP, HTTPS, SMTP, Sntp, ARP   | ARP, DDNS, DHCP/BOOTP, DNS Relay, HTTP, HTTPS, ICMP, IPsec, PPP, PPPoE, SMTP, Sntp, SSH, SSL, TCP/IP, Telnet, UDP | -   | ICMP, DDNS, TCP/IP, UDP, DHCP, Telnet, DNS, SNMP, HTTP, HTTPS, SMTP, Sntp, ARP   |
| Routing/Firewall                    | NAT, port forwarding, IP/MAC/Port filtering  | NAT, port forwarding, WAN IP filtering, static route  |   | NAT, port forwarding, IP/MAC/Port filtering  |
| Virtual Private Network             | <ul style="list-style-type: none"> <li>• Max. Tunnel Number: 5 (Responder/Initiator)</li> <li>• IPsec (DES, 3DES, AES, MD5, SHA-1, DH2, DH5), PSK/X.509/RSA</li> </ul> | IPsec (DES, 3DES, AES, MD5, SHA-1, SH1, DH2, DH5), PSK  |   | <ul style="list-style-type: none"> <li>• Max. Tunnel Number: 5 (Responder/Initiator)</li> <li>• IPsec (DES, 3DES, AES, MD5, SHA-1, DH2, DH5), PSK/X.509/RSA</li> </ul> |
| Cellular Connectivity               | GuaranLink   |   |   |  |
| Utilities                           | OnCell Central Manager, Wireless Search Utility, SNMP v1/v2/v3, Web/Telnet/Serial Console, SSH, Remote SMS Control, Auto IP Report                                     |   |   |  |
| <b>Physical Characteristics</b>     |  |   |   |  |
| Housing                             | Aluminum (IP30)  |   |   |  |
| Weight                              | 1280 g (2.82 lb)   | 510 g (1.12 lb)   | 650 g (1.43 lb)                           | 1300 g (2.87 lb)   |
| Dimensions                          | 66.3 X 124 X 90 mm (2.61 x 4.88 x 3.54 in)   | 158 x 103 x 35 mm (6.22 x 4.06 x 1.38 in)   | 51 x 135 x 103 mm (2 x 5.32 x 4.16 in)    | 66.3 x 124 x 90 mm (2.61 x 4.88 x 3.54 in)   |
| <b>Environmental Limits</b>         |  |   |   |  |
| Operating Temperature               | Standard Models: 0 to 55°C (0 to 131°F)<br>Wide Temp. Models: -30 to 70°C (-22 to 158°F)   | -30 to 55°C (-22 to 131°F)  |   | Standard Models: -30 to 55°C (-22 to 131°F)<br>Wide Temp. Models: -30 to 70°C (-22 to 158°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 85°C (-40 to 185°F)   |
| <b>Power Requirements</b>           |  |   |   |  |
| Number of Power Inputs              | 2 (terminal block), redundant dual inputs  | 2 (1 terminal block, 1 power jack)  | 2 (terminal block), redundant dual inputs | 2 (terminal block), redundant dual inputs  |
| Input Voltage                       | 12 to 48 VDC   |   |   |  |
| Input Current                       | 0.7 A @ 12 VDC; 0.2 A @ 48 VDC   | 0.9 A @ 12 VDC; 0.23 A @ 48 VDC   | 0.95 A @ 12 VDC; 0.25 A @ 48 VDC          | 0.7 A @ 12 VDC; 0.2 A @ 48 VDC   |
| <b>Standards and Certifications</b> |  |   |   |  |
| Safety                              | EN 60950-1, UL 60950-1   | UL 60950-1  |   | US model: UL 60950-1   |
| EMC                                 | EN 61000-6-2/6-4   | EN 55022/24   |   | EU model: EN 61000-6-2/6-4   |
| Radio                               | EN 301 489-1, EN 301 489-7, EN 301 511, EN 301 908, EN 300 328, EN 301 893   | FCC Part 22H, FCC Part 24E, EN 301 489-1, EN 301 489-7, EN 301 489-24, EN 301511, EN 301 908                      |   | US model: FCC ID N7NMC7355<br>EU model: EN 301 489-1, EN 301 489-7, EN 301 511   |
| <b>Reliability</b>                  |  |   |   |  |
| Warranty                            | 5 years (see www.moxa.com/warranty)  |   |   |  |

# Cellular IP Gateways & Modems



|                                     | Cellular Advanced IP Gateway   |                              | Cellular Compact IP Gateway  |  | Cellular Modem   |
|-------------------------------------|--|------------------------------|--|--|--|
|                                     | OnCell G3110-HSPA<br>OnCell G3150-HSPA   | OnCell G3110<br>OnCell G3150 | OnCell G3111-HSPA<br>OnCell G3151-HSPA   | OnCell G3111/OnCell G3211<br>OnCell G3151/OnCell G3251 | OnCell G2111<br>OnCell G2151   |
| <b>Cellular Interface</b>           |  |                              |  |  |  |
| Standards                           | GSM/GPRS/EDGE/UMTS/HSPA  |                              | GSM/GPRS/EDGE/UMTS/HSPA  |  | GSM/GPRS   |
| 3G band Options                     | 800/850/AWS/1900/2100 MHz  |                              | 800/850/900/1900/2100 MHz  |  | -  |
| HSPA Data Rate                      | 14.4 Mbps DL, 5.76 Mbps UL   |                              | 14.4 Mbps DL, 5.76 Mbps UL   |  | -  |
| 2G band Options                     | 850/900/1800/1900 MHz  |                              | 850/900/1800/1900 MHz  |  | -  |
| EDGE Data Rate                      | 237 kbps DL, 237 kbps UL   |                              | 237 kbps DL, 237 kbps UL   |  | -  |
| GPRS Data Rate                      | 85.6 kbps DL, 85.6 kbps UL   |                              | 85.6 kbps DL, 85.6 kbps UL   |  | 85.6 kbps DL, 42.8 kbps UL   |
| <b>LAN Interface</b>                |  |                              |  |  |  |
| Number of Ports                     | 1  |                              | 1  |  | -  |
| Ethernet                            | 10/100M (RJ45)   |                              | 10/100 Mbps (RJ45)   |  | -  |
| <b>SIM Interface</b>                |  |                              |  |  |  |
| Number of SIMs                      | 1  |                              | 1  |  | 1  |
| SIM Control                         | 3 V  |                              | 3 V  |  | 3 V  |
| <b>Serial Interface</b>             |  |                              |  |  |  |
| Number of Ports                     | 1  |                              | 1  |  | 1  |
| Serial Standards                    | G3110-HSPA: RS-232<br>G3150-HSPA: RS-232/422/485   |                              | G3111-HSPA: RS-232<br>G3151-HSPA: RS-232/422/485   |  | G2111: RS-232<br>G2151: RS-232/422/485   |
| Connector                           | G3110-HSPA: DB9-M<br>G3150-HSPA: DB9-M and TB  |                              | DB9-M  |  | G2111: DB9-F<br>G2151: DB9-F and 5-pin TB  |
| 2.5 kV Optical Isolation            | -  |                              | -  |  | - ✓  |
| <b>I/O Interface</b>                |  |                              |  |  |  |
| Alarm Contacts                      | 1  |                              | -  |  | -  |
| Digital Inputs                      | 2  |                              | -  |  | -  |
| <b>Software</b>                     |  |                              |  |  |  |
| Protocols                           | ARP, DDNS, DHCP/BOOTP, DNS Relay, HTTP, HTTPS, ICMP, IPsec, SMTP, SNMP, SSH, SSL, TCP/IP, Telnet, UDP  |                              | ARP, DDNS, DHCP/BOOTP, DNS Relay, HTTP, HTTPS, ICMP, SMTP, SNMP, SSH, SSL, TCP/IP, Telnet, UDP                                     |  | AT Commands  |
| Routing/Firewall                    | NAT, port forwarding, WAN IP filtering   |                              | NAT, port forwarding, WAN IP filtering   |  | -  |
| Virtual Private Network             | IPSec (DES, 3DES, AES, MD5, SHA-1, SH1, DH2, DH5), PSK   |                              | -  |  | -  |
| Serial Security                     | Accessible IP list   |                              | Accessible IP list   |  | -  |
| Serial Operation Modes              | Real COM, Reverse Real COM, TCP Server, TCP Client, UDP, SMS Tunnel, RFC2217 Secure Real COM, Secure TCP Server, Secure TCP Client, Ethernet Modem |                              | Real COM, Reverse Real COM, TCP Server, TCP Client, UDP, SMS Tunnel, RFC2217, Ethernet Modem                                       |  | -  |
| Cellular Connectivity               | GuanLink   |                              | GuanLink   |  | -  |
| Utilities                           | OnCell Central Manager, Wireless Search Utility, SNMP v1/v2/v3, Web/Telnet/Serial Console, SSH, Remote SMS Control, Auto IP Report                 |                              | OnCell Central Manager, Wireless Search Utility, SNMP v1/v2/v3, Web/Telnet/Serial Console, SSH, Remote SMS Control, Auto IP Report |  | -  |
| <b>Physical Characteristics</b>     |  |                              |  |  |  |
| Housing                             | Aluminum (IP30)  |                              | Aluminum (IP30)  |  | ABS + PC (IP30)  |
| Weight                              | 445 g (0.98 lb)  |                              | 170 g (0.38 lb)      190 g (0.42 lb)   |  | 155 g (0.34 lb)  |
| Dimensions                          | 28 x 126 x 93 mm (1.1 x 4.94 x 3.64 in)  |                              | 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)   |  | 27 x 123 x 79 mm (1.06 x 4.84 x 3.11 in)   |
| <b>Environmental Limits</b>         |  |                              |  |  |  |
| Operating Temperature               | Standard Models: -30 to 55°C (-22 to 131°F)<br>Wide Temp. Models: -30 to 70°C (-22 to 158°F)   |                              | -30 to 55°C (-22 to 131°F)   |  | Standard Models:<br>-20 to 55°C (-4 to 131°F)<br>Wide Temp. Models:<br>-25 to 70°C (-22 to 158°F)<br>(OnCell G2111-T only) |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  |                              | 5 to 95% (non-condensing)  |  | 5 to 95% (non-condensing)  |
| Storage 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)   |
| <b>Power Requirements</b>           |  |                              |  |  |  |
| Number of Power Inputs              | 2 (terminal block), redundant dual inputs  |                              | 1 (terminal block)      1 (power jack)   |  | 1 (terminal block)   |
| Input Voltage                       | 12 to 48 VDC   |                              | 12 to 48 VDC   |  | 12 to 48 VDC   |
| Input Current                       | 0.9 A @ 12 VDC; 0.23 A @ 48 VDC  |                              | 0.9 A @ 12 VDC; 0.23 A @ 48 VDC  |  | 0.625 A @ 12 VDC;<br>0.16 A @ 48 VDC   |
| <b>Standards and Certifications</b> |  |                              |  |  |  |
| Safety                              | UL 60950-1   |                              | UL 60950-1   |  | UL 60950-1   |
| EMC                                 | EN 55022/24  |                              | EN 55022/24<br>EN 61000-6-2/6-4  |  | EN 55022/24  |
| Radio                               | FCC Part 22H, FCC Part 24E<br>EN 301 489-1, EN 301 489-7,<br>EN 301 489-24<br>EN 301 511, EN 301 908   |                              | FCC Part 22H, FCC Part 24E<br>EN 301 489-1, EN 301 489-7,<br>EN 301 489-24<br>EN 301 511, EN 301 908                               |  | FCC Part 22H, FCC Part 24E<br>EN 301 489-1, EN 301 489-7<br>EN 301 511   |
| Mobile Network                      | -  |                              | OnCell G3151-HSPA: PTCRB   |  | -  |
| <b>Reliability</b>                  |  |                              |  |  |  |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |                              |  |  |  |

# Railway Wireless LAN Solutions



|                              | Rail Train-to-Ground Series |                       |                       |                       | Rail Carriage-to-Carriage Series |                       |
|------------------------------|-----------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|-----------------------|
|                              | TAP-6226                    | AWK-3121-M12-RTG      | AWK-3121-M12-HP-RTG   | AWK-3121-SSC-RTG      | AWK-3131-M12-RCC                 | AWK-5232-M12-RCC      |
| <b>WLAN</b>                  |                             |                       |                       |                       |                                  |                       |
| IEEE 802.11 Standards        | a/b/g                       | a/b/g                 |                       |                       | a/b/g/n                          |                       |
| Number of RF Modules         | 2                           | 1                     | 1                     | 1                     | 1                                | 2                     |
| High Power RF Modules        | ✓                           | –                     | ✓                     | –                     | –                                | –                     |
| <b>Interfaces</b>            |                             |                       |                       |                       |                                  |                       |
| Number of Antenna Connectors | 2                           | 2                     | 2                     | 2                     | 2                                | 4                     |
| Antenna Connector Type       | N-type (female)             | QMA (female)          | QMA (female)          | RP-SMA (female)       | QMA (female)                     | QMA (female)          |
| Number of LAN Ports          | 6                           | 1                     | 1                     | 1                     | 1                                | 2                     |
| LAN Port Type                | 4, M12; 2, SFP              | 1, M12                | 1, M12                | 1, SC connector       | 1, M12                           | 2, M12                |
| LAN Port Speed               | 10/100BaseT(X); 100BaseFX   | 10/100BaseT(X)        | 10/100BaseT(X)        | 100BaseFX             | 10/100/1000BaseT(X)              | 10/100/1000BaseT(X)   |
| RS-232 Console Port          | 1, M12                      | 1, RJ45               | 1, RJ45               | 1, RJ45               | 1, RJ45                          | 1, RJ45               |
| DI/DO                        | –                           | ✓                     | ✓                     | ✓                     | ✓                                | ✓                     |
| DI/DO Connector Type         | –                           | 10-pin terminal block | 10-pin terminal block | 10-pin terminal block | 10-pin terminal block            | 10-pin terminal block |
| <b>Housing Protection</b>    |                             |                       |                       |                       |                                  |                       |
| IP-rating                    | IP68                        | IP30                  | IP30                  | IP30                  | IP30                             | IP30                  |
| <b>Installation Options</b>  |                             |                       |                       |                       |                                  |                       |
| DIN-Rail Mounting            | –                           | ✓                     | ✓                     | ✓                     | ✓                                | ✓                     |
| Wall Mounting                | ✓                           | ✓ (optional)          | ✓ (optional)          | ✓ (optional)          | ✓ (optional)                     | ✓ (optional)          |
| <b>Power Requirements</b>    |                             |                       |                       |                       |                                  |                       |
| Input Voltage                | 110/220 VDC/VAC             | 12 to 48 VDC          | 12 to 48 VDC          | 12 to 48 VDC          | 12 to 48 VDC                     | 12 to 48 VDC          |
| Connector                    | M23                         | 10-pin terminal block | 10-pin terminal block | 10-pin terminal block | 10-pin terminal block            | 10-pin terminal block |
| PoE Support                  | ✓                           | ✓                     | ✓                     | ✓                     | ✓                                | ✓                     |
| Reserve Polarity Protection  | ✓                           | ✓                     | ✓                     | ✓                     | ✓                                | ✓                     |



|                                   | Wireless Access Controller       |                                |
|-----------------------------------|----------------------------------|--------------------------------|
|                                   | WAC-1001                         | WAC-2004                       |
| <b>Controller Features</b>        |                                  |                                |
| WLAN Security Support             | WPA/WAP2-Personal and Enterprise |                                |
| Turbo Roaming for Layer 2 Network | ✓                                | ✓                              |
| Turbo Roaming for Layer 3 Network | –                                | ✓                              |
| Mobile IP                         | –                                | ✓                              |
| <b>Interfaces</b>                 |                                  |                                |
| Number of LAN Ports               | 1                                | 4                              |
| LAN Port Type                     | 1, RJ45                          | 4, RJ45                        |
| LAN Port Speed                    | 10/100BaseT(X)                   | 10/100/1000BaseT(X)            |
| RS-232 Console Port               | 1, RJ45                          | 1, DB9 (male)                  |
| DI/DO                             | ✓                                | –                              |
| DI/DO Connector Type              | 10-pin terminal block            | –                              |
| <b>Housing Protection</b>         |                                  |                                |
| IP-rating                         | IP30                             | –                              |
| <b>Installation Options</b>       |                                  |                                |
| DIN-Rail Mounting                 | ✓                                | –                              |
| Wall Mounting                     | ✓ (optional)                     | –                              |
| Rack Mounting                     | –                                | Standard 19-inch rack mounting |
| <b>Power Requirements</b>         |                                  |                                |
| Input Voltage                     | 12 to 48 VDC                     | 100 to 240 VAC                 |
| Connector                         | 10-pin terminal block            | AC power socket                |
| PoE Support                       | ✓                                | –                              |
| Reserve Polarity Protection       | ✓                                | –                              |



# NPort® 6000 Terminal Servers



|                                     | NPort 6150<br>NPort 6150-T  | NPort 6250<br>NPort 6250-T   | NPort 6250-M-SC<br>NPort 6250-M-SC-T                                 | NPort 6250-S-SC<br>NPort 6250-S-SC-T                                 | NPort 6450<br>NPort 6450-T   | NPort 6610-8  | NPort 6610-16  |   |
|-------------------------------------|---|--|--|--|--|---|--|---|
| <b>LAN Interface</b>                |   |  |  |  |  |   |  |   |
| 10/100BaseT(X) Ports                | 1 port (8-pin RJ45 connector)   |  |  |  |  |   |  |   |
| Magnetic Isolation Protection       | 1.5 kV  |  |  |  |  |   |  |   |
| 100BaseFX Ports                     | -   | -  | 1 (multi-mode)   | 1 (single-mode)  | -  | -   | -  |   |
| <b>Expansion Modules</b>            |   |  |  |  |  |   |  |   |
| 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   |   |
| <b>Serial Interface</b>             |   |  |  |  |  |   |  |   |
| 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                 | ✓   | ✓  | ✓  | ✓  | ✓  | ✓   | ✓  |   |
| <b>Advanced Features</b>            |   |  |  |  |  |   |  |   |
| 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                             | -   | ✓  | ✓  | ✓  | ✓  | ✓   | ✓  |   |
| <b>Software</b>                     |   |  |  |  |  |   |  |   |
| 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   |  |  |  |  |   |  |   |
| <b>Physical Characteristics</b>     |   |  |  |  |  |   |  |   |
| 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<br>(2.64 x 3.95 x 1.1 in)  | 77 x 111 x 29 mm<br>(3.30 x 4.37 x 1.1 in)                           | 77 x 111 x 29 mm<br>(3.30 x 4.37 x 1.1 in)                           | 77 x 111 x 29 mm<br>(3.30 x 4.37 x 1.1 in)                           | 158 x 103 x 35 mm<br>(6.22 x 4.06 x 1.38 in)                       | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)   | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)                      |   |
| <b>Environmental Limits</b>         |   |  |  |  |  |   |  |   |
| Operating Temperature               | Standard Temperature  | 0 to 55°C (32 to 131°F)  |  |  |  |   | -  | - |
|                                     | 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)   |  |  |  |  |   |  |   |
| <b>Power Requirements</b>           |   |  |  |  |  |   |  |   |
| 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   |  |   |
| <b>Standards and Certifications</b> |   |  |  |  |  |   |  |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  |  |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |   |
| Transportation                      | NEMA TS2  |  | -  | -  | NEMA TS2   |   |  |   |
| <b>Reliability</b>                  |   |  |  |  |  |   |  |   |
| Buzzer, RTC, WDT                    | ✓   | ✓  | ✓  | ✓  | ✓  | ✓   | ✓  |   |
| MTBF                                | Time: 2,097,705 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 1,947,486 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 1,092,794 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 1,477,682 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 850,905 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 135,891 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 102,373 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |   |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |  |  |  |   |  |   |

# NPort® 6000 Terminal Servers



|                                     | NPort 6610-32  | NPort 6610-8-48V<br>NPort 6610-16-48V<br>NPort 6610-32-48V  | NPort 6650-8<br>NPort 6650-8-T  | NPort 6650-16<br>NPort 6650-16-T  | NPort 6650-32   | NPort 6650-8-48V<br>NPort 6650-16-48V<br>NPort 6650-32-48V  | NPort 6650-8-HV-T<br>NPort 6650-16-HV-T<br>NPort 6650-32-HV-T   |
|-------------------------------------|--|---|---|---|---|---|---|
| <b>LAN Interface</b>                |  |   |   |   |   |   |   |
| 10/100BaseT(X) Ports                | 1 port (8-pin RJ45 connector)  |   |   |   |   |   |   |
| Magnetic Isolation Protection       | 1.5 kV   |   |   |   |   |   |   |
| <b>Expansion Modules</b>            |  |   |   |   |   |   |   |
| 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  |
| <b>Serial Interface</b>             |  |   |   |   |   |   |   |
| 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                 | ✓  | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| <b>Advanced Features</b>            |  |   |   |   |   |   |   |
| 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                             | ✓  | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| <b>Software</b>                     |  |   |   |   |   |   |   |
| 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  |   |   |   |   |   |   |
| <b>Physical Characteristics</b>     |  |   |   |   |   |   |   |
| Housing                             | Metal  |   |   |   |   |   |   |
| Weight                              | 3,600 g (7.94 lb)  | 3,460 g (7.63 lb) /<br>3,580 g (7.89 lb) /<br>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) /<br>3,580 g (7.89 lb) /<br>3,600 g (7.94 lb)   | 3,460 g (7.63 lb) /<br>3,580 g (7.89 lb) /<br>3,600 g (7.94 lb)   |
| Dimensions                          | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)  | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)   | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)   | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)   | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)   | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)   | 440 x 195 x 44 mm<br>(17.32 x 7.68 x 1.73 in)   |
| <b>Environmental Limits</b>         |  |   |   |   |   |   |   |
| Operating Temperature               | Standard Temperature   | 0 to 55°C (32 to 131°F)   |   |   |   |   |   |
|                                     | Wide Temperature   | –   | –40 to 75°C<br>(-40 to 167°F)   | –40 to 75°C<br>(-40 to 167°F)   | –   | –   | –40 to 85°C<br>(-40 to 185°F)   |
| Storage Temperature                 | –40 to 75°C (–40 to 167°F)   |   |   |   |   |   |   |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  |   |   |   |   |   |   |
| <b>Power Requirements</b>           |  |   |   |   |   |   |   |
| 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,<br>47 to 63 Hz   | 293 mA @ 48 VDC   | 285 mA @ 100 VAC,<br>47 to 63 Hz  |   |   | 293 mA @ 48 VDC   | 200 mA @ 88 VDC   |
| <b>Standards and Certifications</b> |  |   |   |   |   |   |   |
| Safety                              | UL 60950-1   |   |   |   |   |   |   |
| EMC                                 | EN 55022/24  |   |   |   |   |   |   |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |   |   |   |   |   |   |
| EMS                                 | IEC 61000-4-2 ESD:<br>Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80<br>MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT:<br>Power: 1 kV;<br>Signal: 0.5 kV<br>IEC 61000-4-5 Surge:<br>Power: 2 kV<br>IEC 61000-4-6 CS: 150<br>kHz to 80 MHz: 3 V/m;<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips | IEC 61000-4-2 ESD:<br>Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80<br>MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT:<br>Power: 1 kV;<br>Signal: 0.5 kV<br>IEC 61000-4-5 Surge:<br>Power: 2 kV<br>IEC 61000-4-6 CS: 150<br>kHz to 80 MHz: 3 V/m;<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips | IEC 61000-4-2 ESD:<br>Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80<br>MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT:<br>Power: 1 kV;<br>Signal: 0.5 kV<br>IEC 61000-4-5 Surge:<br>Power: 2 kV<br>IEC 61000-4-6 CS: 150<br>kHz to 80 MHz: 3 V/m;<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD:<br>Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80<br>MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT:<br>Power: 1 kV;<br>Signal: 0.5 kV<br>IEC 61000-4-5 Surge:<br>Power: 2 kV<br>IEC 61000-4-6 CS: 150<br>kHz to 80 MHz: 3 V/m;<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD:<br>Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80<br>MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT:<br>Power: 1 kV;<br>Signal: 0.5 kV<br>IEC 61000-4-5 Surge:<br>Power: 2 kV<br>IEC 61000-4-6 CS: 150<br>kHz to 80 MHz: 3 V/m;<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF | IEC 61000-4-2 ESD:<br>Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80<br>MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT:<br>Power: 1 kV;<br>Signal: 0.5 kV<br>IEC 61000-4-5 Surge:<br>Power: 2 kV<br>IEC 61000-4-6 CS: 150<br>kHz to 80 MHz: 3 V/m;<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF |
|                                     | Transportation   | NEMA TS2  |   |   |   |   |   |
| <b>Reliability</b>                  |  |   |   |   |   |   |   |
| Buzzer, RTC, WDT                    | ✓  | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| MTBF                                | Time: 68,707 hrs<br>Standard: Telcordia<br>(Bellcore) Standard<br>TR/SR  | Time: 135,891<br>hrs/102,373 hrs/<br>68,707 hrs<br>Standard: Telcordia<br>(Bellcore) Standard<br>TR/SR  | Time: 636,600 hrs<br>Standard: Telcordia<br>(Bellcore) Standard<br>TR/SR  | Time: 439,673 hrs<br>Standard: Telcordia<br>(Bellcore) Standard<br>TR/SR  | Time: 310,078 hrs<br>Standard: Telcordia<br>(Bellcore) Standard<br>TR/SR  | Time: 636,600 hrs/<br>439,673 hrs/<br>310,078 hrs<br>Standard: Telcordia<br>(Bellcore) Standard<br>TR/SR  | Time: 501,171 hrs/<br>380,006 hrs/<br>290,914 hrs<br>Standard: Telcordia<br>(Bellcore) Standard<br>TR/SR  |
| Warranty                            | 5 years (see www.moxa.com/warranty)  |   |   |   |   |   |   |

Terminal Servers > NPort® 6000 Terminal Servers

# CN2600 Terminal Servers



|                                     | CN2610-8-2AC  | CN2610-16-2AC                                | CN2650-8   | CN2650-16  | CN2650-8-2AC<br>CN2650-8-2AC-T                                     | CN2650-16-2AC<br>CN2650-16-2AC-T                                   |
|-------------------------------------|---|--|--|--|--|--|
| <b>LAN Interface</b>                |   |  |  |  |  |  |
| 10/100BaseT(X) Ports                | 2 ports (2 MAC, 8-pin RJ45 connectors)  |  |  |  |  |  |
| Magnetic Isolation Protection       | 1.5 kV  |  |  |  |  |  |
| <b>Serial Interface</b>             |   |  |  |  |  |  |
| 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                 | ✓   | ✓  | ✓  | ✓  | ✓  | ✓  |
| <b>Advanced Features</b>            |   |  |  |  |  |  |
| Serial Data Log                     | 128K  |  |  |  |  |  |
| Offline Port Buffering              | 128K  |  |  |  |  |  |
| <b>Software</b>                     |   |  |  |  |  |  |
| 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   |  |  |  |  |  |
| <b>Physical Characteristics</b>     |   |  |  |  |  |  |
| 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)  |  |  |  |  |  |
| <b>Environmental Limits</b>         |   |  |  |  |  |  |
| Operating Temperature               | Standard Temperature  | 0 to 55°C (32 to 131°F)                      |  |  |  |  |
|                                     | 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)   |  |  |  |  |  |
| <b>Power Requirements</b>           |   |  |  |  |  |  |
| 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   |  |  |  |  |  |
| <b>Standards and Certifications</b> |   |  |  |  |  |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  |  |  |  |
| <b>Reliability</b>                  |   |  |  |  |  |  |
| Buzzer, RTC, WDT                    | ✓   | ✓  | ✓  | ✓  | ✓  | ✓  |
| MTBF                                | Time: 124,859 hrs<br>Standard: MIL-HDBK-217F  | Time: 105,915 hrs<br>Standard: MIL-HDBK-217F | Time: 457,140 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 375,472 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 457,140 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 375,472 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |  |  |  |  |

# CN2600 Terminal Servers



|                                     | CN2650I-8   | CN2650I-16   | CN2650I-8-2AC  | CN2650I-16-2AC   | CN2650I-8-HV-T  | CN2650I-16-HV-T  |
|-------------------------------------|---|--|--|--|---|--|
| <b>LAN Interface</b>                |   |  |  |  |   |  |
| 10/100BaseT(X) Ports                | 2 ports (2 MAC, 8-pin RJ45 connectors)  |  |  |  |   |  |
| Magnetic Isolation Protection       | 1.5 kV  |  |  |  |   |  |
| <b>Serial Interface</b>             |   |  |  |  |   |  |
| 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                 | ✓   | ✓  | ✓  | ✓  | ✓   | ✓  |
| <b>Advanced Features</b>            |   |  |  |  |   |  |
| Serial Data Log                     | 128 KB  |  |  |  |   |  |
| Offline Port Buffering              | 128 KB  |  |  |  |   |  |
| <b>Software</b>                     |   |  |  |  |   |  |
| 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   |  |  |  |   |  |
| <b>Physical Characteristics</b>     |   |  |  |  |   |  |
| 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)  |  |  |  |   |  |
| <b>Environmental Limits</b>         |   |  |  |  |   |  |
| 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)   |  |  |  |   |  |
| <b>Power Requirements</b>           |   |  |  |  |   |  |
| 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   |  |
| <b>Standards and Certifications</b> |   |  |  |  |   |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF |  |
| <b>Reliability</b>                  |   |  |  |  |   |  |
| Buzzer, RTC, WDT                    | ✓   | ✓  | ✓  | ✓  | ✓   | ✓  |
| MTBF                                | Time: 190,562 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 115,887 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 190,562 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 115,887 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 191,326 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 116,924 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |  |  |   |  |



# Combo Switch / Serial Device Servers



NPort S8455/S8458: Ethernet Switch Specifications

| Ethernet Interface               |   |
|----------------------------------|---|
| Standards                        | IEEE 802.3 for 10BaseT<br>IEEE 802.3u for 100BaseT(X) and 100BaseFX<br>IEEE 802.3x for Flow Control<br>IEEE 802.1D for Spanning Tree Protocol<br>IEEE 802.1w for Rapid STP<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1p for Class of Service<br>IEEE 802.1X for Authentication<br>IEEE 802.3ad for Port Trunk with LACP |
| Network Protocols                | ICMP, IPv4, TCP, UDP, ARP, Telnet, DNS, HTTP, SMTP, SNMP, IGMPv1/v2 device, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNMP, 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 S8455/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 k $\Omega$ , 150 k $\Omega$   |
| Terminator for RS-485             | 120 $\Omega$  |
| 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 S8455/S8458: General Specifications

| Port Summary                 |  |  |
|------------------------------|--|--|
| Serial Ports                 | 4 RS-232/422/485 ports   |  |
| Ethernet Switch Ports        | NPort S8455 fiber: 3 RJ45 copper ports, 2 multi-mode/single-mode fiber ports<br>NPort S8455 all copper: 5 RJ45 copper ports<br>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 S8455 series: 578 g (1.27 lb)<br>NPort S8458 series: 1,105 g (2.44 lb)   |  |
| Dimensions                   | NPort S8455 series:<br>73.1 x 134 x 105 mm (2.88 x 5.27 x 4.92 in)<br>NPort S8458 series:<br>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 S8455-T: -40 to 75°C (-40 to 167°F)<br>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<br>NPort S8455: 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 S8455:<br>IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV (4 kV for all copper models); Signal: 0.25 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m<br>IEC 61000-4-8 PFMF<br><br>NPort S8458 series:<br>IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m<br>IEC 61000-4-8 PFMF |  |
| Reliability                  |  |  |
| Buzzer, RTC, WDT             | ✓  |  |
| MTBF                         | Time:<br>NPort S8455 Single-mode: 286,993 hrs<br>NPort S8455 Multi-mode: 200,951 hrs<br>NPort S8455 All copper: 287,354 hrs<br>NPort S8458: 163,624 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR   |  |
| Warranty                     | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |

# Railway Device Servers



|                                     | NPort 5150AI-M12/<br>NPort 5150AI-M12-T/<br>NPort 5150AI-M12-CT  | NPort 5250AI-M12/<br>NPort 5250AI-M12-T/<br>NPort 5250AI-M12-CT    | NPort 5450AI-M12/<br>NPort 5450AI-M12-T/<br>NPort 5450AI-M12-CT    |
|-------------------------------------|--|--|--|
| <b>Ethernet Interface</b>           |  |  |  |
| 10/100BaseT(X) Ports                | 1  | 1  | 1  |
| Connector                           | M12  | M12  | M12  |
| <b>Serial Interface</b>             |  |  |  |
| 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   |  |  |
| <b>Software</b>                     |  |  |  |
| 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  |  |  |
| <b>Physical Characteristics</b>     |  |  |  |
| 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)   |  |  |
| <b>Environmental Limits</b>         |  |  |  |
| 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)   |  |  |
| <b>Power Requirements</b>           |  |  |  |
| Input Voltage                       | 12 to 48 VDC   |  |  |
| Input Current                       | 310 mA @ 12 VDC  | 360 mA @ 12 VDC  | 440 mA @ 12 VDC  |
| Connector                           | M12  |  |  |
| <b>Standards and Certifications</b> |  |  |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power 2 kV; Signal 2 kV<br>IEC 61000-4-5 Surge: Power 0.5 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz, 10 V/m; Signal: 10 V/m<br>IEC 61000-4-8 PFMF |  |  |
| Rail Traffic                        | EN 50155 (essential compliance*), EN 50121-4   |  |  |
| Vibration                           | IEC 60068-2-6  |  |  |
| <b>Reliability</b>                  |  |  |  |
| Conformal Coating                   | Yes (-CT model only)   | Yes (-CT model only)   | Yes (-CT model only)   |
| Buzzer, RTC, WDT                    | Yes  | Yes  | Yes  |
| MTBF                                | Time: 789,341 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR   | Time: 639,622 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 467,777 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |  |

\*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<br>NPort 5110A-T   | NPort 5130A<br>NPort 5130A-T                 | NPort 5150A<br>NPort 5150A-T                                 | NPort P5150A<br>NPort P5150A-T  | NPort 5110<br>NPort 5110-T   | NPort 5130  | NPort 5150   |  |
|-------------------------------------|--|--|--|---|--|---|--|--|
| <b>Ethernet Interface</b>           |  |  |  |   |  |   |  |  |
| 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   |  |
| <b>Serial Interface</b>             |  |  |  |   |  |   |  |  |
| 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  |  |  |
| <b>Software</b>                     |  |  |  |   |  |   |  |  |
| 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  |  |  |   |  |   |  |  |
| <b>Physical Characteristics</b>     |  |  |  |   |  |   |  |  |
| 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)                                  |   |  |  |
| <b>Environmental Limits</b>         |  |  |  |   |  |   |  |  |
| Operating Temperature               | Standard Temperature   | 0 to 60°C (32 to 140°F)                      |  |   | 0 to 55°C (32 to 131°F)  |   |  |  |
|                                     | 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)   |  |  |   |  |   |  |  |
| <b>Power Requirements</b>           |  |  |  |   |  |   |  |  |
| 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:<br>125 mA @ 12 VDC;<br>PoE I/P:<br>180 mA @ 48 VDC   | 128.7 mA @ 12 VDC  | 200 mA @ 12 VDC   | 200 mA @ 12 VDC  |  |
| <b>Standards and Certifications</b> |  |  |  |   |  |   |  |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  |
| <b>Reliability</b>                  |  |  |  |   |  |   |  |  |
| Buzzer, RTC, WDT                    | WDT only   |  |  |   |  |   |  |  |
| MTBF                                | Time: 2,231,530 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR   |  |  |   | Time: 3,126,448 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR     | Time: 2,836,863 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 2,736,202 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |  |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |  |   |  |   |  |  |

# General-Purpose Device Servers



|                                     | NPort 5210A<br>NPort 5210A-T  | NPort 5230A<br>NPort 5230A-T                 | NPort 5250A<br>NPort 5250A-T                                 | NPort 5210<br>NPort 5210-T  | NPort 5230<br>NPort 5230-T   | NPort 5232<br>NPort 5232-T   | NPort 5232I<br>NPort 5232I-T               |
|-------------------------------------|---|--|--|---|--|--|--|
| <b>Ethernet Interface</b>           |   |  |  |   |  |  |  |
| 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                                     |
| <b>Serial Interface</b>             |   |  |  |   |  |  |  |
| 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   |  |  |  |
| <b>Software</b>                     |   |  |  |   |  |  |  |
| 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   |  |  |   |  |  |  |
| <b>Physical Characteristics</b>     |   |  |  |   |  |  |  |
| 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) |
| <b>Environmental Limits</b>         |   |  |  |   |  |  |  |
| Operating Temperature               | Standard Temperature  | 0 to 60°C (32 to 140°F)                      |  |   | 0 to 55°C (32 to 131°F)  |  |  |
|                                     | 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)   |  |  |   |  |  |  |
| <b>Power Requirements</b>           |   |  |  |   |  |  |  |
| 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                            |
| <b>Standards and Certifications</b> |   |  |  |   |  |  |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  |  |
| Marine                              | –   | –  | –  | –   | DNV  | DNV  | DNV  |
| <b>Reliability</b>                  |   |  |  |   |  |  |  |
| Buzzer, RTC, WDT                    | ✓   |  |  |   |  |  |  |
| MTBF                                | Time: 847,750 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  |  |  | Time: 381,342 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 377,937 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 309,383 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |  |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |  |   |  |  |  |



# General-Purpose Device Servers



|                                     | NPort 5410  | NPort 5430  | NPort 5430I   | NPort 5450<br>NPort 5450-T  | NPort 5450I<br>NPort 5450I-T |
|-------------------------------------|---|---|---|---|------------------------------|
| <b>Ethernet Interface</b>           |   |   |   |   |                              |
| 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                       |
| <b>Serial Interface</b>             |   |   |   |   |                              |
| 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  |   |   |   |                              |
| <b>Software</b>                     |   |   |   |   |                              |
| 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 CDM 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   |   |   |   |                              |
| <b>Onsite Configuration</b>         |   |   |   |   |                              |
| Mini Screen with Push Buttons       | ✓   | ✓   | ✓   | ✓ (excluding T models)  | ✓ (excluding T models)       |
| <b>Physical Characteristics</b>     |   |   |   |   |                              |
| 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)   |   |   |   |                              |
| <b>Environmental Limits</b>         |   |   |   |   |                              |
| 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                 | –20 to 70°C (-4 to 158°F)   |   |   | –40 to 75°C (-40 to 167°F)  |                              |
| <b>Power Requirements</b>           |   |   |   |   |                              |
| 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              |
| <b>Standards and Certifications</b> |   |   |   |   |                              |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips | IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 2.5 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>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)   |   |   |   |                              |
| <b>Reliability</b>                  |   |   |   |   |                              |
| Buzzer, RTC, WDT                    | ✓   |   |   |   |                              |
| MTBF                                | Time: 310,331 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 265,650 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  |   | Time: 206,903 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  |                              |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |   |   |   |                              |

# 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<br>NPort 5650-8-T               |
|-------------------------------------|---|---|---|--|--|---|--|
| <b>Ethernet Interface</b>           |   |   |   |  |  |   |  |
| 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                                       |
| <b>Serial Interface</b>             |   |   |   |  |  |   |  |
| 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  |   |   |  |  |   |  |
| <b>Software</b>                     |   |   |   |  |  |   |  |
| Network Protocols                   | ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTIP, 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   |   |   |  |  |   |  |
| <b>Onsite Configuration</b>         |   |   |   |  |  |   |  |
| Mini Screen with Push Buttons       | ✓   | ✓   | ✓   | ✓  | ✓  | ✓   | ✓ (excluding T models)                       |
| <b>Physical Characteristics</b>     |   |   |   |  |  |   |  |
| 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)   |   |   |  |  |   |  |
| <b>Environmental Limits</b>         |   |   |   |  |  |   |  |
| 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                 | –20 to 70°C (-4 to 158°F)   |   |   |  |  |   | –40 to 75°C (-40 to 167°F)                   |
| <b>Power Requirements</b>           |   |   |   |  |  |   |  |
| 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                |
| <b>Standards and Certifications</b> |   |   |   |  |  |   |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |   |   |  |  |   |  |
| Medical                             | EN 60601-1-2 Class B, EN 55011  |   |   |  |  |   |  |
| <b>Reliability</b>                  |   |   |   |  |  |   |  |
| Buzzer, RTC, WDT                    | ✓   |   |   |  |  |   |  |
| MTBF                                | Time: 97,294 hrs<br>Standard: MIL-HDBK-217F   | Time: 96,758 hrs<br>Standard: MIL-HDBK-217F | Time: 94,928 hrs<br>Standard: MIL-HDBK-217F | Time: 926,643 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 118,405 hrs<br>Standard: MIL-HDBK-217F | Time: 91,483 hrs<br>Standard: MIL-HDBK-217F | Time: 117,584 hrs<br>Standard: MIL-HDBK-217F |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |   |   |  |  |   |  |

# General-Purpose Device Servers



|                                     | NPort 5650-8-M-SC   | NPort 5650-8-S-SC             | NPort 5650-8-HV-T   | NPort 5650-16<br>NPort 5650-16-T | NPort 5650-16-M-SC  | NPort 5650-16-S-SC            | NPort 5650-16-HV-T   |
|-------------------------------------|---|-------------------------------|---|----------------------------------|---|-------------------------------|--|
| <b>Ethernet Interface</b>           |   |                               |   |                                  |   |                               |  |
| 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   |
| <b>Serial Interface</b>             |   |                               |   |                                  |   |                               |  |
| 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  |                               |   |                                  |   |                               |  |
| <b>Software</b>                     |   |                               |   |                                  |   |                               |  |
| Network Protocols                   | ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNMP, 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   |                               |   |                                  |   |                               |  |
| <b>Onsite Configuration</b>         |   |                               |   |                                  |   |                               |  |
| Mini Screen with Push Buttons       | ✓   | ✓                             | –   | ✓ (excluding T models)           | ✓   | ✓                             | –  |
| <b>Physical Characteristics</b>     |   |                               |   |                                  |   |                               |  |
| 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)   |                               |   |                                  |   |                               |  |
| <b>Environmental Limits</b>         |   |                               |   |                                  |   |                               |  |
| Operating Temperature               | Standard Temperature  | 0 to 55°C (32 to 131°F)       |   | –                                | 0 to 55°C (32 to 131°F)   |                               | –  |
|                                     | 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)   |
| <b>Power Requirements</b>           |   |                               |   |                                  |   |                               |  |
| 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  |
| <b>Standards and Certifications</b> |   |                               |   |                                  |   |                               |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |                               | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |                                  | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |                               | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF |
| Medical                             | EN 60601-1-2 Class B, EN 55011  |                               |   |                                  |   |                               |  |
| <b>Reliability</b>                  |   |                               |   |                                  |   |                               |  |
| Buzzer, RTC, WDT                    | ✓   |                               |   |                                  |   |                               |  |
| MTBF                                | Time: 116,914 hrs<br>Standard: MIL-HDBK-217F  |                               | Time: 725,390 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | 104,767 hrs                      | Time: 87,528 hrs<br>Standard: MIL-HDBK-217F   |                               | Time: 531,264 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR   |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |                               |   |                                  |   |                               |  |

# General-Purpose Device Servers



|                                     | NPort 5610-8-DTL<br>NPort 5610-8-DTL-T  | NPort 5650-8-DTL<br>NPort 5650-8-DTL-T                             | NPort 5650I-8-DTL<br>NPort 5650I-8-DTL-T                           |
|-------------------------------------|---|--|--|
| <b>Ethernet Interface</b>           |   |  |  |
| 10/100BaseT(X) Ports                | 1   | 1  | 1  |
| Connector                           | RJ45  | RJ45   | RJ45   |
| Magnetic Isolation Protection       | 1.5 kV  | 1.5 kV   | 1.5 kV   |
| <b>Serial Interface</b>             |   |  |  |
| 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  |  |  |
| <b>Software</b>                     |   |  |  |
| 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   |  |  |
| <b>Onsite Configurations</b>        |   |  |  |
| Mini Screen with Push Buttons       | –   | –  | –  |
| <b>Physical Characteristics</b>     |   |  |  |
| 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)   |  |  |
| <b>Environmental Limits</b>         |   |  |  |
| 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)  |  |  |
| <b>Power Requirements</b>           |   |  |  |
| Input Voltage                       | 12 to 48 VDC  |  |  |
| Input Current                       | 340 mA @ 12 VDC   | 470 mA @ 12 VDC  | 740 mA @ 12 VDC  |
| <b>Standards and Certifications</b> |   |  |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 Dips |  |  |
| <b>Reliability</b>                  |   |  |  |
| Buzzer, RTC, WDT                    | ✓   |  |  |
| MTBF                                | Time: 953,388 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  | Time: 740,457 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR | Time: 258,150 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |  |



# Industrial-Grade Device Servers



|                                     | NPort IA5150A<br>NPort IA5150A-T  | NPort IA5150AI<br>NPort IA5150AI-T | NPort IA5250A<br>NPort IA5250A-T | NPort IA5250AI<br>NPort IA5250AI-T | NPort IA5450A<br>NPort IA5450A-T           | NPort IA5450AI<br>NPort IA5450AI-T |
|-------------------------------------|---|------------------------------------|----------------------------------|------------------------------------|--|------------------------------------|
| <b>Ethernet Interface</b>           |   |                                    |                                  |                                    |  |                                    |
| 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                             |
| <b>Serial Interface</b>             |   |                                    |                                  |                                    |  |                                    |
| 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  |                                    |                                  |                                    |  |                                    |
| <b>Software</b>                     |   |                                    |                                  |                                    |  |                                    |
| Network Protocols                   | ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SMTP, 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   |                                    |                                  |                                    |  |                                    |
| <b>Physical Characteristics</b>     |   |                                    |                                  |                                    |  |                                    |
| 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) |                                    |
| <b>Environmental Limits</b>         |   |                                    |                                  |                                    |  |                                    |
| 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)  |                                    |                                  |                                    |  |                                    |
| <b>Power Requirements</b>           |   |                                    |                                  |                                    |  |                                    |
| 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                    |
| <b>Standards and Certifications</b> |   |                                    |                                  |                                    |  |                                    |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m<br>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   |                                    |                                  |                                    |  |                                    |
| <b>Reliability</b>                  |   |                                    |                                  |                                    |  |                                    |
| Buzzer, RTC, WDT                    | ✓   |                                    |                                  |                                    |  |                                    |
| MTBF                                | Time: 262,805 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  |                                    |                                  |                                    |  |                                    |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |                                    |                                  |                                    |  |                                    |

# Industrial-Grade Device Servers



|                                     | NPort IA5150<br>NPort IA5150-T  | NPort IA5150I<br>NPort IA5150I-T             | NPort IA5150-M-SC<br>NPort IA5150-M-SC-T     | NPort IA5150I-M-SC<br>NPort IA5150I-M-SC-T   | NPort IA5150-S-SC<br>NPort IA5150-S-SC-T     | NPort IA5150I-S-SC<br>NPort IA5150I-S-SC-T   | NPort IA5250<br>NPort IA5250-T               | NPort IA5250I<br>NPort IA5250I-T                                    |
|-------------------------------------|---|--|--|--|--|--|--|---|
| <b>Ethernet Interface</b>           |   |  |  |  |  |  |  |   |
| 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  |
| <b>Serial Interface</b>             |   |  |  |  |  |  |  |   |
| RS-232/422/485 Ports                | 1   | 1  | 1  | 1  | 1  | 1  | 2  | 2   |
| Connector                           | DB9-M/<br>Terminal Block  | DB9-M/<br>Terminal Block                     | DB9-M/<br>Terminal Block                     | DB9-M/<br>Terminal Block                     | DB9-M/<br>Terminal Block                     | DB9-M/<br>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   |  |  |  |  |  |  |   |
| <b>Software</b>                     |   |  |  |  |  |  |  |   |
| Network Protocols                   | ICMP, IPv4, TCP, UDP, DHCP, BOOTP, Telnet, DNS, SNMP V1, HTTP, SMTP, SNTIP, 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/2008/7/8.1/10 (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   |  |  |  |  |  |  |   |
| <b>Physical Characteristics</b>     |   |  |  |  |  |  |  |   |
| 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)  |  |  |  |  |  |  |   |
| <b>Environmental Limits</b>         |   |  |  |  |  |  |  |   |
| 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)  |  |  |  |  |  |  |   |
| <b>Power Requirements</b>           |   |  |  |  |  |  |  |   |
| 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   |
| <b>Standards and Certifications</b> |   |  |  |  |  |  |  |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power 4 kV; Signal 2 kV<br>IEC 61000-4-5 Surge: Power 2 kV; Signal 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz, 10 V/m; Signal: 10 V/m<br>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   |  |  |  |  |  |  |   |
| <b>Reliability</b>                  |   |  |  |  |  |  |  |   |
| Buzzer, RTC, WDT                    | ✓   |  |  |  |  |  |  |   |
| MTBF                                | Time: 183,747 hrs<br>Standard: MIL-HDBK-217F  | Time: 195,614 hrs<br>Standard: MIL-HDBK-217F | Time: 183,747 hrs<br>Standard: MIL-HDBK-217F | Time: 195,614 hrs<br>Standard: MIL-HDBK-217F | Time: 183,747 hrs<br>Standard: MIL-HDBK-217F | Time: 195,614 hrs<br>Standard: MIL-HDBK-217F | Time: 194,765 hrs<br>Standard: MIL-HDBK-217F | Time: 341,417 hrs<br>Standard: Telcordia (Bellcore) Standard SR-332 |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |  |  |  |  |  |   |

# Wireless Device Servers



|                                      | NPort W2150A<br>NPort W2150A-T   | NPort W2250A<br>NPort W2250A-T                                     |
|--------------------------------------|--|--|
| <b>WLAN Interface</b>                |  |  |
| 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  |  |
| <b>LAN Interface</b>                 |  |  |
| Ethernet Ports                       | 1 x 10/100 Mbps (RJ45)   |  |
| 1.5 kV Magnetic Isolation Protection | ✓  |  |
| <b>Serial Interface</b>              |  |  |
| 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  |  |
| <b>Software</b>                      |  |  |
| Network Protocols                    | ICMP, IPv4, TCP, UDP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, SNMP, 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  |  |
| <b>Physical Characteristics</b>      |  |  |
| 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)   |  |
| <b>Environmental Limits</b>          |  |  |
| 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)   |  |
| <b>Power Requirements</b>            |  |  |
| Input Voltage                        | 12 to 48 VDC   |  |
| Input Current                        | 179 mA @ 12 VDC  | 200 mA @ 12 VDC  |
| <b>Standards and Certifications</b>  |  |  |
| 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 PFMP<br>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   |  |
| <b>Reliability</b>                   |  |  |
| MTBF                                 | Time: 383,187 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR   | Time: 363,327 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR |
| Warranty                             | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |

# ZigBee Device Servers



|  | NPort Z2150<br>NPort Z2150-T  | NPort Z3150<br>NPort Z3150-T  |
|--|---|---|
| <b>ZigBee Interface</b>                      |   |   |
| 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   |   |
| <b>Ethernet Interface (NPort Z3150 only)</b> |   |   |
| Ethernet Ports                               | –   | 1 x 10/100 Mbps (RJ45)  |
| 1.5 kV Magnetic Isolation Protection         | –   | ✓   |
| <b>Serial Interface</b>                      |   |   |
| 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  |
| <b>Software</b>                              |   |   |
| 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                       | –   | –   |
| <b>Physical Characteristics</b>              |   |   |
| 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)  |
| <b>Environmental Limits</b>                  |   |   |
| 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)  |   |
| <b>Power Requirements</b>                    |   |   |
| Input Voltage                                | 12 to 48 VDC  |   |
| Input Current                                | 45 mA @ 12 VDC  | 120 mA @ 12 VDC   |
| <b>Standards and Certifications</b>          |   |   |
| 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<br>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)  |   |
| <b>Reliability</b>                           |   |   |
| MTBF   | Time: 2,542,774 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR            | Time: 1,109,589 hrs<br>Standard: Telcordia (Bellcore) Standard TR/SR  |
| Warranty                                     | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> ) |   |



# Embedded Device Servers



|  | MiiNePort E2/E2-T<br>MiiNePort E2-H/E2-H-T   | MiiNePort E3/E3-T<br>MiiNePort E3-H/E3-H-T   | MiiNePort W1<br>MiiNePort W1-T   |
|--|--|--|--|
| <b>Form Factor</b>                     |  |  |  |
| Type                                   | Drop-in module   | Pin-header module  | Drop-in module   |
| <b>Physical Characteristics</b>        |  |  |  |
| 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)  |
| <b>Ethernet Interface</b>              |  |  |  |
| 10/100BaseT(X) Ports                   | 1  | 1  | 1  |
| Connector                              | 4-pin pin header   | RJ45   | –  |
| Magnetic Isolation Protection          | 1.5 kV   | 1.5 kV   | –  |
| <b>WLAN Interface</b>                  |  |  |  |
| 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)   |
| <b>Serial Interface</b>                |  |  |  |
| 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<br>MiiNePort E2-H: 50 bps to 921.6 kbps<br>(nonstandard baudrates supported)  | MiiNePort E3: 50 bps to 230.4 kbps<br>MiiNePort E3-H: 50 bps to 921.6 kbps<br>(nonstandard baudrates supported)  | 50 bps - 921.6 kbps  |
| Programmable GPIO Pins                 | 4  | 4  | 8  |
| <b>Software</b>                        |  |  |  |
| 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  |
| <b>Environmental Limits</b>            |  |  |  |
| Operating Temperature                  | Standard Temperature   | 0 to 55°C (32 to 131°F)  |  |
|  | Wide Temperature   | -40 to 85°C (-40 to 185°F)   |  |
| Ambient Relative Humidity              | 5 to 95% (non-condensing)  |  |  |
| Storage Temperature (package included) | -40 to 60°C (-40 to 140°F)   |  |  |
| <b>Power Requirement</b>               |  |  |  |
| 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   |
| <b>Standards and Certifications</b>    |  |  |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |
|  | Radio  | –  | –  |
| <b>Reliability</b>                     |  |  |  |
| Watchdog Timer                         | ✓  | ✓  | ✓  |
| MTBF                                   | Time: 5,696,350 hrs<br>Standard: Telcordia (Bellcore) SR-332   | Time: 3,608,031 hrs<br>Standard: Telcordia (Bellcore) SR-332   | Time: 441,378 hrs<br>Standard: Telcordia (Bellcore) SR-332   |
| Warranty                               | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |  |

# Embedded Device Servers Software Development Kit



|  |  | MiiNePort E2-SDK        |
|--|--|-------------------------|
| <b>Software</b>                        |  |                         |
| OS                                     | eCos   |                         |
| Software Development Tool              | MiiNePort-IDE  |                         |
| Search/Upload Firmware Utility Wizard  | Windows Search Utility<br>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           | PCComm Lite  |                         |
| Serial/Ethernet Sample Source Code     | 1. TCP Server Echo<br>2. TCP Server: Serial (single connection)<br>3. TCP Server: Serial (multiple connections)<br>4. TCP Client Echo<br>5. TCP Client: Serial (startup)<br>6. TCP Client: Serial (any character)<br>7. TCP Client: Serial (designated destination TCP/IP port from serial)<br>8. UDP echo<br>9. UDP-to-serial |                         |
| <b>Physical Characteristics</b>        |  |                         |
| 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)   |                         |
| <b>Environmental Limits</b>            |  |                         |
| 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)   |                         |
| <b>Power Requirements</b>              |  |                         |
| Input Voltage                          | 3.3 to 5 VDC   |                         |
| Input Current                          | 140 mA @ 3.3 VDC   |                         |
| <b>Standards and Certifications</b>    |  |                         |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11                              |                         |
| <b>Reliability</b>                     |  |                         |
| Watchdog Timer                         | ✓  |                         |
| MTBF                                   | Time: 2,463,960 hrs<br>Standard: Telcordia (Bellcore) TR/SR  |                         |
| Warranty                               | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |                         |

# PCI Express Serial Boards



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   |
|-------------------------------------|---|---|---|---|---|---|---|
| <b>Hardware</b>                     |   |   |   |   |   |   |   |
| Comm. Controller                    | 16C550C compatible  |   |   |   |   |   |   |
| Bus                                 | PCI Express x1  |   |   |   |   |   |   |
| Connector                           | DB25 female   | VHDCI 68  |   | DB44 female   |   | DB9 male  |   |
| <b>Serial Interface</b>             |   |   |   |   |   |   |   |
| 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  | –   | –   |
| <b>Driver Support</b>               |   |   |   |   |   |   |   |
| 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                          | –   | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   |
| <b>Environmental Limits</b>         |   |   |   |   |   |   |   |
| Dimensions                          | 67 x 135 mm<br>(2.64 x 5.32 in)   | 68.9 x 88 mm<br>(2.71 x 3.46 in)  | 64.42 x 102 mm<br>(2.54 x 4.02 in)                          | 67.21 x 103 mm<br>(2.69 x 4.06 in)                          | 67.21 x 135 mm<br>(2.69 x 5.31 in)                        | 67.21 x 103 mm<br>(2.65 x 4.06 in)                          | 85.04 x 100 mm<br>(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)   |   |   |   |   |   |   |
| <b>Standards and Certifications</b> |   |   |   |   |   |   |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |   |   |   |   |   |
| <b>Reliability</b>                  |   |   |   |   |   |   |   |
| MTBF                                | Time: 2,937,578 hrs<br>Standard: Telcordia (Bellcore) TR/SR   | Time: 1,359,482 hrs<br>Standard: Telcordia (Bellcore) TR/SR   | Time: 2,351,336 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 2,347,197 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 603,671 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 3,601,447 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 4,947,552 hrs<br>Standard: Telcordia (Bellcore) TR/SR |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |   |   |   |   |   |   |

# PCI Express Serial Boards



Multiport Serial Boards > 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  |
|-------------------------------------|---|---|---|---|---|---|---|
| <b>Hardware</b>                     |   |   |   |   |   |   |   |
| Comm. Controller                    | 16C550C compatible  |   |   | 16C550C compatible  |   |   |   |
| Bus                                 | PCI Express x1  |   |   | PCI Express x1  |   |   |   |
| Connector                           | DB25 female   |   |   | VHDCI 68  | DB78 Female   | DB78 Female   | DB44 Female   |
| <b>Serial Interface</b>             |   |   |   |   |   |   |   |
| 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  |
| <b>Driver Support</b>               |   |   |   |   |   |   |   |
| 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                          | –   | –   | –   | ✓   | ✓   | ✓   | ✓   |
| <b>Environmental Limits</b>         |   |   |   |   |   |   |   |
| 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)   |   |   |   |   |   |   |
| <b>Standards and Certifications</b> |   |   |   |   |   |   |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |   |   | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |   | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |   |
| <b>Reliability</b>                  |   |   |   |   |   |   |   |
| MTBF                                | Time: 4,947,552 hrs<br>Standard: Telcordia (Bellcore) TR/SR   | Time: 4,147,133 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 1,681,099 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 310,993 hrs<br>Standard: Telcordia (Bellcore) TR/SR   | Time: 390,883 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 221,331 hrs<br>Standard: Telcordia (Bellcore) TR/SR   | Time: 431,064 hrs<br>Standard: Telcordia (Bellcore) TR/SR |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |   |   |   |   |   |   |

# Universal PCI Serial Boards



|                                     | C320Turbo/PCI   | C218Turbo/PCI  | CP-118U<br>CP-118U-T  | CP-138U<br>CP-138U-T   | CP-118U-I<br>CP-118U-I-T                                   | CP-138U-I<br>CP-138U-I-T  | CP-168U<br>CP-168U-T                     | CP-114UL<br>CP-114UL-T  | CP-114UL-I<br>CP-114UL-I-T     | CP-104UL<br>CP-104UL-T  |
|-------------------------------------|---|--|---|--|--|---|--|---|--------------------------------|---|
| <b>Hardware</b>                     |   |  |   |  |  |   |  |   |                                |   |
| Comm. Controller                    | MU860 (16C550C compatible)  |  |   |  |  |   |  |   |                                |   |
| Bus                                 | 32-bit Universal PCI  |  |   |  |  |   |  |   |                                |   |
| Connector                           | DB25 female   | DB62 female  |   |  | DB78 female  |   | DB62 female                              | DB44 female   |                                |   |
| <b>Serial Interface</b>             |   |  |   |  |  |   |  |   |                                |   |
| 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                           | -   |
| <b>Driver Support</b>               |   |  |   |  |  |   |  |   |                                |   |
| 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                          | ✓   | ✓  | ✓   | ✓  | ✓  | ✓   | ✓  | ✓   | ✓                              | ✓   |
| <b>Environmental Limits</b>         |   |  |   |  |  |   |  |   |                                |   |
| 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)                                      |  |   |  |   |                                |   |
|                                     | 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)   |  |  |   |  |   |                                |   |
| <b>Standards and Certifications</b> |   |  |   |  |  |   |  |   |                                |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m |  |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m |                                | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |
| <b>Reliability</b>                  |   |  |   |  |  |   |  |   |                                |   |
| MTBF                                | Time: 305,270 hrs<br>Standard: MIL-HDBK-217F  | Time: 303,325 hrs<br>Standard: MIL-HDBK-217F   | Time: 1,073,385 hrs<br>Standard: Telcordia (Bellcore) SR-332                            | Time: 1,147,210 hrs<br>Standard: Telcordia (Bellcore) SR-332 | Time: 350,975 hrs<br>Standard: Telcordia (Bellcore) SR-332 | Time: 370,390 hrs<br>Standard: Telcordia (Bellcore) SR-332  | Time: 280,854 hrs<br>Standard: Telcordia | Time: 114,223 hrs<br>Standard: Telcordia (Bellcore) SR-332                              |                                | Time: 558,961 hrs<br>Standard: MIL-HDBK-217F  |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |   |  |  |   |  |   |                                |   |

Multiport Serial Boards > Universal PCI Serial Boards



# Universal PCI Serial Boards



|                                     | CP-104JU<br>CP-104JU-T  | CP-134U<br>CP-134U-T                                      | CP-134U-I<br>CP-134U-I-T                                  | CP-112UL<br>CP-112UL-T  | CP-112UL-I<br>CP-112UL-I-T        | CP-102U<br>CP-102U-T                         | CP-102UL<br>CP-102UL-T  | CP-132UL<br>CP-132UL-T                                       | CP-132UL-I<br>CP-132UL-I-T   | POS-104UL<br>POS-104UL-T                                    |
|-------------------------------------|---|---|---|---|-----------------------------------|--|---|--|--|---|
| <b>Hardware</b>                     |   |   |   |   |                                   |  |   |  |  |   |
| 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   |
| <b>Serial Interface</b>             |   |   |   |   |                                   |  |   |  |  |   |
| 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   | –   |
| <b>Driver Support</b>               |   |   |   |   |                                   |  |   |  |  |   |
| 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                          | ✓   | ✓   | ✓   | ✓   | ✓                                 | ✓  | ✓   | ✓  | ✓  | ✓   |
| <b>Environmental Limits</b>         |   |   |   |   |                                   |  |   |  |  |   |
| Dimensions                          | 83 x 120 mm<br>(3.27 x 4.72 in)   | 82.5 x 120 mm<br>(3.24 x 4.72 in)                         | 115 x 120 mm<br>(4.52 x 4.72 in)                          | 64.4 x 120 mm<br>(2.53 x 4.72 in)   | 64.4 x 120 mm<br>(2.53 x 4.72 in) | 80 x 120 mm<br>(3.15 x 4.72 in)              | 64.5 x 120 mm<br>(2.53 x 4.72 in)   | 64.4 x 120 mm<br>(2.53 x 4.72 in)                            | 64.4 x 120 mm<br>(2.53 x 4.72 in)  | 64.4 x 120 mm<br>(2.53 x 4.72 in)                           |
| Operating Temperature               | Standard Temperature  |   |   |   |                                   |  |   |  |  |   |
|                                     | Wide Temperature  |   |   |   |                                   |  |   |  |  |   |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)  |   |   |   |                                   |  |   |  |  |   |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)   |   |   |   |                                   |  |   |  |  |   |
| <b>Standards and Certifications</b> |   |   |   |   |                                   |  |   |  |  |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m |   |   | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |                                   |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |  | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 10 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |   |
| <b>Reliability</b>                  |   |   |   |   |                                   |  |   |  |  |   |
| MTBF                                | Time: 571,627 hrs<br>Standard: Telcordia (Bellcore) TR/SR                               | Time: 480,209 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 360,732 hrs<br>Standard: Telcordia (Bellcore) TR/SR | Time: 219,971 hrs<br>Standard: Telcordia (Bellcore) SR-332  |                                   | Time: 574,050 hrs<br>Standard: MIL-HDBK-217F | Time: 576,401 hrs<br>Standard: Telcordia (Bellcore) TR/SR   | Time: 1,647,832 hrs<br>Standard: Telcordia (Bellcore) SR-332 |  | Time: 2,124,022 hrs<br>Standard: Telcordia (Bellcore) TR/SR |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )         |   |   |   |                                   |  |   |  |  |   |

# ISA Serial Boards



|                                     | C168H/C168HS  | C104H/C104HS                                 | CI-134/CI-134I/CI-134IS  | CI-132/CI-132I/CI-132IS   |
|-------------------------------------|---|--|--|---|
| <b>Hardware</b>                     |   |  |  |   |
| Comm. Controller                    | 16C550C compatible  |  |  |   |
| Bus                                 | 16-bit ISA  |  |  |   |
| Connector                           | DB62 female   | DB37 female                                  | DB37 female  | DB9 male x 2  |
| <b>Serial Interface</b>             |   |  |  |   |
| 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   |
| <b>Driver Support</b>               |   |  |  |   |
| 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                          | ✓   | ✓  | ✓  | ✓   |
| <b>Environmental Limits</b>         |   |  |  |   |
| 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)<br>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)<br>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)   |  |  |   |
| <b>Standards and Certifications</b> |   |  |  |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |  | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Signal: 2 kV |   |
| <b>Reliability</b>                  |   |  |  |   |
| MTBF                                | Time: 601,501 hrs<br>Standard: MIL-HDBK-217F  | Time: 629,545 hrs<br>Standard: MIL-HDBK-217F | Time: 424,655 hrs<br>Standard: Telcordia (Bellcore) TR/SR  | Time: 441,015 hrs<br>Standard: Telcordia (Bellcore) TR/SR                         |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |  |  |   |

Multiprot Serial Boards > ISA Serial Boards

# CAN Interface Boards/Modules



|                                     | CP-602U-I<br>CP-602U-I-T   | CP-602E-I<br>CP-602E-I-T   | CB-602I<br>CB-602I-T   |
|-------------------------------------|--|--|--|
| <b>Hardware</b>                     |  |  |  |
| 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   |
| <b>CAN Interface</b>                |  |  |  |
| 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)   |  |  |
| <b>Driver Support</b>               |  |  |  |
| 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                       | ✓  | ✓  | ✓  |
| <b>Environmental Limits</b>         |  |  |  |
| 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)  |  |
|                                     | 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)  |  |  |
| <b>Standards and Certifications</b> |  |  |  |
| EMC                                 | EN 55022/24  | EN 55022/24  | EN 55022/24  |
| EMI                                 | CISPR 22, FCC Part 15B Class B   |  |  |
| EMS                                 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>Signal: 3 V/m<br>IEC 61000-4-8 PFMF<br>IEC 61000-4-11 |
|                                     |  |  |  |
| <b>Reliability</b>                  |  |  |  |
| MTBF                                | Time: 1,989,990 hrs<br>Standard: Telcordia (Bellcore) SR-332   | Time: 4,645,502 hrs<br>Standard: Telcordia (Bellcore) SR-332   | Time: 248,563 hrs<br>Standard: Telcordia (Bellcore) SR-332   |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |  |  |

# USB-to-Serial Converters



|                                     | UPort® 1110   | UPort® 1130<br>UPort® 1130I | UPort® 1150        | UPort® 1150I                            | UPort® 1250   | UPort® 1250I       | UPort® 1410   | UPort® 1450 | UPort® 1450I                          |
|-------------------------------------|---|-----------------------------|--------------------|---|---|--------------------|---|-------------|---------------------------------------|
| <b>USB Interface</b>                |   |                             |                    |   |   |                    |   |             |                                       |
| 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)  |                    |   |             |                                       |
| <b>Serial Interface</b>             |   |                             |                    |   |   |                    |   |             |                                       |
| 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                                  |
| <b>Driver Support</b>               |   |                             |                    |   |   |                    |   |             |                                       |
| 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                           | ✓   | ✓                           | ✓                  | ✓                                       | ✓   | ✓                  | ✓   | ✓           | ✓                                     |
| <b>Physical Characteristics</b>     |   |                             |                    |   |   |                    |   |             |                                       |
| 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)   |             |                                       |
| <b>Environmental Limits</b>         |   |                             |                    |   |   |                    |   |             |                                       |
| 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)   |                             |                    |   |   |                    |   |             |                                       |
| <b>Standards and Certifications</b> |   |                             |                    |   |   |                    |   |             |                                       |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>IEC 61000-4-5 Surge: Power: 2 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF |                             |                    |   | IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF |                    |   |             |                                       |
| <b>Power Requirements</b>           |   |                             |                    |   |   |                    |   |             |                                       |
| Input Voltage                       | 5 VDC   |                             |                    |   | 5 VDC   | 12 to 48 VDC       | 5 VDC for USB port<br>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<br>12 to 48 VDC, 260 mA for external adapter  |             | 12 to 48 VDC, 360 mA external adapter |
| <b>Reliability</b>                  |   |                             |                    |   |   |                    |   |             |                                       |
| MTBF (Time)                         | Time: 1,949,025 hrs<br>Standard: Telcordia (Bellcore), GB   |                             |                    |   | Time: 563,179 hrs<br>Standard: Telcordia (Bellcore), GB   |                    | Time:<br>UPort 1410: 394,441 hrs<br>UPort 1450/1450I: 546,770 hrs<br>Standard:<br>UPort 1410: MIL-HDBK-217F<br>UPort 1450/1450I: Telcordia (Bellcore), GB |             |                                       |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |                             |                    |   |   |                    |   |             |                                       |

# USB-to-Serial Converters



|                                     | UPort® 1610-8   | UPort® 1650-8                                   | UPort® 1610-16                                  | UPort® 1650-16                                  | UPort® 2210   | UPort® 2410  |
|-------------------------------------|---|---|---|---|---|--|
| <b>USB Interface</b>                |   |   |   |   |   |  |
| Compliance                          | USB 1.1/2.0 compliant   |   |   |   |   |  |
| Connector                           | USB Type B  |   |   |   |   |  |
| Speed                               | 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)  |   |   |   |   |  |
| <b>Serial Interface</b>             |   |   |   |   |   |  |
| 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   |   |   |   |   |  |
| <b>Driver Support</b>               |   |   |   |   |   |  |
| 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                           | ✓   | ✓   | ✓   | ✓   | ✓   | ✓  |
| <b>Physical Characteristics</b>     |   |   |   |   |   |  |
| 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)                     |
| <b>Environmental Limits</b>         |   |   |   |   |   |  |
| 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)   |   |   |   |   |  |
| <b>Standards and Certifications</b> |   |   |   |   |   |  |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF |   |   |   | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 4 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>IEC 61000-4-4 EFT: Power: 1 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>IEC 61000-4-8 PFMF |  |
| <b>Power Requirements</b>           |   |   |   |   |   |  |
| 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   |
| <b>Reliability</b>                  |   |   |   |   |   |  |
| MTBF (Time)                         | Time: 208,413 hrs<br>Standard:<br>MIL-HDBK-217F   | Time: 186,567 hrs<br>Standard:<br>MIL-HDBK-217F | Time: 138,704 hrs<br>Standard:<br>MIL-HDBK-217F | Time: 120,001 hrs<br>Standard:<br>MIL-HDBK-217F | Time: 4,221,778 hrs<br>Standard: Telcordia<br>(Bellcore), GB  | Time: 3,901,775 hrs<br>Standard: Telcordia<br>(Bellcore), GB |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |   |   |   |   |  |

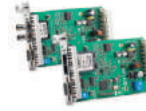
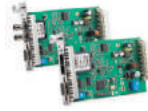


# USB Hubs



|                                     | UPort® 404/404-T   | UPort® 407/407-T  | UPort® 204  | UPort® 207                                  |
|-------------------------------------|--|---|---|---|
| <b>USB Interface</b>                |  |   |   |   |
| 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  |   |   |   |
| <b>Physical Characteristics</b>     |  |   |   |   |
| 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<br>(3.15 x 1.38 x 5.12 in)  | 100 x 35 x 192 mm<br>(3.94 x 1.38 x 7.55 in)              | 70 x 35 x 120 mm<br>(2.76 x 1.38 x 4.72 in)               | 80 x 35 x 185 mm<br>(3.15 x 1.38 x 4.72 in) |
| <b>Environmental Limits</b>         |  |   |   |   |
| 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)                                 |   |
| <b>Standards and Certifications</b> |  |   |   |   |
| 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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 2 kV<br>IEC 61000-4-5 Surge: Power: 1 kV<br>IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m<br>IEC 61000-4-8 PFMF |   |   |   |
| <b>Power Requirements</b>           |  |   |   |   |
| 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                             |
| <b>Reliability</b>                  |  |   |   |   |
| MTBF (Time)                         | Time: 1,490,340 hrs<br>Standard: Telcordia (Bellcore), GB  | Time: 1,111,361 hrs<br>Standard: Telcordia (Bellcore), GB | Time: 1,577,573 hrs<br>Standard: Telcordia (Bellcore), GB |   |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |   |   |   |

# Chassis Media Converters



|                                     | TRC-190-AC<br>TRC-190-DC-48   | TCF-142-M-SC-RM<br>TCF-142-M-ST-RM                      | TCF-142-S-SC-RM<br>TCF-142-S-ST-RM    |
|-------------------------------------|---|---|---------------------------------------|
| <b>Optical-Fiber Side</b>           |   |   |                                       |
| 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 |                                       |
| <b>RS-232/422/485 Side</b>          |   |   |                                       |
| 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                                    |                                       |
| <b>Physical Characteristics</b>     |   |   |                                       |
| 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  | –   |                                       |
| <b>Environmental Limits</b>         |   |   |                                       |
| 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)   |   |                                       |
| <b>Power Requirements</b>           |   |   |                                       |
| Input Voltage                       | 100 to 240 VAC or 36 to 72 VDC  | 12 VDC  |                                       |
| Input Current                       | 3.2 mA @ 36 VDC   | 150 mA @ 12 VDC   |                                       |
| <b>Standards and Certifications</b> |   |   |                                       |
| 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<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-5 Surge: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF<br>EN 61000-4-11 DIPS |   |                                       |
| Freefall                            | –   | IEC 60068-2-32  |                                       |
| Green Product                       | RoHS, CRoHS, WEEE   |   |                                       |
| <b>Reliability</b>                  |   |   |                                       |
| MTBF                                | Time: 959,780 hrs<br>Standard: MIL-HDBK-217F  |   |                                       |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )   |   |                                       |

# Serial-to-Fiber Media Converters



|                                     | ICF-1150-M-SC/ST<br>ICF-1150-M-SC/ST-T   | ICF-1150I-M-SC/ST<br>ICF-1150I-M-SC/ST-T | ICF-1150-S-SC/ST<br>ICF-1150-S-SC/ST-T | ICF-1150I-S-SC/ST<br>ICF-1150I-S-SC/ST-T | TCF-142-M-SC/ST<br>TCF-142-M-SC/ST-T   | TCF-142-S-SC/ST<br>TCF-142-S-SC/ST-T | TCF-90-M/S   |  |
|-------------------------------------|--|--|--|--|--|--------------------------------------|--|--|
| <b>Optical-Fiber Side</b>           |  |  |  |  |  |                                      |  |  |
| Fiber Connector                     | SC or ST   |  |  |  |  |                                      | ST   |  |
| Cable Requirements                  | Single-mode: 8.3/125, 8.7/125, 9/125, or 10/125 $\mu$ m<br>Multi-mode: 50/125, 62.5/125, or 100/140 $\mu$ m  |  |  |  |  |                                      |  |  |
| Transmission Distance               | Single-mode: 40 km<br>Multi-mode: 5 km   |  |  |  |  |                                      |  |  |
| Wavelength                          | Single-mode: 1310 nm<br>Multi-mode: 850 nm   |  |  |  |  |                                      |  |  |
| Tx Output                           | Single-mode: > -5 dBm<br>Multi-mode: > -5 dBm  |  |  |  |  |                                      |  |  |
| Rx Sensitivity                      | Single-mode: -25 dBm<br>Multi-mode: -20 dBm  |  |  |  |  |                                      |  |  |
| Point-to-Point Transmission         | Half-duplex or full-duplex   |  |  |  |  |                                      | -  |  |
| Multidrop Transmission              | Half-duplex, fiber ring  |  |  |  |  |                                      | -  |  |
| <b>RS-232 Side</b>                  |  |  |  |  |  |                                      |  |  |
| Connector                           | DB9 female   |  |  |  | Terminal block   |                                      | DB9 female   |  |
| Signals                             | Tx, Rx, GND  |  |  |  |  |                                      | TxD, RxD, GND<br>(Loop-back wiring: RTS to CTS, DTR to DSR and DCD)  |  |
| Baudrate                            | 50 bps to 921.6 kbps   |  |  |  |  |                                      | 300 bps to 115.2 kbps  |  |
| <b>RS-232/422/485 Side</b>          |  |  |  |  |  |                                      |  |  |
| 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                                     | -  | -                                    | -  |  |
| <b>Physical Characteristics</b>     |  |  |  |  |  |                                      |  |  |
| 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)  |  |
| <b>Environmental Limits</b>         |  |  |  |  |  |                                      |  |  |
| Operating Temperature               | Standard Temperature: 0 to 60°C (32 to 140°F)<br>Wide Temperature: -40 to 85°C (-40 to 185°F)  |  |  |  | Standard Temperature: 0 to 60°C (32 to 140°F)<br>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)  |  |
| <b>Power Requirements</b>           |  |  |  |  |  |                                      |  |  |
| Source of Input Power               | -  | -  | -                                      | -  | -  | -                                    | RS-232 port (TxD, RTS, DTR) or power input jack  |  |
| Input Voltage                       | 12 to 48 VDC   |  |  |  |  |                                      |  |  |
| Input Current                       | 127 mA @ 12 VDC  | 163 mA @ 12 VDC                          | 127 mA @ 12 VDC                        | 163 mA @ 12 VDC                          | 140 mA @ 12 VDC  |                                      | 5 to 12 VDC<br>20 mA @ 12 VDC  |  |
| Voltage Reversal Protection         | Protects against V+/- reversal   |  |  |  |  |                                      | -  |  |
| Overcurrent Protection              | 1.1 A  |  |  |  | 1.1 A  |                                      | -  |  |
| <b>Standards and Certifications</b> |  |  |  |  |  |                                      |  |  |
| 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<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>EN 61000-4-5 Surge: Power: 4 kV; Signal: 0.5 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |  |  |  | EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>EN 61000-4-4 EFT: Power: 1 kV<br>EN 61000-4-5 Surge: Power: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |                                      | EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 0.5 kV; Signal: 1 kV<br>EN 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |  |
| Freefall                            | IEC 60068-2-32   |  |  |  | -  |                                      | -  |  |
| Green Product                       | RoHS, CRoHS, WEEE  |  |  |  | RoHS, CRoHS, WEEE  |                                      | RoHS, CRoHS, WEEE  |  |
| <b>Reliability</b>                  |  |  |  |  |  |                                      |  |  |
| MTBF                                | Time: 792,085 hrs<br>Standard: Telcordia (Bellcore), GB  |  |  |  | Time: 780,480 hrs<br>Standard: Telcordia (Bellcore), GB  |                                      | Time: 2,272,562 hrs<br>Standard: MIL-HDBK-217F   |  |
| Warranty                            | 5 years (see www.moxa.com/warranty)  |  |  |  |  |                                      |  |  |

Serial Media Converters > Serial-to-Fiber Media Converters

# Serial Converters and Repeaters



|                                     | TCC-100<br>TCC-100-T  | TCC-100I<br>TCC-100I-T | TCC-80  | TCC-80I       | TCC-120   | TCC-120I        | TCC-82  |  |
|-------------------------------------|---|------------------------|---|---------------|---|-----------------|---|--|
| <b>RS-232 Side</b>                  |   |                        |   |               |   |                 |   |  |
| Connector                           | DB9 female  |                        | DB9 female  |               | -   |                 | DB9 male/female   |  |
| Signals                             | TxD, RxD, RTS, CTS, GND<br>(Loop-back wiring: DTR to DSR and DCD)   |                        | TxD, RxD, GND<br>(Loop-back wiring: RTS to CTS, DTR to DSR and DCD)   |               | -   |                 | TxD, RxD, RTS, CTS, GND<br>(Loop-back wiring: DTR to DSR and DCD)   |  |
| <b>RS-422/485 Side</b>              |   |                        |   |               |   |                 |   |  |
| Connector                           | Terminal Block  |                        | Terminal Block or DB9 male  |               | Terminal block on both ends   |                 | -   |  |
| Signals                             | (interface selected by DIP switch)<br>RS-422: TxD+, TxD-, RxD+, RxD-, GND<br>RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND<br>RS-485-2w: Data+, Data-, GND   |                        | (interface selected by DIP switch)<br>RS-422: TxD+, TxD-, RxD+, RxD-, GND<br>RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND<br>RS-485-2w: Data+, Data-, GND   |               | (interface selected by DIP switch)<br>RS-422: TxD+, TxD-, RxD+, RxD-, GND<br>RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND<br>RS-485-2w: Data+, Data-, GND   |                 | -   |  |
| RS-485 Data Direction Control       | ADDC®   |                        | ADDC®   |               | ADDC®   |                 | -   |  |
| <b>Serial Communication</b>         |   |                        |   |               |   |                 |   |  |
| 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  |  |
| <b>Physical Characteristics</b>     |   |                        |   |               |   |                 |   |  |
| 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)   |  |
| <b>Environmental Limits</b>         |   |                        |   |               |   |                 |   |  |
| Operating Temperature               | Standard Temperature: -20 to 60°C (-4 to 140°F)<br>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)   |  |
| <b>Power Requirements</b>           |   |                        |   |               |   |                 |   |  |
| 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              | ✓   | ✓                      | -   |               | ✓   | ✓               | -   |  |
| <b>Standards and Certifications</b> |   |                        |   |               |   |                 |   |  |
| 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<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-5 Surge: Power: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |                        | EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 1 kV<br>EN 61000-4-5 Surge: Power: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |               | EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV<br>EN 61000-4-5 Surge: Power: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |                 | EN 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 0.5 kV<br>EN 61000-4-5 Surge: Power: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |  |
| Green Product                       | RoHS, CRoHS, WEEE   |                        |   |               |   |                 |   |  |
| <b>Reliability</b>                  |   |                        |   |               |   |                 |   |  |
| MTBF                                | Time: 3,017,857 hrs<br>Standard: MIL-HDBK-217F  |                        | Time: 2,781,161 hrs<br>Standard: Telcordia (Bellcore), GB   |               | Time: 1,949,025 hrs<br>Standard: Telcordia (Bellcore), GB   |                 | Time: 959,780 hrs<br>Standard: MIL-HDBK-217F  |  |
| Warranty                            | 5 years (see www.moxa.com/warranty)   |                        |   |               |   |                 |   |  |

# Serial Surge Protector



|                                     | ISD-1110-T   | ISD-1130-T  | ISD-1210-T  | ISD-1230-T                  |
|-------------------------------------|--|---|---|-----------------------------|
| <b>Data Line Surge Protection</b>   |  |   |   |                             |
| 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 $\mu$ s impulse per line  |   | 20 kV, 8/20 $\mu$ s 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   |   |   |                             |
| <b>Connector</b>                    |  |   |   |                             |
| Connector                           | Data in: DB9 male<br>Data out: DB9 female  | Data in: Terminal Block<br>Data out: Terminal Block |   |                             |
| <b>Physical Characteristics</b>     |  |   |   |                             |
| 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)                 |                             |
| <b>Environmental Limits</b>         |  |   |   |                             |
| 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)  |   |   |                             |
| <b>Standards and Certifications</b> |  |   |   |                             |
| EMS                                 | EN 61000-4-5 Surge: Signal 4 kV  |   | IEC 61643-21 C2: 20 kV 1.2/50, 10 kA 8/20               |                             |
| <b>Reliability</b>                  |  |   |   |                             |
| Warranty                            | 5 years (limited to 1-time use) (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )<br>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<br>Standard: Telcordia (Bellcore), GB  |   | Time: 964,269 hrs<br>Standard: Telcordia (Bellcore), GB |                             |



# CAN-to-Fiber, PROFIBUS-to-Fiber Converters



|                                     | ICF-1170I-M-ST<br>ICF-1170I-M-ST-T   | ICF-1180I-M-ST-ST-T<br>ICF-1180I-S-ST/ST-T                | ICF-1280I-M-ST-ST-T<br>ICF-1280I-S-ST/ST-T  |
|-------------------------------------|--|---|---|
| <b>Optical Fiber Side</b>           |  |   |   |
| Fiber Connector                     | ST   |   |   |
| Cable Requirements                  | Multi-mode: 50/125, 62.5/125, or 100/140 $\mu$ m   |   |   |
| Transmission Distance               | Up to 2 km   | Multi-mode: 4 km<br>Single-mode: 45 km                    | Multi-mode: 4 km<br>Single-mode: 45 km  |
| Wavelength                          | Multi-mode: 850 nm   | Multi-mode: 820 nm<br>Single-mode: 1310 nm                | Multi-mode: 820 nm<br>Single-mode: 1310 nm  |
| Tx Output                           | Multi-mode: > -5 dBm   | Multi-mode: > -14 dBm<br>Single-mode: > -7 dBm            | Multi-mode: > -14 dBm<br>Single-mode: > -7 dBm  |
| Rx Sensitivity                      | Multi-mode: -20 dBm  | Multi-mode: -28 dBm<br>Single-mode: -29 dBm               | Multi-mode: -28 dBm<br>Single-mode: -29 dBm   |
| <b>Fieldbus Interface</b>           |  |   |   |
| 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)  |   |   |
| <b>Physical Characteristics</b>     |  |   |   |
| 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)  |
| <b>Environmental Limits</b>         |  |   |   |
| Operating Temperature               | Standard Temperature   | 0 to 60°C (32 to 140°F)                                   |   |
|                                     | 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                 | -40 to 85°C (-40 to 185°F)   |   | -40 to 75°C (-40 to 167°F)  |
| <b>Power Requirements</b>           |  |   |   |
| 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)  |   |   |
| <b>Standards and Certifications</b> |  |   |   |
| Safety                              | 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  |
| EMS                                 | EN 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m<br>EN 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV<br>EN 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m<br>EN 61000-4-8 PFMF |   | EN 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV<br>EN 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>EN 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>EN 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV<br>EN 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m<br>EN 61000-4-8 PFMF |
| Freefall                            | IEC 60068-2-32   |   |   |
| Green Product                       | RoHS, CRoHS, WEEE  |   |   |
| <b>Reliability</b>                  |  |   |   |
| MTBF                                | Time: 792,085 hrs<br>Standard: Telcordia (Bellcore), GB  | Time: 1,870,854 hrs<br>Standard: Telcordia (Bellcore), GB | Time: 1,567,875 hrs<br>Standard: Telcordia (Bellcore), GB   |
| Warranty                            | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )  |   |   |

# Modular and Compact RTU Controllers

Preliminary



|                                     | ioPAC 8600 series  | ioPAC 8500 Series                    | ioPAC 8020 Series   | ioPAC 5542 Series   |
|-------------------------------------|--|--------------------------------------|---|---|
| <b>Inputs/Outputs</b>               |  |                                      |   |   |
| Digital Inputs                      | –  | –                                    | –   | 8   |
| Configurable DIOs                   | –  | –                                    | –   | 8   |
| Analog Inputs                       | –  | –                                    | –   | 8   |
| <b>Cellular</b>                     |  |                                      |   |   |
| HSPA                                | –  | –                                    | –   | ✓ (ioPAC 5542-HSPA)   |
| <b>Ethernet</b>                     |  |                                      |   |   |
| Ports (Connector)                   | 2 (M12 or RJ45)  |                                      |   | 2 (RJ45)  |
| Speed                               | 10/100 Mbps  |                                      |   |   |
| Switch (Daisy Chain)                | ✓  | –                                    | ✓   | –   |
| 2 MACs                              | ✓  | ✓                                    | –   | ✓   |
| Protocols                           | Modbus TCP (master/slave), SNMP, TCP/IP, UDP, DHCP, BOOTP, SNTP, SMTP                    |                                      | Modbus TCP (master/slave), TCP/IP, UDP, DHCP, BOOTP, SNTP, SMTP | Modbus TCP (master/slave), SNMP, TCP/IP, UDP, DHCP, BOOTP, SNTP, SMTP   |
| <b>Serial</b>                       |  |                                      |   |   |
| Ports (Connector)                   | –  | 2 (DB9 male)                         | 1 (DB9 male)  | 2 (DB9 male)  |
| Interface                           | –  | RS-232/422/485                       |   | –   |
| Protocols                           | Modbus RTU (master/slave)  |                                      | Modbus RTU (master)   | Modbus RTU (master/slave)   |
| <b>Physical Characteristics</b>     |  |                                      |   |   |
| I/O Module Slots                    | 5/9/12   | 2/5/9                                | 5/9   | –   |
| <b>Environmental Limits</b>         |  |                                      |   |   |
| Operating Temperature               | -40 to 75°C (-40 to 176°F)   |                                      |   | -40 to 75°C (-40 to 176°F)<br>-30 to 75°C (-22 to 176°F) for HSPA model |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   |                                      |   |   |
| Ambient Relative Humidity           | 5 to 95% RH (non-condensing)   |                                      |   |   |
| Shock                               | IEC 60068-2-27   |                                      |   |   |
| Vibration                           | IEC 60068-2-6  |                                      |   |   |
| <b>Software</b>                     |  |                                      |   |   |
| Programmability                     | C/C++, IEC 61131-3   |                                      | C/C++   | C/C++, IEC 61131-3  |
| MX-AOPC UA Server                   | ✓  | ✓                                    | ✓   | ✓   |
| Active OPC Server                   | –  | ✓                                    | ✓   | ✓   |
| DA Center                           | –  | ✓                                    | ✓   | ✓   |
| RTUxpress                           | ✓  | –                                    | –   | ✓   |
| RTUAdmin                            | –  | –                                    | ✓   | –   |
| <b>Standards and Certifications</b> |  |                                      |   |   |
| Safety                              | UL 508   |                                      |   |   |
| EMC                                 | EN 55022, EN 55024   |                                      |   |   |
| EMI                                 | FCC Part 15 Subpart B Class A, CISPR 22  |                                      |   |   |
| EMS                                 | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8 |                                      |   |   |
| Radio                               | –  | –                                    | –   | NCC (ioPAC 5542-HSPA)   |
| Rail Traffic                        | EN 50155 (essential compliance*), EN 50121-3-2, EN 50121-4                               | EN 50155**, EN 50121-3-2, EN 50121-4 |   | EN 50121-4  |
| Hazardous Location                  | –  | –                                    | –   | Class 1 Division 2  |
| <b>Reliability</b>                  |  |                                      |   |   |
| Warranty                            | 5 years  |                                      |   |   |

Programmable RTU Controllers > Modular and Compact RTU Controllers

\*Moxa defines "essential compliance" to include those EN 50155 requirements that make products more suitable for rolling stock railway applications.

\*\*Complies with a portion of EN 50155 specifications.

# I/O Modules for the ioPAC 8600 Series



Preliminary

|                             | Digital Input   |                           | Digital Output            |                    | Analog Output  | Communication  |  |
|-----------------------------|---|---------------------------|---------------------------|--------------------|--|--|--|
|                             | 86M-1620D-T   | 86M-1832D-T               | 86M-2830D-T               | 86M-2604D-T        | 86M-4420-T   | 86M-5212U-T  | 86M-5250-T   |
| <b>Module Properties</b>    |   |                           |                           |                    |  |  |  |
| Channels/Ports (Connector)  | 16 (terminal block)   | 8 (terminal block)        | 8 (terminal block)        | 6 (terminal block) | 4 (terminal block)                                   | 2 (M12)  | 2 (DB9 male)   |
| Input/Output Mode           | 24 to 110 VDC   | 24 VDC ch-to-ch isolation | 24 VDC ch-to-ch isolation | Relay              | 0 to 10 V<br>-10 to 10 V<br>0 to 20 mA<br>4 to 20 mA | –  | –  |
| Type                        | sink  | sink/source               | sink                      | Form A (N.O.)      | –  | –  | –  |
| Communication Ports         | –   | –                         | –                         | –                  | –  | 2-wire Ethernet  | CAN  |
| Standards                   | –   | –                         | –                         | –                  | –  | 100BASE-TX IEEE 802.3u<br>10BASE-T IEEE 802.3<br>100 Mbps BroadR-Reach®<br>10 Mbps BroadR-Reach® | CAN 2.0A<br>CAN 2.0B<br>CANopen DS301<br>CANopen DS401 |
| <b>Environmental Limits</b> |   |                           |                           |                    |  |  |  |
| Operating Temperature       | -40 to 75°C (-40 to 176°F)  |                           |                           |                    |  |  |  |
| Storage Temperature         | -40 to 85°C (-40 to 185°F)  |                           |                           |                    |  |  |  |
| Ambient Relative Humidity   | 5 to 95% RH (non-condensing)  |                           |                           |                    |  |  |  |
| <b>Reliability</b>          |   |                           |                           |                    |  |  |  |
| Warranty                    | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> ) |                           |                           |                    |  |  |  |

# I/O Modules for the ioPAC 8500 Series



|                             | Digital Input   | Digital Output      | Analog Input   |  |  |  | High Speed Analog Input  |  | Communication   |
|-----------------------------|---|---------------------|--|--|--|--|--|--|-----------------|
|                             | 85M-1602-T  | 85M-2600-T          | 85M-3800   | 85M-3801   | 85M-6600-T   | 85M-6810-T   | 85M-3801-T   | 85M-3811-T   | 85M-5401-T      |
| <b>Module Properties</b>    |   |                     |  |  |  |  |  |  |                 |
| Channels/Ports (Connector)  | 16 (terminal block)   | 16 (terminal block) | 8 (terminal block)   | 8 (terminal block)   | 6 (terminal block)   | 8 (terminal block)   | 8 (terminal block)   | 8 (terminal block)   | 4 (DB44 female) |
| Input/Output Mode           | 24 VDC  | 24 VDC              | 4 to 20 mA   | 0 to 10 V  | RTD  | Thermocouple   | 4 to 20 mA   | 0 to 10 V  | –               |
| Type                        | sink/source   | sink                | –  | –  | –  | –  | –  | –  | –               |
| Sampling Rate               | –   | –                   | All channels:<br>100 samples/sec<br>Per channel:<br>12.5 samples/sec | All channels:<br>100 samples/sec<br>Per channel:<br>12.5 samples/sec | All channels:<br>12 samples/sec<br>Per channel:<br>2 samples/sec | All channels:<br>12 samples/sec<br>Per channel:<br>1.5 samples/sec | All channels:<br>40k samples/sec<br>Per channel:<br>5k samples/sec | All channels:<br>40k samples/sec<br>Per channel:<br>5k samples/sec | –               |
| Serial Ports                | –   | –                   | –  | –  | –  | –  | –  | –  | RS-232/422/485  |
| <b>Environmental Limits</b> |   |                     |  |  |  |  |  |  |                 |
| Operating Temperature       | -40 to 75°C (-40 to 176°F)  |                     |  |  |  |  |  |  |                 |
| Storage Temperature         | -40 to 85°C (-40 to 185°F)  |                     |  |  |  |  |  |  |                 |
| Ambient Relative Humidity   | 5 to 95% RH (non-condensing)  |                     |  |  |  |  |  |  |                 |
| <b>Reliability</b>          |   |                     |  |  |  |  |  |  |                 |
| Warranty                    | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> ) |                     |  |  |  |  |  |  |                 |

Note: 85M modules can also be used with ioPAC 8600 systems.

# I/O Modules for the ioPAC 8020 Series



|                             | Digital Input   |                     | Digital Output      | Analog Input       |                    | Communication   |
|-----------------------------|---|---------------------|---------------------|--------------------|--------------------|---|
|                             | RM-1050-T   | RM-1602-T           | RM-2600-T           | RM-3802-T          | RM-3810-T          | KM-2430-T   |
| <b>Module Properties</b>    |   |                     |                     |                    |                    |   |
| Channels/Ports (Connector)  | 10 (terminal block)   | 16 (terminal block) | 16 (terminal block) | 8 (terminal block) | 8 (terminal block) | 4 (M12)   |
| Input/Output Mode           | 110 VDC ch-to-ch isolation  | 24 VDC              | 24 VDC              | 4 to 20 mA         | 0 to 10 VDC        | –   |
| Type                        | sink/source   | sink/source         | sink                | –                  | –                  | –   |
| Communication Ports         | –   | –                   | –                   | –                  | –                  | Unmanaged Ethernet switch   |
| Standards                   | –   | –                   | –                   | –                  | –                  | IEEE 802.3 for 10BaseT<br>IEEE 802.3u for 100BaseT(X)<br>IEEE 802.3x for Flow Control |
| <b>Environmental Limits</b> |   |                     |                     |                    |                    |   |
| Operating Temperature       | -40 to 75°C (-40 to 176°F)  |                     |                     |                    |                    |   |
| Storage Temperature         | -40 to 85°C (-40 to 185°F)  |                     |                     |                    |                    |   |
| Ambient Relative Humidity   | 5 to 95% RH (non-condensing)  |                     |                     |                    |                    |   |
| <b>Reliability</b>          |   |                     |                     |                    |                    |   |
| Warranty                    | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> ) |                     |                     |                    |                    |   |

Programmable RTU Controllers > I/O Modules for the ioPAC Products

# Smart Remote I/O with Click&Go Plus Logic



|                                     | ioLogik 2542-HSPA  | ioLogik 2542-GPRS                              | ioLogik 2542-WL1  | ioLogik 2542               | ioLogik 2512-HSPA   | ioLogik 2512-GPRS                              | ioLogik 2512-WL1  | ioLogik 2512               |
|-------------------------------------|--|--|---|----------------------------|---|--|---|----------------------------|
| <b>Inputs/Outputs</b>               |  |  |   |                            |   |  |   |                            |
| Digital Inputs                      | –  | –  | –   | –                          | 8   | 8  | 8   | 8                          |
| Configurable DIOs                   | 12   | 12   | 12  | 12                         | 8   | 8  | 8   | 8                          |
| Analog Inputs                       | 4  | 4  | 4   | 4                          | –   | –  | –   | –                          |
| <b>Cellular</b>                     |  |  |   |                            |   |  |   |                            |
| Band Options                        | UMTS/HSPA+: five-band 800/850/900/1900/2100 MHz<br>GSM/GPRS/EDGE: quad-band 850/900/1800/1900 MHz                                  | GSM/GPRS/EDGE: quad-band 850/900/1800/1900 MHz | –   | –                          | UMTS/HSPA+: five-band 800/850/900/1900/2100 MHz<br>GSM/GPRS/EDGE: quad-band 850/900/1800/1900 MHz | GSM/GPRS/EDGE: quad-band 850/900/1800/1900 MHz | –   | –                          |
| <b>WLAN</b>                         |  |  |   |                            |   |  |   |                            |
| Standard                            | –  | –  | IEEE 802.11a/b/g for Wireless LAN<br>IEEE 802.11i for Wireless Security | –                          | –   | –  | IEEE 802.11a/b/g for Wireless LAN<br>IEEE 802.11i for Wireless Security | –                          |
| <b>Ethernet</b>                     |  |  |   |                            |   |  |   |                            |
| Ports (Connector)                   | 4 switched ports, with 1 optimized port for faster downstream communications with up to 8 daisy-chained ioLogik E1200 units (RJ45) |  |   |                            |   |  |   |                            |
| Speed                               | 10/100 Mbps  |  |   |                            |   |  |   |                            |
| Protocols                           | Modbus/TCP (slave), TCP/IP, UDP, DHCP, BOOTP, SNMP, HTTP, CGI, SNTP, SMTP  |  |   |                            |   |  |   |                            |
| <b>Serial</b>                       |  |  |   |                            |   |  |   |                            |
| Ports (Connector)                   | 2 (RJ45)   |  |   |                            |   |  |   |                            |
| Interface                           | RS-232/422/485 software-selectable   |  |   |                            |   |  |   |                            |
| Protocols                           | Modbus/RTU (master/gateway), serial tunnel mode (client/server)  |  |   |                            |   |  |   |                            |
| <b>Environmental Limits</b>         |  |  |   |                            |   |  |   |                            |
| Standard Operating Temp.            | -10 to 60°C (14 to 140°F)  |  |   |                            |   |  |   |                            |
| Wide Operating Temp.                | -30 to 70°C (-22 to 158°F)   |  |   | -40 to 75°C (-40 to 167°F) | -30 to 70°C (-22 to 158°F)  |  |   | -40 to 75°C (-40 to 167°F) |
| Storage Temp.                       | -40 to 85°C (-40 to 185°F)   |  |   |                            |   |  |   |                            |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  |  |   |                            |   |  |   |                            |
| <b>Software</b>                     |  |  |   |                            |   |  |   |                            |
| Click&Go Plus                       | ✓  | ✓  | ✓   | ✓                          | ✓   | ✓  | ✓   | ✓                          |
| MX-AOPC UA Server                   | ✓  | ✓  | ✓   | ✓                          | ✓   | ✓  | ✓   | ✓                          |
| MX-AOPC UA Logger (Data Complement) | ✓  | ✓  | ✓   | ✓                          | ✓   | ✓  | ✓   | ✓                          |
| MXIO                                | ✓  | ✓  | ✓   | ✓                          | ✓   | ✓  | ✓   | ✓                          |
| IOxpress                            | ✓  | ✓  | ✓   | ✓                          | ✓   | ✓  | ✓   | ✓                          |
| <b>Standards and Certifications</b> |  |  |   |                            |   |  |   |                            |
| Safety                              | UL 508   |  |   |                            |   |  |   |                            |
| EMC                                 | EN 55022; EN 55024; EN 61000-6-2; EN 61000-6-4   |  |   |                            |   |  |   |                            |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |  |   |                            |   |  |   |                            |
| EMS                                 | EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8   |  |   |                            |   |  |   |                            |
| Shock                               | IEC 60068-2-27   |  |   |                            |   |  |   |                            |
| Vibration                           | IEC 60068-2-6  |  |   |                            |   |  |   |                            |
| Radio                               | R&TTE; NCC   | R&TTE; NCC; VCCI                               | –   | –                          | R&TTE; NCC  | R&TTE; NCC; VCCI                               | –   | –                          |
| Hazardous Location                  | Class I Division 2, ATEX Zone 2  |  |   |                            |   |  |   |                            |
| Green Product                       | RoHS, CRoHS, WEEE  |  |   |                            |   |  |   |                            |
| <b>Reliability</b>                  |  |  |   |                            |   |  |   |                            |
| Warranty                            | 5 years  |  |   |                            |   |  |   |                            |

Smart Remote I/O > Smart Remote I/O with Click&Go Plus Logic

# Smart Remote I/O with Click&Go Logic



Smart Remote I/O > Smart Remote I/O with Click&Go Logic

|                                     | ioLogik E2210  | ioLogik E2212 | ioLogik E2214 | ioLogik E2240 | ioLogik E2242 | ioLogik E2260 | ioLogik E2262 | ioLogik W5340-HSPA  |
|-------------------------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|---|
| <b>Inputs/Outputs</b>               |  |               |               |               |               |               |               |   |
| Digital Inputs                      | 12   | 8             | 6             | –             | –             | –             | –             | –   |
| Digital Outputs                     | 8  | 8             | –             | –             | –             | 4             | 4             | –   |
| Relays                              | –  | –             | 6             | –             | –             | –             | –             | 2   |
| Configurable DI/Os                  | –  | 4             | –             | –             | 12            | –             | –             | 8   |
| Analog Inputs                       | –  | –             | –             | 8             | 4             | –             | –             | 4   |
| Analog Outputs                      | –  | –             | –             | 2             | –             | –             | –             | –   |
| RTDs                                | –  | –             | –             | –             | –             | 6             | –             | –   |
| Thermocouples                       | –  | –             | –             | –             | –             | –             | 8             | –   |
| <b>Ethernet</b>                     |  |               |               |               |               |               |               |   |
| Ports (Connector)                   | 1 (RJ45)   |               |               |               |               |               |               | 1, with up to 3 ioLogik E1200 units daisy-chained (RJ45)        |
| Speed                               | 10/100 Mbps  |               |               |               |               |               |               |   |
| Protocols                           | Modbus/TCP (slave), TCP/IP, UDP, DHCP, BOOTP, SNMP, HTTP, CGI, SNTP, SMTP          |               |               |               |               |               |               | Modbus/TCP (slave), TCP/IP, UDP, DHCP, BOOTP, SNMP, SNTP, SMTP  |
| <b>Serial</b>                       |  |               |               |               |               |               |               |   |
| Ports (Connector)                   | 1 (Euroblock terminal)   |               |               |               |               |               |               | 1 (DB9 male or Euroblock terminal)                              |
| Interface                           | RS-485   |               |               |               |               |               |               | RS-232/422/485 software-selectable                              |
| Protocols                           | Modbus/RTU (gateway)   |               |               |               |               |               |               | Modbus/RTU (master/gateway), serial tunnel mode (client/server) |
| <b>Environmental Limits</b>         |  |               |               |               |               |               |               |   |
| Standard Operating Temp.            | -10 to 60°C (14 to 140°F)  |               |               |               |               |               |               | -10 to 55°C (14 to 131°F)                                       |
| Wide Operating Temp.                | -40 to 75°C (-40 to 167°F)   |               |               |               |               |               |               | -30 to 70°C (-22 to 158°F)                                      |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   |               |               |               |               |               |               |   |
| Ambient Relative Humidity           | 5 to 95% RH (non-condensing)   |               |               |               |               |               |               |   |
| <b>Software</b>                     |  |               |               |               |               |               |               |   |
| Click&Go                            | ✓  | ✓             | ✓             | ✓             | ✓             | ✓             | ✓             | ✓   |
| Active OPC Server                   | ✓  | ✓             | ✓             | ✓             | ✓             | ✓             | ✓             | ✓   |
| MX-AOPC UA Server                   | ✓  | ✓             | ✓             | ✓             | ✓             | ✓             | ✓             | ✓   |
| DA-Center (Data Complement)         | –  | –             | –             | –             | –             | –             | –             | ✓   |
| MXIO                                | ✓  | ✓             | ✓             | ✓             | ✓             | ✓             | ✓             | ✓   |
| ioAdmin                             | ✓  | ✓             | ✓             | ✓             | ✓             | ✓             | ✓             | ✓   |
| <b>Standards and Certifications</b> |  |               |               |               |               |               |               |   |
| Safety                              | UL 508   |               |               |               |               |               |               |   |
| EMC                                 | EN 61000-6-2; EN 61000-6-4   |               |               |               |               |               |               |   |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |               |               |               |               |               |               |   |
| EMS                                 | EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8 |               |               |               |               |               |               |   |
| Shock                               | IEC 60068-2-27   |               |               |               |               |               |               |   |
| Vibration                           | IEC 60068-2-6  |               |               |               |               |               |               |   |
| Radio                               | –  | –             | –             | –             | –             | –             | –             | R&TTE; NCC  |
| Green Product                       | RoHS, CRoHS, WEEE  |               |               |               |               |               |               |   |
| <b>Reliability</b>                  |  |               |               |               |               |               |               |   |
| Warranty                            | 5 years  | 5 years       | 2 years*      | 5 years       | 5 years       | 5 years       | 5 years       | 2 years*  |

\*Because of the limited lifetime of power relays, products using that component are covered by a 2-year warranty.



# Ethernet I/O



|                                     | ioLogik E1210  | ioLogik E1211 | ioLogik E1212 | ioLogik E1214 | ioLogik E1213** | ioLogik E1240 | ioLogik E1241 | ioLogik E1242 | ioLogik E1260 | ioLogik E1262 |
|-------------------------------------|--|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|---------------|---------------|
| <b>Input/Output</b>                 |  |               |               |               |                 |               |               |               |               |               |
| Digital Inputs                      | 16   | –             | 8             | 6             | 4               | –             | –             | 4             | –             | –             |
| Digital Outputs                     | –  | 16            | –             | –             | 4               | –             | –             | –             | –             | –             |
| Relays                              | –  | –             | –             | 6             | –               | –             | –             | –             | –             | –             |
| Configurable DI/Os                  | –  | –             | 8             | –             | 4               | –             | –             | 4             | –             | –             |
| Analog Inputs                       | –  | –             | –             | –             | –               | 8             | –             | 4             | –             | –             |
| Analog Outputs                      | –  | –             | –             | –             | –               | –             | 4             | –             | –             | –             |
| RTDs                                | –  | –             | –             | –             | –               | –             | –             | –             | 6             | –             |
| Thermocouples                       | –  | –             | –             | –             | –               | –             | –             | –             | –             | 8             |
| <b>Ethernet</b>                     |  |               |               |               |                 |               |               |               |               |               |
| Ports (Connector)                   | 2 (RJ45)   |               |               |               |                 |               |               |               |               |               |
| Speed                               | 10/100 Mbps  |               |               |               |                 |               |               |               |               |               |
| Switch (Daisy Chain)                | ✓  | ✓             | ✓             | ✓             | ✓               | ✓             | ✓             | ✓             | ✓             | ✓             |
| Protocols                           | Modbus/TCP (slave), TCP/IP, UDP, DHCP, BOOTP, HTTP, SNMP                           |               |               |               |                 |               |               |               |               |               |
| <b>Environmental Limits</b>         |  |               |               |               |                 |               |               |               |               |               |
| Standard Models                     | -10 to 60°C (14 to 140°F)  |               |               |               |                 |               |               |               |               |               |
| Wide Temp. Models                   | -40 to 75°C (-40 to 167°F)   |               |               |               |                 |               |               |               |               |               |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   |               |               |               |                 |               |               |               |               |               |
| Operating Humidity                  | 5 to 95% RH (non-condensing)   |               |               |               |                 |               |               |               |               |               |
| <b>Software</b>                     |  |               |               |               |                 |               |               |               |               |               |
| Active OPC Server                   | ✓  | ✓             | ✓             | ✓             | ✓               | ✓             | ✓             | ✓             | ✓             | ✓             |
| MX-AOPC UA Server                   | ✓  | ✓             | ✓             | ✓             | ✓               | ✓             | ✓             | ✓             | ✓             | ✓             |
| MXIO                                | ✓  | ✓             | ✓             | ✓             | ✓               | ✓             | ✓             | ✓             | ✓             | ✓             |
| ioSearch                            | ✓  | ✓             | ✓             | ✓             | ✓               | ✓             | ✓             | ✓             | ✓             | ✓             |
| Peer-to-Peer                        | ✓  | ✓             | ✓             | ✓             | ✓               | ✓             | ✓             | ✓             | –             | –             |
| <b>Standards and Certifications</b> |  |               |               |               |                 |               |               |               |               |               |
| Safety                              | UL 508   |               |               |               |                 |               |               |               |               |               |
| EMC                                 | EN 55022, EN 55024   |               |               |               |                 |               |               |               |               |               |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |               |               |               |                 |               |               |               |               |               |
| EMS                                 | EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8 |               |               |               |                 |               |               |               |               |               |
| Shock                               | IEC 60068-2-27   |               |               |               |                 |               |               |               |               |               |
| Vibration                           | IEC 60068-2-6  |               |               |               |                 |               |               |               |               |               |
| Hazardous Locations                 | Class 1 Division 2; ATEX Zone 2  |               |               |               |                 |               |               |               |               |               |
| Green Product                       | RoHS, CROHS, WEEE  |               |               |               |                 |               |               |               |               |               |
| <b>Reliability</b>                  |  |               |               |               |                 |               |               |               |               |               |
| Warranty                            | 5 years  | 5 years       | 5 years       | 2 years*      | 5 years         | 5 years       | 5 years       | 5 years       | 5 years       | 5 years       |

\*Because of the limited lifetime of power relays, products using that component are covered by a 2-year warranty.

\*\*DO of ioLogik E1213 is source type

# Ethernet I/O



|                                     | ioLogik E1261W-T   | ioLogik E1263H-T | ioLogik E1261H-T | ioLogik E1510-M12-T                | ioLogik E1512-M12-T |
|-------------------------------------|--|------------------|------------------|------------------------------------|---------------------|
| <b>Input/Output</b>                 |  |                  |                  |                                    |                     |
| Digital Inputs                      | –  | –                | –                | 12                                 | 4                   |
| Configurable DIOs                   | 12   | 24               | 12               | –                                  | 4                   |
| Analog Inputs                       | 5  | 10               | 5                | –                                  | –                   |
| RTDs                                | 3  | 3                | 3                | –                                  | –                   |
| <b>Ethernet</b>                     |  |                  |                  |                                    |                     |
| Ports (Connector)                   | 1 (RJ45)   | 2 (RJ45)         | –                | 1 (M12)                            | –                   |
| Speed                               | 10/100 Mbps  |                  |                  |                                    |                     |
| Switch (Daisy Chain)                | –  | ✓                | ✓                | –                                  | –                   |
| Protocols                           | Modbus/TCP (slave), TCP/IP, UDP, DHCP, BOOTP, HTTP                                 |                  |                  |                                    |                     |
| <b>Environmental Limits</b>         |  |                  |                  |                                    |                     |
| Operating Temperature               | -40 to 75°C (-40 to 167°F)   |                  |                  | -40 to 85°C (-40 to 185°F)         |                     |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   |                  |                  |                                    |                     |
| Operating Humidity                  | 5 to 95% RH (non-condensing)   |                  |                  |                                    |                     |
| <b>Software</b>                     |  |                  |                  |                                    |                     |
| Active OPC Server                   | ✓  | ✓                | ✓                | ✓                                  | ✓                   |
| MX-AOPC UA Server                   | ✓  | ✓                | ✓                | ✓                                  | ✓                   |
| MXIO                                | ✓  | ✓                | ✓                | ✓                                  | ✓                   |
| ioSearch                            | ✓  | ✓                | ✓                | ✓                                  | ✓                   |
| <b>Standards and Certifications</b> |  |                  |                  |                                    |                     |
| Safety                              | UL 508   |                  |                  |                                    |                     |
| EMC                                 | EN 55022, EN 55024   |                  |                  | EN 61000-6-2, EN 61000-6-4         |                     |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |                  |                  |                                    |                     |
| EMS                                 | EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8 |                  |                  |                                    |                     |
| Shock                               | IEC 60068-2-27   |                  |                  |                                    |                     |
| Vibration                           | IEC 60068-2-6  |                  |                  |                                    |                     |
| Rail Traffic                        | –  | –                | –                | EN 50155; EN 50121-3-2; EN 50121-4 |                     |
| Marine Communications               | –  | IEC 60945        |                  | –                                  | –                   |
| Green Product                       | RoHS, CRoHS, WEEE  |                  |                  |                                    |                     |
| <b>Reliability</b>                  |  |                  |                  |                                    |                     |
| Warranty                            | 5 years  |                  |                  |                                    |                     |

# RS-485 I/O



|                                     | ioLogik R1210  | ioLogik R1212 | ioLogik R1214 | ioLogik R1240 | ioLogik R1241 |
|-------------------------------------|--|---------------|---------------|---------------|---------------|
| <b>Input/Output</b>                 |  |               |               |               |               |
| Digital Inputs                      | 16   | 8             | 6             | –             | –             |
| Relays                              | –  | –             | 6             | –             | –             |
| Configurable DIOs                   | –  | 8             | –             | –             | –             |
| Analog Inputs                       | –  | –             | –             | 8             | –             |
| Analog Outputs                      | –  | –             | –             | –             | 4             |
| <b>Serial</b>                       |  |               |               |               |               |
| Ports (Connector)                   | 2 (5-wire Euroblock terminal)  |               |               |               |               |
| Interface                           | Dual RS-485  |               |               |               |               |
| Protocols                           | Modbus/RTU (slave)   |               |               |               |               |
| <b>Environmental Limits</b>         |  |               |               |               |               |
| Standard Models                     | -10 to 75°C (14 to 167°F)  |               |               |               |               |
| Wide Temp. Models                   | -40 to 85°C (-40 to 185°F)   |               |               |               |               |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   |               |               |               |               |
| Operating Humidity                  | 5 to 95% RH (non-condensing)   |               |               |               |               |
| <b>Software</b>                     |  |               |               |               |               |
| MXIO                                | ✓  | ✓             | ✓             | ✓             | ✓             |
| ioSearch                            | ✓  | ✓             | ✓             | ✓             | ✓             |
| <b>Standards and Certifications</b> |  |               |               |               |               |
| Safety                              | UL 508   |               |               |               |               |
| EMC                                 | EN 55022, EN 55024   |               |               |               |               |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |               |               |               |               |
| EMS                                 | EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8 |               |               |               |               |
| Shock                               | IEC 60068-2-27   |               |               |               |               |
| Vibration                           | IEC 60068-2-6  |               |               |               |               |
| Green Product                       | RoHS, CRoHS, WEEE  |               |               |               |               |
| <b>Reliability</b>                  |  |               |               |               |               |
| Warranty                            | 5 years  | 5 years       | 2 years*      | 5 years       | 5 years       |

\*Because of the limited lifetime of power relays, products using that component are covered by a 2-year warranty.

# Modular I/O



|                                     | NA-4010  | NA-4020                                  | NA-4021        | ioLogik E4200  |
|-------------------------------------|--|--|----------------|--|
| <b>Inputs/Outputs</b>               |  |  |                |  |
| Digital Inputs                      | –  | –  | –              | –  |
| Digital Outputs                     | –  | –  | –              | –  |
| Analog Inputs                       | –  | –  | –              | –  |
| Analog Outputs                      | –  | –  | –              | –  |
| <b>Ethernet</b>                     |  |  |                |  |
| Ports (connector)                   | 1 (RJ45)   | –  | –              | 2 MACs (RJ45)  |
| Speed                               | 10/100 Mbps  | –  | –              | 10/100 Mbps  |
| Protocols                           | Modbus/TCP (slave), BOOTP, HTTP  | –  | –              | Modbus/TCP (slave), TCP/IP, UDP, DHCP, BOOTP, SNMP, HTTP, SNTp |
| <b>Serial</b>                       |  |  |                |  |
| Ports (connector)                   | –  | 1 (terminal block)                       | 1 (DB9 female) | 1 (DB9 male)   |
| Interface                           | –  | RS-485                                   | RS-232         | RS-232   |
| Protocols                           | –  | Modbus/RTU (slave), Modbus/ASCII (slave) | –              | For Moxa OnCell only   |
| <b>Physical Characteristics</b>     |  |  |                |  |
| I/O Module Slots                    | 32   | 32                                       | 32             | 16   |
| <b>Environmental Limits</b>         |  |  |                |  |
| Operating Temperature               | -10 to 60°C (14 to 140°F)  |  |                |  |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   |  |                |  |
| Ambient Relative Humidity           | 5 to 95% RH (non-condensing)   |  |                |  |
| <b>Software</b>                     |  |  |                |  |
| Click&Go                            | –  | –  | –              | ✓  |
| Active OPC Server                   | –  | –  | –              | ✓  |
| MXIO                                | ✓  | ✓  | ✓              | ✓  |
| ioAdmin                             | ✓  | ✓  | ✓              | –  |
| Modular ioAdmin                     | –  | –  | –              | ✓  |
| <b>Standards and Certifications</b> |  |  |                |  |
| Safety                              | UL 508   |  |                |  |
| EMC                                 | EN 61000-6-2, EN 61000-6-4   |  |                |  |
| EMI                                 | CISPR 22, FCC Part 15B Class A   |  |                |  |
| EMS                                 | EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8 |  |                |  |
| Shock                               | IEC 60068-2-27   |  |                |  |
| Vibration                           | IEC 60068-2-6  |  |                |  |
| <b>Reliability</b>                  |  |  |                |  |
| Warranty                            | 2 years  | 2 years                                  | 2 years        | 2 years  |

Remote I/O > Modular I/O

# Digital I/O Modules



|                       | M-1450      | M-1451      | M-1600    | M-1601      | M-1800   | M-1801     | M-2450 | M-2600    | M-2601      | M-2800   | M-2801     |
|-----------------------|-------------|-------------|-----------|-------------|----------|------------|--------|-----------|-------------|----------|------------|
| <b>Inputs/Outputs</b> |             |             |           |             |          |            |        |           |             |          |            |
| Digital Inputs        | 4 (110 VAC) | 4 (220 VAC) | 16 (Sink) | 16 (Source) | 8 (Sink) | 8 (Source) | –      | –         | –           | –        | –          |
| Digital Outputs       | –           | –           | –         | –           | –        | –          | –      | 16 (Sink) | 16 (Source) | 8 (Sink) | 8 (Source) |
| Relays                | –           | –           | –         | –           | –        | –          | 4      | –         | –           | –        | –          |
| Warranty              | 2 years     |             |           |             |          |            |        |           |             |          |            |

# Analog I/O Modules



|                       | M-3802         | M-3810         | M-4402         | M-4410        | M-6200 | M-6201 |
|-----------------------|----------------|----------------|----------------|---------------|--------|--------|
| <b>Inputs/Outputs</b> |                |                |                |               |        |        |
| Analog Inputs         | 8 (4 to 20 mA) | 8 (00 to 10 V) | –              | –             | –      | –      |
| Analog Outputs        | –              | –              | 4 (4 to 20 mA) | 4 (0 to 10 V) | –      | –      |
| RTDs                  | –              | –              | –              | –             | 2      | –      |
| Thermocouples         | –              | –              | –              | –             | –      | 2      |
| Warranty              | 2 years        |                |                |               |        |        |

# Power Modules



|              | M-7001  | M-7002  | M-7804 | M-7805 |
|--------------|---------|---------|--------|--------|
| <b>Power</b> |         |         |        |        |
| VDC          | 24      | 5/24/48 | 0      | 24     |
| VAC          | –       | 110/220 | –      | –      |
| Purpose      | System  | Field   | Field  | Field  |
| Warranty     | 2 years |         |        |        |

Remote I/O > Digital I/O Modules, Analog I/O Modules, Power Modules

# IP Cameras

IP Cameras




Preliminary



|   | VPort 66-2MP                                  | VPort 56-2MP                               | VPort 36-2L                                   | VPort 36-1MP Series                           | VPort 26A-1MP Series                          |
|---|---|--|---|---|---|
| <b>Video Performance</b>                      |   |  |   |   |   |
| Resolution (max.)                             | 1920 x 1080                                   | 1920 x 1080                                | 1920 x 1080                                   | 1280 x 800                                    | 1280 x 800                                    |
| FPS (max.)                                    | 60  | 30   | 30  | 30  | 30  |
| Connections (max.)                            | 5 unicast<br>50 multicast RTSP                | 10 unicast<br>50 multicast RTSP            | 5 unicast<br>50 multicast RTSP                | 5 unicast<br>50 multicast RTSP                | 5 unicast<br>50 multicast RTSP                |
| <b>Video Stream</b>                           |   |  |   |   |   |
| H.264   | ✓   | ✓  | ✓   | ✓   | ✓   |
| MJPEG   | ✓   | ✓  | ✓   | ✓   | ✓   |
| No. of Streams                                | 3   | 3  | 4   | 3   | 3   |
| DynaStream™                                   | ✓   | ✓  | ✓   | ✓   | ✓   |
| CBR Pro™                                      | ✓   | ✓  | ✓   | ✓   | ✓   |
| Image Stabilizer                              | ✓   | ✓  | ✓   | –   | –   |
| <b>Camera</b>                                 |   |  |   |   |   |
| Image Sensor                                  | 1/2.8" CMOS                                   | 1/2.8" CMOS                                | 1/3" CMOS                                     | 1/2.7" CMOS                                   | 1/2.7" CMOS                                   |
| Lens (mm)                                     | 4.3 to 94.6, 4.3 to 129                       | 6.3 to 63, zoom lens                       | 3 to 9, 10 to 23                              | C/CS-mount lenses                             | 3 to 9, vari-focal lens                       |
| Day & Night                                   | ✓   | ✓  | ✓   | ✓   | ✓   |
| Minimum Illumination                          | 0.4 Lux @ F1.6, color<br>0.03 Lux @ F1.6, B/W | 2 Lux @ F1.8, Color<br>0.1 Lux @ F1.8, B/W | 0.2 Lux @ F1.2, color<br>0.05 Lux @ F1.2, B/W | 0.2 Lux @ F1.2, color<br>0.05 Lux @ F1.2, B/W | 0.2 Lux @ F1.2, color<br>0.05 Lux @ F1.2, B/W |
| White Balance                                 | ATW/AWB                                       | ATW/AWB                                    | ATW/AWB                                       | ATW/AWB                                       | ATW/AWB                                       |
| Electronic Shutter (sec)                      | Auto (1/120 to 1/16000)                       | Auto (1/50 to 1/10000)                     | Auto (1/30 to 1/25000)                        | Auto (1/30 to 1/25000)                        | Auto (1/30 to 1/25000)                        |
| Sense up                                      | ✓   | ✓  | ✓   | –   | –   |
| AGC Control                                   | ✓   | ✓  | ✓   | ✓   | ✓   |
| Wide Dynamic Range                            | ✓   | –  | ✓   | ✓   | ✓   |
| Back Light Compensation                       | ✓   | ✓  | ✓   | –   | –   |
| Auto Exposure                                 | ✓   | ✓  | ✓   | ✓   | ✓   |
| Image Rotation (flip, mirror, 180° rotation)  | ✓   | ✓  | ✓   | ✓   | ✓   |
| Digital Noise Reduction                       | ✓   | ✓  | ✓   | ✓   | ✓   |
| <b>Network Connections</b>                    |   |  |   |   |   |
| 10/100 Mbps, M12 Connector                    | –   | –  | –   | –   | –   |
| 10/100 Mbps, RJ45 Connector                   | 1   | 1  | 1   | 1   | 1   |
| 100 Mbps Fiber Connector                      | –   | 1, single-model                            | 1, single-model                               | –   | –   |
| <b>Peripherals</b>                            |   |  |   |   |   |
| Audio   | 1 line-in, 1 line-out                         | 1 line-in, 1 line-out                      | 1 line-in, 1 line-out                         | –   | 1 line-in, 1 line-out                         |
| DI/Relay                                      | 1 DI, 1 relay                                 | 1 DI, 1 relay                              | 1 DI, 1 relay                                 | 1 DI, 1 relay                                 | 1 DI, 1 relay                                 |
| SD Slot                                       | 1, SDXC                                       | 1, SDHC/SDXC                               | 1, SDXC                                       | 1, SDHC                                       | 1, SDHC                                       |
| <b>Network Management and Control</b>         |   |  |   |   |   |
| Web Browser                                   | ✓   | ✓  | ✓   | ✓   | ✓   |
| SNMP Protocols                                | v1/v2c/v3                                     | v1/v2c/v3                                  | v1/v2c/v3                                     | v1/v2c/v3                                     | v1/v2c/v3                                     |
| RTSP (Real Time Streaming Protocol)           | ✓   | ✓  | ✓   | ✓   | ✓   |
| Multicast (IGMP)                              | v3  | v3   | v3  | v3  | v3  |
| QoS   | ✓   | ✓  | ✓   | ✓   | ✓   |
| Automatic Configuration                       | –   | –  | –   | DHCP Opt 66/67                                | –   |
| <b>Form Factor</b>                            |   |  |   |   |   |
| Protection Rating                             | IP66  | IP30                                       | IP30  | IP30  | IP66  |
| Surface/Ceiling Mounting                      | ✓   | ✓  | ✓   | ✓   | ✓   |
| Flush Mounting                                | –   | –  | –   | –   | –   |
| Outdoor Installation Accessory                | ✓   | ✓  | ✓   | ✓   | ✓   |
| <b>Power Requirements</b>                     |   |  |   |   |   |
| Power-over-Ethernet (PoE)                     | –   | ✓ (PoE+)                                   | ✓   | ✓   | ✓   |
| 12/24 VDC, 24 VAC                             | ✓   | ✓  | ✓   | ✓   | ✓   |
| <b>Alarms</b>                                 |   |  |   |   |   |
| VMD (Video Motion Detection)                  | ✓   | ✓  | ✓   | ✓   | ✓   |
| Alarm Snapshot Image                          | ✓   | ✓  | ✓   | ✓   | ✓   |
| Tamper Alarm                                  | ✓   | ✓  | ✓   | ✓   | ✓   |
| <b>Supported Operating Temperature Ranges</b> |   |  |   |   |   |
| Standard Models                               | -40 to 65°C (-40 to 149°F)                    | 0 to 60°C (32 to 140°F)                    | -25 to 60°C (13 to 140°F)                     | 0 to 60°C (32 to 140°F)                       | -40 to 50°C (-40 to 122°F)                    |
| Wide Temp. Models                             | –   | -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)                    |
| <b>Regulatory Approvals</b>                   |   |  |   |   |   |
| CE/FCC  | ✓   | ✓  | ✓   | ✓   | ✓   |
| UL 60950-1                                    | ✓   | ✓  | ✓   | ✓   | ✓   |
| EN 50155:2007                                 | –   | –  | –   | –   | –   |
| EN 50121-3-2                                  | –   | –  | –   | –   | –   |
| EN 50121-4                                    | ✓   | ✓  | ✓   | ✓   | ✓   |
| NEMA TS2                                      | ✓   | ✓  | ✓   | ✓   | –   |
| Class 1 Division 2 / Atex Zone 2              | –   | –  | –   | ✓   | –   |
| EN 62262                                      | IK10  | –  | –   | –   | IK10  |
| ONVIF   | ✓   | ✓  | ✓   | ✓   | ✓   |
| Profile S                                     | ✓   | ✓  | ✓   | ✓   | ✓   |



# IP Cameras

| IP Cameras                                    |   |   |   |  |   |   |
|---|---|---|---|--|---|---|
|   |  |  Preliminary |  |  |  |  |
|   | VPort P16-1MP-M12   | VPort P16-2MR Series  | VPort P16-1MP-M12-IR  | VPort 06-2 Series  | VPort P06-1MP-M12 Series  | VPort P06HC-1MP-M12 Series  |
| <b>Video Performance</b>                      |   |   |   |  |   |   |
| Resolution (max.)                             | 1280 x 800  | 1920 x 1080   | 1280 x 800  | 1920 x 1080  | 1280 x 800  | 1280 x 800  |
| FPS (max.)                                    | 30  | 30  | 30  | 30   | 30  | 30  |
| Connections (max.)                            | 5 unicast<br>50 multicast RTSP  | 5 unicast<br>50 multicast RTSP  | 5 unicast<br>50 multicast RTSP  | 5 unicast<br>50 multicast RTSP   | 3 unicast<br>5 multicast RTSP   | 5 unicast<br>50 multicast RTSP  |
| <b>Video Stream</b>                           |   |   |   |  |   |   |
| H.264   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| MJPEG   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| No. of Streams                                | 3   | 4   | 3   | 4  | 3   | 3   |
| DynaStream™                                   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| CBR Pro™                                      | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Image Stabilizer                              | -   | -   | -   | -  | -   | -   |
| <b>Camera</b>                                 |   |   |   |  |   |   |
| Image Sensor                                  | 1/2.7" CMOS   | 1/3" CMOS   | 1/2.7" CMOS   | 1/3" CMOS  | 1/2.7" CMOS   | 1/2.7" CMOS   |
| Lens (mm)                                     | 3.6, 6.0  | 3.6, 4.2, 6.0, 8.0  | 3.6, 8.0  | 2.5, 3.6, 4.2, 6.0, 8.0  | 2.5, 3.6, 4.2, 6.0, 8.0   | 3.6   |
| Day & Night                                   | ✓   | ✓   | ✓   | -  | -   | -   |
| Minimum Illumination                          | 0.2 Lux @ F1.2, color<br>0.05 Lux @ F1.2, B/W                                     | 0.2 Lux @ F1.2, color<br>0.05 Lux @ F1.2, B/W   | 0.2 Lux @ F1.2, color<br>0.05 Lux @ F1.2, B/W                                     | 0.2 Lux @ F1.2, color  | 0.2 Lux @ F1.2, color   | 0.2 Lux @ F1.2, color   |
| White Balance                                 | ATW/AWB   | ATW/AWB   | ATW/AWB   | ATW/AWB  | ATW/AWB   | ATW/AWB   |
| Electronic Shutter (sec)                      | Auto (1/30 to 1/25000)  | Auto (1/30 to 1/25000)  | Auto (1/30 to 1/25000)  | Auto (1/30 to 1/25000)   | Auto (1/30 to 1/25000)  | Auto (1/30 to 1/25000)  |
| Sense up                                      | -   | ✓   | ✓   | ✓  | ✓   | -   |
| AGC Control                                   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Wide Dynamic Range                            | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Back Light Compensation                       | -   | -   | -   | -  | -   | -   |
| Auto Exposure                                 | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Image Rotation                                | Flip, mirror, 180° rotation   | Flip, Mirror, 90°, 180°, 270° rotation  | Flip, Mirror, 90°, 180°, 270° rotation  | Flip, Mirror, 90°, 180°, 270° rotation   | Flip, mirror, 180° rotation   | Flip, mirror, 180° rotation   |
| Digital noise reduction                       | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| <b>Network Connections</b>                    |   |   |   |  |   |   |
| 10/100 Mbps, M12 Connector                    | 1   | 1   | 1   | 1  | 1   | 1   |
| 10/100 Mbps, RJ45 Connector                   | -   | -   | -   | -  | -   | -   |
| 100 Mbps Fiber Connector                      | -   | -   | -   | -  | -   | -   |
| <b>Peripherals</b>                            |   |   |   |  |   |   |
| Audio   | -   | 1 built-in microphone   | 1 built-in microphone   | 1 line-in or mic-in  | 1 line-in or mic-in   | 1 mic-in  |
| DI/Relay                                      | -   | 1 DI  | 1 DI  | 1 DI   | -   | 1 DI  |
| SD Slot                                       | -   | ✓   | ✓   | ✓  | -   | -   |
| <b>Network Management and Control</b>         |   |   |   |  |   |   |
| Web Browser                                   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| SNMP Protocols                                | v1/v2c/v3   | v1/v2c/v3   | v1/v2c/v3   | v1/v2c/v3  | v1/v2c/v3   | v1/v2c/v3   |
| RTSP (Real Time Streaming Protocol)           | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Multicast (IGMP)                              | v3  | v3  | v3  | v3   | v3  | v3  |
| QoS   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Automatic Configuration                       | DHCP Opt 66/67  | DHCP Opt 66/67  | DHCP Opt 66/67  | DHCP Opt 66/67   | DHCP Opt 66/67  | DHCP Opt 66/67  |
| <b>Form Factor</b>                            |   |   |   |  |   |   |
| Protection Rating                             | IP66  | IP66  | IP66  | IP66   | IP66  | IP66  |
| Surface/Ceiling Mounting                      | ✓   | ✓   | ✓   | ✓  | ✓   | -   |
| Flush Mounting                                | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Outdoor Installation Accessory                | -   | -   | -   | -  | -   | -   |
| <b>Power Requirements</b>                     |   |   |   |  |   |   |
| Power-over-Ethernet (PoE)                     | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| 12/24 VDC, 24 VAC                             | -   | -   | -   | ✓  | -   | -   |
| <b>Alarms</b>                                 |   |   |   |  |   |   |
| VMD (Video Motion Detection)                  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Alarm Snapshot Image                          | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Tamper Alarm                                  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| <b>Supported Operating Temperature Ranges</b> |   |   |   |  |   |   |
| Standard Models                               | -25 to 55°C (-13 to 131°F)  |   |   |  |   |   |
| Wide Temp. Models                             | -40 to 70°C (-40 to 158°F)  |   |   |  |   |   |
| <b>Regulatory Approvals</b>                   |   |   |   |  |   |   |
| CE/FCC  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| UL 60950-1                                    | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| EN 50155:2007                                 | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| EN 50121-3-2                                  | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| EN 50121-4                                    | -   | -   | -   | -  | -   | -   |
| NEMA TS2                                      | -   | -   | -   | -  | -   | -   |
| Class 1 Division 2 / Atex Zone 2              | -   | -   | -   | -  | -   | -   |
| EN 62262                                      | IK10  | IK8   | IK10  | IK8  | IK9   | -   |
| ONVIF   | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |
| Profile S                                     | ✓   | ✓   | ✓   | ✓  | ✓   | ✓   |

# Industrial Video Encoders/Recorders

## Industrial Video Encoders



|   | VPort 461A                        | VPort 364A                        |
|---|-----------------------------------|-----------------------------------|
| <b>Form Factor</b>                            |                                   |                                   |
| Protection Rating                             | IP30                              | IP30                              |
| DIN-Rail Mounting                             | ✓                                 | ✓                                 |
| Panel Mounting                                | w/ optional kit                   | w/ optional kit                   |
| <b>Audio/Video Channels</b>                   |                                   |                                   |
| Video Inputs                                  | 1                                 | 4                                 |
| Video Outputs                                 | 0                                 | 0                                 |
| Audio Inputs                                  | 1                                 | 1                                 |
| Audio Outputs                                 | 1                                 | 1                                 |
| <b>Video Stream</b>                           |                                   |                                   |
| H.264   | ✓                                 | ✓                                 |
| MJPEG   | ✓                                 | ✓                                 |
| MPEG4   | –                                 | –                                 |
| No. of Streams                                | 3                                 | 2                                 |
| DynaStream                                    | ✓                                 | ✓                                 |
| <b>Video Performance</b>                      |                                   |                                   |
| Resolution (max.)                             | NTSC: 720 x 480<br>PAL: 720 x 576 | NTSC: 720 x 480<br>PAL: 720 x 576 |
| FPS (max.)                                    | NTSC: 30<br>PAL: 25               | NTSC: 30<br>PAL: 25               |
| Quad View                                     | 30 FPS (max.)                     | 30 FPS (max.)                     |
| Connections (Max.)                            | 10 unicast<br>50 multicast RTSP   | 8 unicast<br>50 multicast RTSP    |
| Multicast Push                                | ✓                                 | ✓                                 |
| <b>Network Connections</b>                    |                                   |                                   |
| 10/100BaseTX Ports                            | 1                                 | 1                                 |
| 100BaseFX Ports (optional)                    | 1                                 | 1                                 |
| <b>Peripherals</b>                            |                                   |                                   |
| PTZ Ports                                     | 1                                 | 1                                 |
| COM Ports                                     | 1                                 | –                                 |
| RS-232 Console Ports                          | 1                                 | 1                                 |
| SDHC Slot                                     | 1, SDXC                           | –                                 |
| <b>Network Management and Control</b>         |                                   |                                   |
| Web Browser                                   | ✓                                 | ✓                                 |
| SNMP Protocols                                | v1/v2c/v3                         | v1/v2c/v3                         |
| RTSP (Real Time Streaming Protocol)           | ✓                                 | ✓                                 |
| Modbus/TCP                                    | ✓                                 | ✓                                 |
| Multicast (IGMP)                              | v3                                | v3                                |
| QoS   | ✓                                 | ✓                                 |
| UPnP  | ✓                                 | ✓                                 |
| DDNS  | ✓                                 | ✓                                 |
| IP Filtering                                  | ✓                                 | ✓                                 |
| <b>Power Requirements</b>                     |                                   |                                   |
| Power Redundancy                              | ✓                                 | ✓                                 |
| Power Inputs                                  | 2                                 | 2                                 |
| <b>Alarms</b>                                 |                                   |                                   |
| VMD (Video Motion Detection)                  | ✓                                 | ✓                                 |
| Digital Inputs                                | 2                                 | 4                                 |
| Relay (Digital) Outputs                       | 2                                 | 2                                 |
| Alarm Video Recording                         | ✓                                 | –                                 |
| Alarm Snapshot Image                          | ✓                                 | ✓                                 |
| <b>Supported Operating Temperature Ranges</b> |                                   |                                   |
| 0 to 60°C (32 to 140°F)                       | –                                 | ✓                                 |
| -25 to 60°C (-13 to 140°F)                    | ✓                                 | –                                 |
| -40 to 75°C (-40 to 167°F)                    | ✓                                 | ✓                                 |
| <b>Standards and Certifications</b>           |                                   |                                   |
| CE/FCC  | ✓                                 | ✓                                 |
| UL 60950-1                                    | ✓                                 | ✓                                 |
| NEMA TS2                                      | ✓                                 | –                                 |
| ONVIF   | ✓                                 | ✓                                 |
| Profile S                                     | ✓                                 | –                                 |

## Industrial Video Recorders



|   | MxNVR-RO-T   |
|---|--|
| <b>Form Factor</b>                            |  |
| Type of Product                               | Onboard NVR  |
| Dimensions                                    | 287 x 290 x 101 mm                                       |
| Panel Mounting                                | ✓  |
| <b>Video Recording</b>                        |  |
| Video Inputs                                  | IP Video via Ethernet                                    |
| Capability                                    | Recording: 900 FPS @ 1080P<br>Live view: 120 FPS @ 1080P |
| Video Stream                                  | H.264, MJPEG, MPEG4                                      |
| Video File Format                             | MP4  |
| Record Modes                                  | Manual, Schedule, Event                                  |
| Pre-Alarm Record                              | 1 to 600 sec   |
| Post-Alarm Record                             | 1 to 600 sec   |
| <b>Search</b>                                 |  |
| Search Mode                                   | Camera, date/time, event                                 |
| <b>Playback</b>                               |  |
| Remote Playback                               | Through Configuration Tool                               |
| File Download                                 | Through Configuration Tool                               |
| Popular Media Players                         | ✓  |
| <b>Network Connections</b>                    |  |
| 10/100/1000 Mbps M12 connector                | 1 (up to 1000 Mbps, M12 X-coded)                         |
| <b>Storage</b>                                |  |
| SATA Interfaces                               | 2  |
| <b>Peripherals</b>                            |  |
| Audio Ports                                   | Line-in, line-out (M12)                                  |
| COM Ports                                     | 2  |
| USB Ports                                     | 2  |
| Digital Inputs                                | 6  |
| Digital Outputs                               | 2  |
| Power Requirements                            | –  |
| Power Inputs                                  | 1  |
| <b>Supported Operating Temperature Ranges</b> |  |
| Wide Temp. Model                              | -40 to 70°C (-40 to 167°C)                               |
| <b>Regulatory Approvals</b>                   |  |
| CE/FCC  | ✓  |
| UL 60950-1                                    | ✓  |
| EN 50155:2007                                 | ✓  |
| EN 50121-3-2                                  | ✓  |

# Power Computers



|                                     | DA-820 Series   | DA-682A Series   | DA-681A Series  | DA-683 Series  |
|-------------------------------------|---|--|---|--|
| <b>Computer</b>                     |   |  |   |  |
| CPU Speed                           | 2.5 GHz/2.1 GHz   | 1.4 GHz single core / 1.1 GHz dual core / 1.5 GHz dual core  | 1.4 GHz   | 1.66 GHz   |
| OS                                  | –   | Linux Debian 7 or Windows Embedded Standard 7 (pre-installed)<br><b>Note: The OS is pre-installed.</b> | Linux Debian 8 (pre-installed)<br><b>Note: W7E available by CTOS</b>  | Linux, Windows Embedded Standard 2009, or Windows Embedded Standard 7<br><b>Note: The OS is pre-installed.</b>                         |
| OS (Optional)                       | 64-bit Debian 7<br>64-bit Windows Embedded Standard 7<br>64-bit Windows 7 Professional for embedded systems             | –  | –   | –  |
| System Memory                       | Max. 16 GB capacity (204-pin SO-DIMM x 2, each supporting un-buffered ECC DDR3 memory at 1333 and 1600 MT/s, 8 GB Max.) | 8 GB capacity, 1 GB (LX) / 2 GB (W7E) pre-installed; 1 slot of 4 GB DDR3-1066/1333 SO-DIMM SDRAM       | 8 GB capacity, 2 GB for Linux pre-installed; 1 slot of DDR3-1066/1333 SO-DIMM SDRAM   | 2 GB capacity, 1 GB (LX and XPE) / 2 GB (W7E) pre-installed; 1 or 2 slots of 2 GB 200-pin DDR2-667 SO-DIMM                             |
| Expansion Bus                       | –   | –  | PCI/104 onboard (DPP models only)   | PCI/104 interface reserved   |
| USB                                 | USB 2.0 hosts x 6, type A connector   | USB 2.0 hosts x 2, type A connector  | USB 2.0 hosts x 4, type A connector   | USB 2.0 hosts x 4, type A connector  |
| <b>Storage</b>                      |   |  |   |  |
| Built-in                            | Cfast socket: Optional Cfast card to store OS   | 2 GB (LX) / 8 GB (W7E) industrial DOM for read-only OS volume  | 8 GB for Linux (pre-installed in mSATA)   | 2 GB (LX and XPE) / 8 GB (W7E) industrial DOM onboard to store OS  |
| Storage Expansion                   | 4 SATA 2.0 interfaces, supporting RAID 0, 1, 5, 10, hot-swappable   | • 1 x CompactFlash socket<br>• 2 x SATA-300 connector  | SATA 3.0 interface  | CompactFlash socket for CF card expansion, supporting CF Type-I/II   |
| <b>Display</b>                      |   |  |   |  |
| Graphics Controller                 | Intel® HD Graphics 4000   | Intel 915GME, and Intel Extreme Graphics 2 technology  | Intel® HD Graphics (Integrated)   | Intel® GMA3150 graphics controller in Intel D510 card  |
| Display Interface                   | 2 VGA outputs (DB15 female connector)   | 1 VGA output (DB15 female connector)   | 1 VGA output (DB15 female connector)  | Analog RGB display/Digital DVI display   |
| Resolution                          | CRT display mode with pixel resolution up to 2048 x 1536 at 75 Hz   | CRT display mode with pixel resolution up to 2548 x 1536 at 75 Hz                                      | CRT display mode with pixel resolution up to 2048 x 1536 at 75 Hz   | • Analog RGB display; output resolution up to 2048 x 1536 @ 60 Hz<br>• Digital DVI display; output resolution up to 1024 x 768 @ 60 Hz |
| <b>Ethernet Interface</b>           |   |  |   |  |
| LAN                                 | 10/100/1000 Mbps ports x 4  | 10/100/1000 Mbps ports x 6   | 10/100/1000 Mbps ports x 6  | 10/100/1000 Mbps ports x 6   |
| Magnetic Isolation Protection       | 1.5 kV built-in   | 1.5 kV built-in  | 1.5 kV built-in   | 1.5 kV built-in  |
| <b>Serial Interface</b>             |   |  |   |  |
| Serial Standards                    | 2 RS-232/422/485 ports (DB9 male)   | –  | • 2 RS-232/422/485 ports (DB9 male)<br>• 10 RS-485 ports (terminal block)   | 2 RS-232 ports (DB9 male)  |
| ESD Protection                      | –   | –  | 15 kV for all signals   | –  |
| Surge Protection                    | –   | –  | 4 kV (DA-681A-I-DPP Series)   | –  |
| <b>Serial Signals</b>               |   |  |   |  |
| RS-232                              | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND  | –  | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND  | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND, RI   |
| RS-422                              | TxD+, TxD-, RxD+, RxD-, GND   | –  | TxD+, TxD-, RxD+, RxD-, GND   | –  |
| RS-485-4w                           | TxD+, TxD-, RxD+, RxD-, GND   | –  | TxD+, TxD-, RxD+, RxD-, GND   | –  |
| RS-485-2w                           | Data+, Data-, GND   | –  | Data+, Data-, GND   | –  |
| <b>Digital Input/Digital Output</b> |   |  |   |  |
| Input/Output Channels               | –   | –  | –   | 4, sink-type   |
| Input Voltage/Output Current        | –   | –  | –   | 0 to 30 VDC/200 mA per channel max.  |
| <b>Physical Characteristics</b>     |   |  |   |  |
| Housing                             | SECC sheet metal (1 mm)   | SECC sheet metal (1 mm)  | SECC sheet metal (1 mm)   | SECC sheet metal (1 mm)  |
| Weight                              | 14 kg (31.11 lb)  | 7 kg (15.56 lb)  | 4.5 kg (10 lb)  | 4 kg (8.89 lb)   |
| Dimensions                          | 361 x 440 x 133 mm (14.23 x 17.32 x 5.24 in) (without rackmount ears)   | 440 x 315 x 90 mm (17.32 x 12.40 x 3.54 in) (without rackmount ears)                                   | 440 x 315 x 45 mm (17.32 x 12.40 x 1.77 in), 19-inch 1U height  | 315 x 440 x 90 mm (12.40 x 17.32 x 3.54 in) (without rackmount ears)   |
| <b>Environmental Limits</b>         |   |  |   |  |
| Operating Temperature               | • DA-820-C8: -40 to 60°C (-40 to 140°F)<br>• DA-820-C7: -40 to 75 °C (-40 to 167°F)                                     | -10 to 60°C (14 to 140°F)  | SP Models: -25 to 55°C (-13 to 131°F)<br>DPP Models: -25 to 55°C (-13 to 131°F)<br>DPP-T Models: -40 to 70°C (-40 to 158°F) | Standard models: -10 to 60°C (14 to 140°F)<br>DPP-T models: -40 to 70°C (-40 to 158°F)   |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)  | -20 to 80°C (-4 to 176°F)  | -40 to 85°C (-40 to 185°F)  | Standard models: -20 to 80°C (-4 to 176°F)<br>DPP-T models: -40 to 85°C (-40 to 185°F)   |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)  |
| <b>Power Requirements</b>           |   |  |   |  |
| Input Voltage                       | • High Voltage: 100 to 240 VAC/VDC, 50/60 Hz, 1 A<br>• Low Voltage: 24 to 110 VDC, 4.7 A                                | 100 to 240 VAC auto-ranging (47 to 63 Hz for AC input)   | 100 to 240 VAC; 100 to 240 VDC  | 100 to 240 VAC, 50/60 Hz, 0.9-0.4 A  |
| Multiple Power Supplies             | Single / Dual power supplies  | –  | Single / Dual power supplies  | Single / Dual power supplies   |
| Power Consumption                   | 60 W  | 30 W (full loading)  | 25 W  | 40 W   |
| <b>Standards and Certifications</b> |   |  |   |  |
| Safety                              | LVD, UL, cUL  | UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1, CCC (GB4943, GB9254, GB17625.1)                      | UL 60950-1, IEC 60950-1, EN 60950-1   | UL/cUL (UL 60950-1, CSA C22.2 No. 60950-1-03), LVD (EN 60950-1), CCC (GB4943)  |
| Electrical Substation               | IEC 61850-3, IEC 60255, IEEE 1613   | –  | IEC 61850-3, IEEE 1613, IEC 60255   | IEC 61850-3, IEEE 1613   |
| Protection Relay                    | IEC 60255   | –  | IEC 60255   | –  |
| EMS                                 | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11                | –  | –   | –  |
| Green Product                       | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE  | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE  |
| <b>Warranty</b>                     |   |  |   |  |
| Warranty Period                     | 3 years   | 3 years  | 3 years   | 3 years  |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                                   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   |

# Power Computers



|                                     | DA-685 Series   | DA-710 Series   | DA-662A Series  | UC-8100 Series  |
|-------------------------------------|---|---|---|---|
| <b>Computer</b>                     |   |   |   |   |
| CPU Speed                           | 1.66 GHz  | 2.2 GHz   | 500 MHz   | 300/600/1000 MHz  |
| OS                                  | Linux, Windows Embedded Standard 2009, or Windows Embedded Standard 7                                     | Windows Embedded Standard 2009, Linux 2.6   | Embedded Linux (pre-installed)  | –   |
| System Memory                       | 2 GB capacity, 1 GB (LX and XPE)/ 2 GB (W7E) pre-installed; 1 or 2 slots of 2 GB 200-pin DDR2-667 SO-DIMM | 2 GB capacity, 1 GB pre-installed; 1 slot of DDR2-533/667 200-pin SO-DIMM SDRAM   | 128 MB DRAM onboard, 32 MB Flash onboard  | 256 or 512 MB DDR3 SDRAM  |
| Expansion Bus                       | PCI/104 interface reserved  | –   | –   | –   |
| USB                                 | USB 2.0 hosts x 2, type A connector   | USB 2.0 hosts x 4, type A connector   | –   | USB 2.0 hosts x 1, type A connector   |
| <b>Storage</b>                      |   |   |   |   |
| Built-in                            | 2 GB (LX and XPE) / 8 GB (W7E) industrial DOM onboard to store OS   | 2 GB industrial DOM onboard to store OS   | –   | –   |
| Storage Expansion                   | CompactFlash socket   | CompactFlash socket   | –   | 1 GB SD or 2 GB MicroSD card pre-installed  |
| <b>Other Peripherals</b>            |   |   |   |   |
| KB/MS                               | 1 PS/2 interface, supports standard PS/2 keyboard and mouse through Y-type cable                          | 1 PS/2 interface, supports standard PS/2 keyboard and PS/2 mouse  | –   | –   |
| Graphics Controller                 | Intel® GMA3150 graphics controller on Intel D510 card   | Integrated Intel graphics media accelerator (GMA X3100)   | –   | –   |
| Intel Clear Video Technology        | –   | MPEG-2 hardware accelerator, Microsoft DirectX 9  | –   | –   |
| Display Interface                   | 1 VGA output (DB15 female connector)  | 1 VGA output (DB15 female connector)  | –   | –   |
| Resolution                          | CRT display mode with pixel resolution up to 2048 x 1536 at 75 Hz   | QXGA maximum with resolution up to 2048 x 1536 at 60 Hz   | –   | –   |
| <b>Ethernet Interface</b>           |   |   |   |   |
| LAN                                 | Auto-sensing 10/100/1000 Mbps ports x 6   | Auto-sensing 10/100/1000 Mbps ports (RJ45) x 4  | Auto-sensing 10/100 Mbps ports (RJ45) x 4   | Auto-sensing 10/100 Mbps ports (RJ45) x 2   |
| Magnetic Isolation Protection       | 1.5 kV built-in   | 1.5 kV built-in   | 1.5 kV built-in   | 1.5 kV built-in   |
| <b>Serial Interface</b>             |   |   |   |   |
| Serial Standards                    | • 2 RS-232/422/485 ports (DB9 male)<br>• 6 RS-485-2W ports (terminal block)                               | 2 RS-232 ports (DB9 male)   | 8 to 16 RS-232/422/485 ports, software-selectable (8-pin RJ45)  | RS-232/422/485 ports, software-selectable (5-pin terminal block connector) x 1 or 2 |
| ESD Protection                      | –   | 4 kV for all signals  | 8 kV contact, 15 kV Air ESD protection for all signals  | –   |
| Console Port                        | –   | –   | RS-232 (all signals), RJ45 connector  | RS-232 (TxD, RxD, GND), 4-pin pin header output (115200, n, 8, 1)                   |
| <b>Serial Signals</b>               |   |   |   |   |
| RS-232                              | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND, RI  | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND  | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND (DA-662A-I-8/16-LX only: TxD, RxD, RTS, CTS, GND)                          | TxD, RxD, RTS, CTS, GND   |
| RS-422                              | TxD+, TxD-, RxD+, RxD-, GND   | –   | TxD+, TxD-, RxD+, RxD-, GND   | TxD+, TxD-, RxD+, RxD-, GND   |
| RS-485-4w                           | TxD+, TxD-, RxD+, RxD-, GND   | –   | TxD+, TxD-, RxD+, RxD-, GND   | TxD+, TxD-, RxD+, RxD-, GND   |
| RS-485-2w                           | Data+, Data-, GND   | –   | Data+, Data-, GND   | Data+, Data-, GND   |
| <b>Digital Input/Digital Output</b> |   |   |   |   |
| Input Channel/Output Channel        | –   | 4, sink-type  | –   | –   |
| Input Voltage/Output Current        | –   | 0 to 30 VDC/max. 200 mA per channel   | –   | –   |
| <b>Physical Characteristics</b>     |   |   |   |   |
| Housing                             | SECC sheet metal (1 mm)   | SECC sheet metal (1 mm)   | SECC sheet metal (1 mm)   | Polycarbonate plastic   |
| Weight                              | 4 kg (8.89 lb)  | 14 kg (31.11 lb)  | 4.3 kg (9.56 lb)  | 224 g (0.50 lb)   |
| Dimensions                          | 315 x 440 x 90 mm (12.40 x 17.32 x 3.54 in) (without rackmount ears)                                      | • Without ears: 400 x 420 x 180 mm (15.75 x 16.54 x 7.09 in)<br>• With ears: 400 x 480 x 180 mm (15.75 x 18.90 x 7.09 in) | Without ears: 440 x 45 x 237 mm (17.32 x 1.77 x 9.33 in)<br>With ears: 480 x 45 x 237 mm (18.90 x 1.77 x 9.33 in) | 101 x 27 x 128 mm (3.98 x 1.06 x 5.04 in)   |
| Mounting                            | Standard 19-inch rackmount  | Standard 19-inch rackmount  | Standard 19-inch rackmount  | DIN-rail, wall (with optional kit)  |
| <b>Environmental Limits</b>         |   |   |   |   |
| Operating Temperature               | -10 to 55°C (14 to 131°F)   | -10 to 50°C (14 to 122°F)   | -10 to 60°C (14 to 140°F)   | -10 to 60°C (14 to 140°F) or -40 to 75°C (-40 to 167°F)                             |
| Storage Temperature                 | -20 to 80°C (-4 to 176°F)   | -20 to 80°C (4 to 176°F)  | -20 to 80°C (-4 to 176°F)   | -40 to 80°C (-40 to 176°F)  |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)   |
| <b>Power Requirements</b>           |   |   |   |   |
| Input Voltage                       | 100 to 240 VAC, 50/60 Hz, 0.9-0.4 A   | Single or dual inputs, 100 to 240 VAC/VDC auto-ranging, 47 to 63 Hz, terminal block                                       | 100 to 240 VAC auto ranging (47 to 63 Hz for AC input)  | 12 to 24 VDC (3-pin terminal block, V+, V-, SG)                                     |
| Power Consumption                   | 40 W  | 60 W  | 20 W  | 5.4 W   |
| <b>Standards and Certifications</b> |   |   |   |   |
| Safety                              | LVD, UL, cUL, CCC   | UL 60950-1, CSA C22.2 No. 60950-1-07, CCC (GB4943, GB9254, GB17625.1)   | UL 60950-1  | UL 60950-1, EN 60950-1  |
| EMS                                 | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11  | –   | –   | –   |
| Green Product                       | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE   |
| <b>Warranty</b>                     |   |   |   |   |
| Warranty Period                     | 3 years   | 3 years   | 5 years   | 5 years   |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                                      | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                |

# Railway Computers



|                                     | TC-6110 Series   | V2616A Series  | V2406A Series  | V2416A Series  |
|-------------------------------------|--|--|--|--|
| <b>Computer</b>                     |  |  |  |  |
| CPU                                 | Intel Atom D525 (dual-core, 1.8 GHz)   | Intel Core i5-3610ME (2.7 GHz)<br>Intel Core i7-3517UE (1.7 GHz)<br>Intel Core i7-3612QE (2.1 GHz)                                     | Intel Celeron 1047UE (1.4 GHz)<br>Intel Core i7-3517UE (1.7 GHz)   | Intel Celeron 1047UE (1.4 GHz)<br>Intel Core i7-3517UE (1.7 GHz)   |
| OS                                  | Windows Embedded Standard 7 or Linux Debian 7  | Windows Embedded Standard 7 or Linux Debian 7  | Windows Embedded Standard 7 or Linux Debian 7  | Windows Embedded Standard 7 or Linux Debian 7  |
| System Memory                       | 2 GB pre-installed   | 4 GB pre-installed   | 4 GB pre-installed   | 4 GB pre-installed   |
| USB                                 | USB 2.0 hosts x 3 (Type A connectors x 2, supporting system boot up, M12 connectors x 1)   | USB 2.0 hosts x 3 (Type A connectors x 2, supporting system boot up, M12 connectors x 1)   | USB 2.0 hosts x 3 (Type A connectors x 2, supporting system boot up, M12 connectors x 1)   | USB 2.0 hosts x 3 (Type A connectors x 2, supporting system boot up, M12 connectors x 1)   |
| <b>Storage</b>                      |  |  |  |  |
| Built-in                            | 8 GB onboard industrial CompactFlash card for operating system storage   | –  | –  | –  |
| Expansion Slot                      | –  | 1 full-size/half-size mini PCIe socket with 1 SIM card socket. Mini PCIe socket supports power on/off control                          | –  | –  |
| HDD/SSD Support                     | 2 removable TC-SATA-T storage trays for 2.5-inch SSD or HDD storage drive (with Intelligent Heating Solution)  | 2 hot-swappable storage trays for 2.5-inch SATA SSD or HDD, 1 internal SATA-II storage connector for 2.5-inch SSD or HDD               | 1 internal SATA-II bus for 2.5-inch HDD/SSD*   | 2 hot-swappable trays for 2.5-inch HDD/SSD storage expansion*  |
| CFast Support                       | –  | 1 slot for OS*, 1 slot for backup storage  | 1 slot for OS*, 1 slot for backup storage  | 1 slot for OS*, 1 slot for backup storage  |
| <b>Display</b>                      |  |  |  |  |
| Graphics Controller                 | Integrated Intel GMA 3150 (Pineview) Graphics Engine   | Intel® HD Graphics 4000 (integrated)   | Intel® HD Graphics 4000 (integrated)   | Intel® HD Graphics 4000 (integrated)   |
| Connector Type                      | –  | 1 DVI-I connector, 1 VGA connector   | 2 DVI-I connectors   | 2 DVI-I connectors   |
| Display Interface                   | Up to 2048 x 1536 resolution at 75 Hz, DB9 female connector  | • DVI up to 1920 x 1200 resolution @ 60 Hz<br>• VGA up to 1920 x 1200 resolution @ 60 Hz<br>• VGA up to 2048 x 1536 resolution @ 75 Hz | • DVI up to 1920 x 1200 resolution @ 60 Hz<br>• VGA up to 1920 x 1200 resolution @ 60 Hz<br>• VGA up to 2048 x 1536 resolution @ 75 Hz | • DVI up to 1920 x 1200 resolution @ 60 Hz<br>• VGA up to 1920 x 1200 resolution @ 60 Hz<br>• VGA up to 2048 x 1536 resolution @ 75 Hz |
| <b>Ethernet Interface</b>           |  |  |  |  |
| LAN                                 | Auto-sensing 10/100/1000 Mbps ports (M12) x 2  | Auto-sensing 10/100/1000 Mbps ports (M12 X-coded) x 2  | Auto-sensing 10/100/1000 Mbps ports (M12 X-coded) x 2  | Auto-sensing 10/100/1000 Mbps ports (M12 X-coded) x 2  |
| <b>Serial Interface</b>             |  |  |  |  |
| Serial Standards                    | 1 RS-232 port (DB9 male)   | 2 software-selectable RS-232/422/485 ports (DB9 male)  | 4 RS-232/422/485 ports, software selectable (DB9 male)   | 4 software-selectable RS-232/422/485 ports (DB9 male)  |
| ESD Protection                      | –  | 4 kV for all signals   | 4 kV for all signals   | 4 kV for all signals   |
| Data Bits                           | 5, 6, 7, 8   | 5, 6, 7, 8   | 5, 6, 7, 8   | 5, 6, 7, 8   |
| Stop Bits                           | 1, 1.5, 2  | 1, 1.5, 2  | 1, 1.5, 2  | 1, 1.5, 2  |
| Parity                              | None, Even, Odd, Space, Mark   | None, Even, Odd, Space, Mark   | None, Even, Odd, Space, Mark   | None, Even, Odd, Space, Mark   |
| Flow Control                        | RTS/CTS  | RTS/CTS  | RTS/CTS  | RTS/CTS  |
| Isolation Protection                | –  | 1.5 kV   | 1.5 kV   | 1.5 kV   |
| <b>Digital Input</b>                |  |  |  |  |
| Input Channels                      | –  | 6  | 6  | 6  |
| Input Voltage                       | –  | 0 to 30 VDC at 25 Hz   | 0 to 30 VDC at 25 Hz   | 0 to 30 VDC at 25 Hz   |
| <b>Digital Output</b>               |  |  |  |  |
| Output Channels                     | –  | 2, sink type   | 2, sink type   | 2, sink type   |
| Output Current                      | –  | Max. 200 mA per channel  | Max. 200 mA per channel  | Max. 200 mA per channel  |
| On-state Voltage                    | –  | 24 VDC nominal, open collector to 30 VDC   | 24 VDC nominal, open collector to 30 VDC   | 24 VDC nominal, open collector to 30 VDC   |
| <b>Physical Characteristics</b>     |  |  |  |  |
| Housing                             | Aluminum and SECC sheet metal (1 mm)   | Aluminum   | Aluminum   | Aluminum   |
| Weight                              | 5 kg (11.11 lb)  | 5 kg (11.11 lb)  | 2 kg (4.44 lb)   | 4 kg (8.98 lb)   |
| Dimensions                          | With ears: 210 x 269 x 133 mm (8.27 x 10.60 x 5.24 in)   | 287 x 290 x 101 mm (11.29 x 11.41 x 3.97 in)   | With ears: 275 x 63 x 154 mm (10.83 x 2.47 x 6.06 in)  | With ears: 275 x 92 x 154 mm (10.83 x 3.62 x 6.06 in)  |
| Mounting                            | Rack   | Wall   | DIN rail, wall, VESA   | DIN rail, wall, VESA   |
| <b>Environmental Limits</b>         |  |  |  |  |
| Operating Temperature               | -25 to 55°C (-13 to 140°F) or -40 to 70°C (-40 to 158°F)   | -25 to 55°C (-13 to 140°F) or -40 to 70°C (-40 to 158°F)   | -25 to 55°C (-13 to 131°F) or -40 to 70°C (-40 to 158°F)   | -25 to 55°C (-13 to 131°F) or -40 to 70°C (-40 to 158°F)   |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   | (with SSD installed) -40 to 85°C (-40 to 185°F)  | -40 to 85°C (-40 to 185°F)   | -40 to 85°C (-40 to 185°F)   |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  |
| Conformal Coating                   | Available  | Available  | Available on request   | Available on request   |
| <b>Power Requirements</b>           |  |  |  |  |
| Input Voltage                       | 24 to 110 VDC (M12 A-coded)  | 24 to 110 VDC (M12 A-coded)  | 12 to 48 VDC (M12 A-coded)   | 12 to 48 VDC (M12 A-coded)   |
| Power Consumption                   | 32 W (without heater), 62 W (with heater)  | • 60 W (no SSD/HDD attached)<br>• 2.5 A @ 24 VDC to 0.55 A @ 110 VDC   | • 3.3 A @ 12 VDC, 39.6 W<br>• 0.82 A @ 48 VDC, 39.4 W  | • 3.3 A @ 12 VDC, 39.6 W<br>• 0.82 A @ 48 VDC, 39.4 W  |
| <b>Standards and Certifications</b> |  |  |  |  |
| Safety                              | UL 60950-1, CSA C22.2 No. 60950-1-07, EN 60950-1   | UL 60950-1, CSA C22.2 No. 60950-1-07, EN 60950-1   | UL 60950-1, EN 60950-1   | UL 60950-1, EN 60950-1   |
| EMC                                 | EN 55022:2010 Class A, EN 55024:2010, FCC CFR Title 47 Part 15 Subpart B: 2011 Class A, CISPR 22:2008, ANSI C63.4:2009, ICES-003 Issue 5:2012 Class A  | EN 55022 Class A, EN 61000-3-2 Class D, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A  | EN 55022/24  | EN 55022/24  |
| EMI                                 | –  | –  | CISPR 22, FCC Part 15B Class A   | CISPR 22, FCC Part 15B Class A   |
| EMS                                 | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, –   | IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, –   | IEC 61000-4-11   | –  |
| Green Product                       | –  | RoHS, CRoHS, WEEE  | RoHS, CRoHS, WEEE  | RoHS, CRoHS, WEEE  |
| RF                                  | EN 62311, Jan 2008, ETSI EN 301 489-1:V1.9.2 (2011-09), ETSI EN 301 489-3:V1.4.1 (2002-08), ETSI EN 301 893:V1.6.1 (2011-11), ETSI EN 300 328:V1.7.1 (2006-10), ETSI EN 300 440-1:V1.6.1 (2010-08), ETSI EN 300 440-2:V1.4.1 (2010-08) | –  | –  | –  |
| Rail Traffic                        | EN 50155:2007 (essential compliance*), EN 50121-3-2:2006, EN 50121-4:2006  | EN 50155 (essential compliance*), EN 50121-3-2, EN 50121-4   | EN 50155*, EN 50121-3-2, EN 50121-4  | EN 50155*, EN 50121-3-2, EN 50121-4  |
| Environmental Tests                 | EN 60068-2-1:2007, EN 60068-2-2:2007, EN 61373:1999  | EN 60068-2-1:2007, EN 60068-2-2:2007, EN 61373:1999  | –  | –  |
| <b>Warranty</b>                     |  |  |  |  |
| Warranty Period                     | 3 years  | 3 years  | 3 years  | 3 years  |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   |

# Railway Computers



|                                       | V2426A Series  | UC-8481 Series  | RNAS-1200 Series   |
|---------------------------------------|--|---|--|
| <b>Computer</b>                       |  |   |  |
| CPU                                   | Intel Celeron 1047UE (1.4 GHz), Intel Core i7-3517UE (1.7 GHz)   | 533 MHz   | 1.0 GHz  |
| OS                                    | Windows Embedded Standard 7 or Linux Debian 7  | Linux (pre-installed)   | –  |
| System Chipset                        | Mobile Intel® HM65 Express   | –   | –  |
| System Memory                         | 1 DDR3-1600 SO-DIMM SDRAM slot, 8 GB max., 4 GB pre-installed  | –   | –  |
| USB                                   | USB 2.0 hosts x 3 (Type A connectors x 2, M12 D-coded x 1)   | USB 2.0 hosts x 2   | –  |
| DRAM                                  | –  | 512 MB DDR2 SDRAM onboard, 32 MB NOR Flash, 512 MB NAND Flash                             | 512 MB DDRII   |
| Flash Memory                          | –  | –   | Onboard 2 GB USB DOM to store OS                                     |
| <b>Storage</b>                        |  |   |  |
| Storage Expansion                     | –  | CompactFlash socket   | –  |
| HDD/SSD Support                       | 1 internal SATA-II bus for 2.5-inch HDD/SSD storage expansion*   | –   | 2.5-inch HDD bays x 2, reserved for storage expansion                |
| CFast Support                         | 1 slot for OS*, 1 slot for backup storage  | –   | –  |
| <b>Display</b>                        |  |   |  |
| Graphics Controller                   | Intel® HD Graphics 4000 (integrated)   | –   | –  |
| Connector Type                        | 2 DVI-I connectors   | –   | –  |
| Display Interface                     | DVI up to 1920x1200 resolution @ 60 Hz<br>VGA up to 1920x1200 resolution @ 60 Hz<br>VGA up to 2048x1536 resolution @ 75 Hz | –   | –  |
| <b>Ethernet Interface</b>             |  |   |  |
| LAN                                   | Auto-sensing 10/100/1000 Mbps ports (M12 X-coded) x 2  | Auto-sensing 10/100 Mbps ports (M12) x 2  | Auto-sensing 10/100/1000 Mbps ports (M12) x 2                        |
| Magnetic Isolation Protection         | –  | 1.5 kV built in   | –  |
| <b>Serial Signals</b>                 |  |   |  |
| RS-232                                | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND   | TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND  | –  |
| RS-422                                | TxD+, TxD-, RxD+, RxD-, GND  | TxD+, TxD-, RxD+, RxD-, GND   | –  |
| RS-485-4w                             | TxD+, TxD-, RxD+, RxD-, GND  | TxD+, TxD-, RxD+, RxD-, GND   | –  |
| RS-485-2w                             | Data+, Data-, GND  | Data+, Data-, GND   | –  |
| <b>Digital Input</b>                  |  |   |  |
| Input Channels                        | 6  | 4   | –  |
| Input Voltage                         | 0 to 30 VDC at 25 Hz   | 0 to 30 VDC   | –  |
| Digital Input Levels for Dry Contacts | • Logic level 0: Close to GND<br>• Logic level 1: Open   | • Logic level 0: Close to GND<br>• Logic level 1: Open                                    | –  |
| Digital Input Levels for Wet Contacts | • Logic level 0: +3 V max.<br>• Logic level 1: +10 V to +30 V (Source to DI)   | • Logic level 0: +3 V max.<br>• Logic level 1: +10 V to +30 V (COM to DI)                 | –  |
| <b>Digital Output</b>                 |  |   |  |
| Output Channels                       | 2, sink type   | 4, sink type  | –  |
| Output Current                        | Max. 200 mA per channel  | Max. 200 mA per channel   | –  |
| On-state Voltage                      | 24 VDC nominal, open collector to 30 VDC   | 24 VDC nominal, open collector to 30 Ⓢ  | –  |
| Connector Type                        | 10-pin screw-fastened Euroblock terminal (6 inputs, 2 outputs, DI Source, GND)   | 10-pin screw terminal block (4 points, GND)   | –  |
| Isolation                             | 3 kV optical isolation   | –   | –  |
| <b>IHS Control</b>                    |  |   |  |
| IHS Function Control                  | –  | –   | Temperature reading, power output control for heating function       |
| <b>Physical Characteristics</b>       |  |   |  |
| Housing                               | Aluminum   | SECC sheet metal (1 mm)   | Aluminum   |
| Weight                                | 3 kg (6.67 lb)   | 1 kg (2.22 lb)  | 1.98 kg (4.4 lb) (RNAS-1201-T)/2 kg (4.44 lb) (RNAS-1211-T)          |
| Dimensions                            | With ears: 275 x 92 x 154 mm (10.83 x 3.62 x 6.06 in)  | 200 x 57 x 120 mm (7.87 x 2.24 x 4.72 in)   | 252 x 130 x 57 mm (9.92 x 5.12 x 2.24 in)                            |
| Mounting                              | DIN rail, wall, VESA   | DIN rail, wall  | wall   |
| <b>Environmental Limits</b>           |  |   |  |
| Operating Temperature                 | -25 to 55°C (-13 to 131°F) or -40 to 70°C (-40 to 158°F)   | -25 to 55°C (-13 to 131°F) or -25 to 70°C (-13 to 158°F)                                  | -40 to 70°C (-40 to 158°F)   |
| Storage Temperature                   | -40 to 85°C (-40 to 185°F)   | -25 to 75°C (-13 to 167°F) or -40 to 80°C (-40 to 176°F)                                  | -40 to 85°C (-40 to 176°F)   |
| Ambient Relative Humidity             | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)  |
| Anti-Vibration                        | EN 50155 standard  | IEC 61373 standard  | EN 50155 standard  |
| Anti-Shock                            | EN 50155 standard  | IEC 61373 standard  | EN 50155 standard  |
| Conformal Coating                     | Available on request   | –   | Available on request   |
| <b>Power Requirements</b>             |  |   |  |
| Input Voltage                         | 12 to 48 VDC (M12 A-coded)   | 24 VDC (9 to 48 V), M12 connector   | PoE (IEEE 802.3af), or PoE+ (IEEE 802.3at)                           |
| Power Consumption                     | 47 W   | 20 W  | 25.5 W   |
| <b>Standards and Certifications</b>   |  |   |  |
| Safety                                | UL 60950-1, EN 60950-1   | UL 60950-1, EN 60950-1  | UL 60950-1   |
| EMC                                   | EN 55022/24  | EN 55022 Class B, EN 55024-4-2, EN 55024-4-3, EN 55024-4-4, FCC Part 15 Subpart B Class B | EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024               |
| EMI                                   | CISPR 22, FCC Part 15B Class A   | –   | FCC Part 15 Subpart B Class A, CISPR 22:2008                         |
| EMS                                   | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11                   | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE  |
| Green Product                         | RoHS, CRoHS, WEEE  | –   | RoHS, CRoHS, WEEE  |
| Rail Traffic                          | EN 50155*, EN 50121-3-2, EN 50121-4, IEC 60571   | EN 50155*, EN 50121-2-3, EN 50121-4, IEC 61373  | EN 50155 (essential compliance*), EN 50121-3-2, IEC 61373            |
| <b>Warranty</b>                       |  |   |  |
| Warranty Period                       | 3 years  | 5 years (does not apply to cellular module)   | 5 years (storage drive not included)                                 |
| Details                               | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                      | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |



# Mission-Critical Computers

Preliminary



|                                     | MC-7200-MP Series  | MC-7200-DC-CP Series   | MC-7130-MP                                     | MC-5150-DC-CP Series                       | MC-5150-AC/DC Series                        | MC-5157-AC/DC Series                         | MC-1100 Series   |
|-------------------------------------|--|--|--|--|---|--|--|
| <b>Computer</b>                     |  |  |  |  |   |  |  |
| CPU                                 | Intel® Core™ i7-3555LE 2.5 GHz, Intel® Core™ i3-3120ME 2.4 GHz, Intel® Celeron® 1047UE 1.4 GHz | Intel® Core™ i7-3555LE 2.5 GHz, Intel® Core™ i3-3120ME 2.4 GHz, Intel® Celeron® 1047UE 1.4 GHz | Intel® Core™ i3-3120ME 2.4 GHz                 | Intel® Core™ i5-520E 2.4 GHz               | Intel® Core™ i5-520E 2.4 GHz                | Intel® Core™ i5-520E 2.4 GHz                 | Intel® Atom™ E3845 (Quad Core, 1.91 GHz), Intel® Atom™ E3826 (Dual Core, 1.46 GHz) |
| Supported OSs                       | W7E, 32/64-bit<br>W7P, 32/64-bit   | W7E, 32/64-bit<br>W7P, 32/64-bit   | W7E, 32/64-bit<br>W7P, 32/64-bit               | W7E, 32/64-bit<br>W7P, 32/64-bit           | W7E, 32/64-bit<br>W7P, 32/64-bit            | W7E, 32/64-bit<br>W7P, 32/64-bit             | W7E, 32/64-bit   |
| OS Pre-installed                    | –  | –  | –  | –  | –   | –  | –  |
| System Chipset                      | Intel® QM77  | Intel® QM77  | Intel® QM77                                    | Intel® QM57                                | Intel® QM57                                 | Intel® QM57                                  | –  |
| System Memory Slots                 | 2 SO-DIMM slots, 16 GB capacity  | 2 SO-DIMM slots, 16 GB capacity  | 2 SO-DIMM slots, 16 GB capacity                | 2 SO-DIMM slots, 8 GB capacity             | 2 SO-DIMM slots, 8 GB capacity              | 2 SO-DIMM slots, 8 GB capacity               | 1 SO-DIMM slot, 8 GB capacity  |
| System Memory Pre-installed         | 4 GB, in 1 slot  | 4 GB, in 1 slot  | 4 GB, in 1 slot                                | 2 GB, in 1 slot                            | 2 GB, in 1 slot                             | 2 GB, in 1 slot                              | 2 GB, in 1 slot  |
| Internal Storage Slots              | 2.5-inch SATA x 2  | 2.5-inch SATA x 2  | 2.5-inch SATA x 2                              | 2.5-inch SATA x 1                          | 2.5-inch SATA x 1                           | 2.5-inch SATA x 1                            | CFast x 1<br>SD 3.0 (SDHC/SDXC) x 1  |
| External Storage Slots              | 2.5-inch SATA x 1  | 2.5-inch SATA x 1  | 2.5-inch SATA x 1                              | 2.5-inch SATA x 1                          | 2.5-inch SATA x 1                           | 2.5-inch SATA x 1                            | –  |
| Storage Pre-installed               | –  | –  | –  | 64 GB MLC SSD                              | –   | –  | –  |
| <b>I/O Interface</b>                |  |  |  |  |   |  |  |
| USB                                 | USB 2.0 x 6, Type A<br>USB 3.0 x 2, Type A   | USB 2.0 x 6, Type A  | USB 2.0 x 6, Type A<br>USB 3.0 x 2, Type A     | USB 2.0 x 6, Type A                        | USB 2.0 x 6, Type A                         | USB 2.0 x 6, Type A                          | USB 2.0 x 2, Type A  |
| Audio                               | Line in x 1,<br>Line out x 1,<br>Mic input x 1   | Line in x 1,<br>Line out x 1,<br>Mic input x 1   | Line in x 1,<br>Line out x 1,<br>Mic input x 1 | Line in x 1,<br>Line out x 1               | Line in x 1,<br>Line out x 1                | Line in x 1,<br>Line out x 1                 | –  |
| KB/MS                               | 2 PS/2 interfaces  | 2 PS/2 interfaces  | 2 PS/2 interfaces                              | 2 PS/2 interfaces                          | 2 PS/2 interfaces                           | 2 PS/2 interfaces                            | –  |
| PCI Slots                           | 2  | –  | 2  | –  | –   | 2  | –  |
| PCIe Slots                          | 1, PCIe x16  | –  | 1, PCIe x16                                    | –  | –   | –  | –  |
| Display Interface                   | 1 VGA output, DB15 female<br>2 DVI-D   | –  | –  | 1 VGA output, DB15 female<br>1 DVI-I       | –   | –  | 1 VGA output, DB15 female<br>1 display port  |
| LAN Ports                           | 10/100/1000 Mbps (RJ45) x 4  | –  | –  | 10/100/1000 Mbps (RJ45) x 2                | –   | –  | 10/100/1000 Mbps (RJ45) x 4  |
| Serial Ports                        | RS-232/422/485 (DB9) x 2<br>RS-232 (DB9) x 2   | –  | –  | –  | –   | –  | RS-232/422/485 (DB9) x 2   |
| NMEA Ports                          | NMEA 0183 x 8 (IEC-61162)  | –  | NMEA 0183 x 8 (IEC-61162)                      | –  | NMEA 0183 x 8 (IEC-61162)                   | NMEA 0183 x 8 (IEC-61162)                    | –  |
| Digital Input/Output                | 8DI/8DO  | –  | 8DI/8DO  | –  | –   | –  | 4DI/4DO  |
| LPT ports                           | DB25 x 1   | –  | –  | –  | DB25 x 1                                    | –  | –  |
| <b>Physical Characteristics</b>     |  |  |  |  |   |  |  |
| Housing                             | Aluminum sheet metal   |  |  |  |   |  |  |
| Weight                              | 8 kg (17.78 lb)  | 3.75 kg (8.33 lb)  | 8 kg (17.8 lb)                                 | 3.85 kg (8.56 lb)                          | 6.85 kg (15.22 lb)                          | 8 kg (17.78 lb)                              | 1.21 kg (2.69 lb), or 0.97 kg (2.16 lb)  |
| Dimensions                          | 287 x 250 x 70 mm (11.30 x 9.84 x 2.76 in)   | 150 x 160 x 80 mm (5.91 x 6.30 x 3.15 in)  | 322 x 300 x 150 mm (12.68 x 11.81 x 5.91 in)   | 287 x 250 x 70 mm (11.30 x 9.84 x 2.76 in) | 287 x 250 x 135 mm (11.30 x 9.84 x 5.31 in) | 320 x 300 x 171 mm (12.60 x 11.81 x 6.73 in) | 132 x 120 x 92 mm (5.20 x 4.72 x 3.62 in)  |
| Mounting                            | Wall   |  |  |  |   |  |  |
| Thermal Solution                    | Fanless  |  | Intelligent fan                                | Fanless                                    |   | Fanless                                      |  |
| <b>Environmental Limits</b>         |  |  |  |  |   |  |  |
| Operating Temperature               | -40 to 70°C (-40 to 131°F)   |  | -15 to 55°C (5 to 131°F)                       |  |   | -40 to 70°C (-40 to 131°F)                   |  |
| Storage Temperature                 | -50 to 80°C (-40 to 176°F)   |  | -20 to 60°C (-4 to 131°F)                      |  |   | -45 to 75°C (-49 to 103°F)                   |  |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  |  | 5 to 95% (non-condensing)                      |  |   | 5 to 95% (non-condensing)                    |  |
| Anti-Vibration                      | DNV 2.4 standard   |  |  |  |   |  |  |
| <b>Power Requirements</b>           |  |  |  |  |   |  |  |
| Input Voltage                       | 24 VDC (18 to 30 VDC); 100 to 240 VAC  |  |  |  |   |  | 12/24 VDC (9 to 36 VDC)  |
| Power Consumption                   | Less than 100 W, 2.5 A @ 24 VDC  |  |  |  |   |  | Less than 30 W   |
| <b>Standards and Certifications</b> |  |  |  |  |   |  |  |
| Marine                              | DNV 2.4, IEC 60945 4th., IACS-E10  |  |  |  |   |  | DNV 2.4, IEC 60945 4th   |
| Green Product                       | RoHS, cRoHS, WEEE  |  |  |  |   |  |  |
| <b>Warranty</b>                     |  |  |  |  |   |  |  |
| Warranty Period                     | 3 years  |  |  |  |   |  |  |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                           |  |  |  |   |  |  |

# Marine Displays and Panel Computers

Preliminary



|                                     | MD-119/124 Series  | MD-219/224/226 Series   | MD-215 Series  | MPC-2190/2240/2260 Series   | MPC-2150 Series   |
|-------------------------------------|--|---|--|---|---|
| <b>Computer</b>                     |  |   |  |   |   |
| CPU                                 | –  | –   | –  | Intel® Core™ i7-3517UE 1.7 GHz, or Intel® Celeron® 1047UE 1.4 GHz   | Intel® Core™ i7-3517UE 1.7 GHz, or Intel® Celeron® 1047UE 1.4 GHz       |
| Supported OS                        | –  | –   | –  | Windows Embedded Standard 7 32/64-bit, Windows 7 Professional 32/64-bit   | Windows Embedded Standard 7 32/64-bit, Windows 7 Professional 32/64-bit |
| OS Pre-installed                    | –  | –   | –  | –   | –   |
| System Chipset                      | –  | –   | –  | Intel® HM65 Express Chipset   | Intel® HM65 Express Chipset   |
| Memory Slot                         | –  | –   | –  | 1 SO-DIMM slot  | 1 SO-DIMM slot  |
| System Memory Pre-installed         | –  | –   | –  | 4 GB pre-installed (SDRAM)  | 4 GB pre-installed (SDRAM)  |
| Expansion Bus                       | –  | –   | –  | –   | –   |
| USB                                 | –  | –   | –  | USB 2.0 x 4, Type A connectors  | USB 2.0 x 4, Type A connectors  |
| Storage slot                        | –  | –   | –  | MPC-2190: 1 2.5" HDD/SSD slot<br>MPC-2240/2260: 2 2.5" HDD/SSD slot   | 1 2.5" HDD/SSD slot + 1 CFAST slot                                      |
| Storage Pre-installed               | –  | –   | –  | –   | –   |
| BIOS                                | –  | –   | –  | 64 Mbit Flash BIOS SPI type, ACPI function supported  | 64 Mbit Flash BIOS SPI type, ACPI function supported                    |
| <b>Other Peripherals</b>            |  |   |  |   |   |
| Audio                               | –  | –   | –  | Line-in and line-out interface, with 3.5 mm mini jack   | Line-in and line-out interface, with 3.5 mm mini jack                   |
| KB/MS                               | –  | –   | –  | 2 PS/2 interfaces   | 2 PS/2 interfaces   |
| Buzzer                              | 75 to 85 db (IEC 60945 compliant)  | 75 to 85 db (IEC 60945 compliant)   | 75 to 85 db (IEC 60945 compliant)                                    | 75 to 85 db (IEC 60945 compliant)   | 75 to 85 db (IEC 60945 compliant)                                       |
| <b>Display</b>                      |  |   |  |   |   |
| Panel Size                          | 19/24 inches   | 19/24/26 inches   | 15 inches  | 19/24/26 inches   | 15 inches   |
| Touch                               | Resistive touch  | Projected capacitive touch  | Projected capacitive touch, glove friendly                           | Projected capacitive touch  | Projected capacitive touch, glove friendly                              |
| Aspect Ratio                        | • MD-119: 5:4<br>• MD-124: 16:9  | • MD-219: 5:4<br>• MD-224: 16:9<br>• MD-226: 16:10  | 5:4  | • MD-219: 5:4<br>• MD-224: 16:9<br>• MD-226: 16:10  | 5:4   |
| Pixels                              | • MD-124: 1920 x 1080<br>• MD-119: 1280 x 1024 (WSXGA+)  | • MD-219: 1280 x 1024 (SXGA)<br>• MD-224: 1920 x 1080 (Full HD)<br>• MD-226: 1920 x 1200 (WUXGA)  | 1024 x 768   | • MD-219: 1280 x 1024 (SXGA)<br>• MD-224: 1920 x 1080 (Full HD)<br>• MD-226: 1920 x 1200 (WUXGA)  | 1024 x 768  |
| Contrast Ratio                      | • MD-124: 5000:1<br>• MD-119: 1000:1   | • MD-219: 2000:1<br>• MD-224: 5000:1<br>• MD-226: 1500:1  | 700:1  | • MD-219: 2000:1<br>• MD-224: 5000:1<br>• MD-226: 1500:1  | 700:1   |
| Light Intensity                     | • MD-124: 300 cd/m <sup>2</sup><br>• MD-119: 350 cd/m <sup>2</sup>   | • MD-219: 300 cd/m <sup>2</sup><br>• MD-224: 300 cd/m <sup>2</sup><br>• MD-226: 350 cd/m <sup>2</sup>   | 1000 cd/m <sup>2</sup>   | • MD-219: 300 cd/m <sup>2</sup><br>• MD-224: 300 cd/m <sup>2</sup><br>• MD-226: 350 cd/m <sup>2</sup>   | 1000 cd/m <sup>2</sup>  |
| Viewing Angles                      | • MD-124: 178° x 178°<br>• MD-119: 170° x 160°   | • MD-219: 178°/178°<br>• MD-224: 178°/178°<br>• MD-226: 176°/176°   | 170°/160°  | • MD-219: 178°/178°<br>• MD-224: 178°/178°<br>• MD-226: 176°/176°   | 170°/160°   |
| Max. No. of Colors                  | 16.7M (8-bit)  | 16.7M (8-bit)   | 16.7M (8-bit)  | 16.7M (8-bit)   | 16.7M (8-bit)   |
| Video inputs                        | DVI-I x 2, BNC composite x 3   | DVI-D x 1, VGA x 1 (DB15 female)  | DVI-D x 1, VGA x 1 (DB15 female)                                     | –   | DVI-D x 1, VGA x 1 (DB15 female)  |
| Video output                        | VGA x 1  | –   | –  | DVI-D x 1, VGA x 1 (DB15 female)  | –   |
| <b>Ethernet Interface</b>           |  |   |  |   |   |
| LAN                                 | –  | –   | –  | 10/100/1000 Mbps ports (RJ45 port) x 2  | 10/100/1000 Mbps ports (RJ45 port) x 2                                  |
| <b>Serial Interface</b>             |  |   |  |   |   |
| Serial Standards                    | 2 RS-232 port (DB9)  | 1 RS-232 port (DB9)<br>1 RS-422/485 port (terminal block)   | 1 RS-232 port (DB9)<br>1 RS-422/485 port (terminal block)            | 2 RS-232/422/485 ports, software-selectable (DB9 male)  | 2 RS-232/422/485 ports, software-selectable (DB9 male)                  |
| <b>Physical Characteristics</b>     |  |   |  |   |   |
| Housing                             | Aluminum sheet metal   | Aluminum sheet metal  | Aluminum sheet metal   | Aluminum sheet metal  | Aluminum sheet metal  |
| Weight                              | • MD-124: 12 kg (26.46 lb)<br>• MD-119: 9.7 kg (21.38 lb)  | • MD-219: 7.8 kg (17.20 lb)<br>• MD-224: 12 kg (26.46 lb)<br>• MD-226: 15.2 kg (35.51 lb)   | 6.5 kg (13.44 lb)  | • MD-219: 7.8 kg (17.20 lb)<br>• MD-224: 12 kg (26.46 lb)<br>• MD-226: 15.2 kg (35.51 lb)   | 6.5 kg (14.44 lb)   |
| Dimensions                          | • MD-124: 85 x 593 x 384 mm (3.35 x 23.45 x 15.12 in)<br>• MD-119: 82 x 483 x 444 mm (3.23 x 19.02 x 17.48 in) | • MD-219: 429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)<br>• MD-224: 595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)<br>• MD-226: 621 x 440 x 90 mm (24.45 x 17.48 x 3.57 in) | 356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)                        | • MD-219: 429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)<br>• MD-224: 595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)<br>• MD-226: 621 x 440 x 90 mm (24.45 x 17.48 x 3.57 in) | 356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)                           |
| Mounting                            | Console  | VESA, desktop, panel  | VESA, desktop, panel   | VESA, desktop, panel  | VESA, desktop, panel  |
| System Cooling                      | Fan  | Fanless   | Fanless  | Fanless   | Fanless   |
| <b>Environmental Limits</b>         |  |   |  |   |   |
| Operating Temperature               | -15 to 55°C (5 to 131°F)   | -15 to 55°C (5 to 131°F)  | -40 to 70°C (-40 to 158°F)   | -15 to 55°C (5 to 131°F)  | -40 to 70°C (-40 to 158°F)  |
| Storage Temperature                 | -20 to 60°C (-4 to 140°F)  | -20 to 60°C (-4 to 140°F)   | -40 to 70°C (-40 to 158°F)   | -20 to 60°C (-4 to 140°F)   | -40 to 70°C (-40 to 158°F)  |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)   |
| <b>Power Requirements</b>           |  |   |  |   |   |
| Input Voltage                       | • 24 VDC (18 to 36 VDC)<br>• 110 to 230 VAC, 50/60 Hz  | • 24 VDC (18 to 36 VDC)<br>• 110 to 230 VAC, 50/60 Hz   | • 12/24 VDC (9 to 36 VDC)<br>• 100 to 240 VAC                        | • 24 VDC (18 to 36 VDC)<br>• 110 to 230 VAC, 50/60 Hz   | • 12/24 VDC (9 to 36 VDC)<br>• 100 to 240 VAC                           |
| <b>Standards and Certifications</b> |  |   |  |   |   |
| Safety                              | UL 60950-1, CCC  | UL 60950-1, CCC   | UL 60950-1, CCC  | UL 60950-1, CCC   | UL 60950-1, IEC 60950-1   |
| EMC                                 | EN 55022/24, CISPR 22, FCC Part 15B Class A  | EN 55022/24, CISPR 22, FCC Part 15B Class A   | EN 55022/24, CISPR 22, FCC Part 15B Class A                          | EN 55022/24, CISPR 22, FCC Part 15B Class A   | EN 55022/24   |
| Ingress Protection Rating           | • Front: IP66<br>• Rear: IP22  | • Front: IP54<br>• Rear: IP22   | • Front: IP66<br>• Rear: IP22  | • Front: IP54<br>• Rear: IP22   | • Front: IP66<br>• Rear: IP22   |
| Marine                              | IEC 60945 4th  | IEC 60945 4th, DNV, IACS E10, IEC 61174   | IEC 60945 4th, DNV, IACS E10   | IEC 60945 4th, DNV, IACS E10, IEC 61174   | –   |
| <b>Warranty</b>                     |  |   |  |   |   |
| Warranty Period                     | • System: 3 years<br>• LCD panel: 1 year   | • System: 3 years<br>• LCD panel: 1 year  | • System: 3 years<br>• LCD panel: 1 year                             | • Computer system: 3 years<br>• LCD panel: 1 year   | • Computer system: 3 years<br>• LCD panel: 1 year                       |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>    |

Marine Displays and Panel Computers > Marine Displays and Panel Computers

# Oil & Gas Displays & Panel Computers

Preliminary



Preliminary



|                                     | MD-219Z-HB/224Z-HB Series  | MD-215 Series  | MPC-2150 Series  | EXPC-1519 Series   | EXPC-1319 Series   |
|-------------------------------------|--|--|--|--|--|
| <b>Computer</b>                     |  |  |  |  |  |
| CPU                                 | –  | –  | Intel® Core™ i7-3517UE 1.7 GHz, or Intel® Celeron® 1047UE 1.4 GHz    | Intel® Core™ i7-3555LE 2.5 GHz or Intel® Celeron® 1047UE 1.4 GHz Processor         | Intel Atom D525 dual core 1.8 GHz processor                          |
| Supported OS                        | –  | –  | W7E, 32/64-bit<br>W7P, 32/64-bit                                     | W7E, 32/64-bit<br>W7P, 32/64-bit   | W7E, 32/64-bit<br>W7P, 32/64-bit                                     |
| OS Pre-installed                    | –  | –  | –  | –  | Windows Embedded Standard 7  |
| System Chipset                      | –  | –  | Intel® HM65 Express Chipset  | Intel® QM77 Express Chipset  | Intel Pineview-D+ ICH8M  |
| Memory Slots                        | –  | –  | 1 SO-DIMM slot   | 2 SO-DIMM slots  | 2 SO-DIMM slots  |
| System Memory Pre-installed         | –  | –  | 4 GB pre-installed (SDRAM)   | 4 GB pre-installed   | 2 GB pre-installed   |
| Expansion Bus                       | –  | –  | –  | 1 mini PCIe socket (internal)  | –  |
| USB                                 | –  | –  | USB 2.0 x 4  | USB 2.0 x 1/3/4 (S1 model)   | USB 2.0 x 2  |
| Storage Slots                       | –  | –  | 2.5-inch HDD/SSD x 1, CFast x 1                                      | 2.5-inch HDD/SSD x 1, CFast x 1  | 2.5-inch HDD/SSD x 1, CompactFlash x 1                               |
| Storage Pre-Installed               | –  | –  | –  | –  | 32 GB MLC SSD  |
| Video Output                        | –  | –  | DVI-D x 1,<br>VGA x 1 (DB15 female)                                  | VGA x 1 (DB15 female) (S1 model)   | VGA output (DB15 female)   |
| <b>Display</b>                      |  |  |  |  |  |
| Panel Size                          | 19/24 inches   | 15 inches  | 15 inches  | 19 inches  | 19 inches  |
| Touch                               | Projected capacitive touch, glove friendly   | Projected capacitive touch, glove friendly                           | Projected capacitive touch, glove friendly                           | Projected capacitive touch, glove friendly   | Resistive touch  |
| Aspect Ratio                        | • MD-219Z-HB: 5:4<br>• MD-224Z-HB: 16:9  | 5:4  | 5:4  | 5:4  | 5:4  |
| Pixels                              | • MD-219Z-HB: 1280 x 1024 (SXGA)<br>• MD-224Z-HB: 1920 x 1080 (WSXGA+)   | 1024 x 768   | 1024 x 768   | 1280 x 1024  | 1280 x 1024  |
| Contrast Ratio                      | • MD-219Z-HB: 2000:1<br>• MD-224Z-HB: 5000:1   | 700:1  | 700:1  | 1000:1   | 1000:1   |
| Light Intensity                     | 1000 cd/m <sup>2</sup>   | 1000 cd/m <sup>2</sup>   | 1000 cd/m <sup>2</sup>   | 1000 cd/m <sup>2</sup>   | 1000 cd/m <sup>2</sup>   |
| Viewing Angles                      | 178°/178°  | 160°/140°  | 160°/140°  | 170°/160°  | 170°/160°  |
| Video Input                         | DVI-D x 1,<br>VGA x 1 (DB15 female)  | DVI-D x 1,<br>VGA x 1 (DB15 female)                                  | –  | –  | –  |
| <b>Ethernet Interface</b>           |  |  |  |  |  |
| LAN                                 | –  | –  | 2 10/100/1000 Mbps ports (RJ45 port)                                 | 2 10/100/1000 Mbps ports (RJ45 port)   | 2 10/100/1000 Mbps ports (RJ45 port)                                 |
| Optical Fiber Interface             | –  | –  | –  | 2 multimode 100M fiber ports   | 2 multimode 100M fiber ports   |
| WLAN                                | –  | –  | –  | 1 802.11b/g/n interface (available on request)                                     | –  |
| <b>Serial Interface</b>             |  |  |  |  |  |
| Serial Standards                    | 1 RS-232 port (DB9)<br>1 RS-422/485 port (terminal block)  | 1 RS-232 port (DB9)<br>1 RS-422/485 port (terminal block)            | 2 RS-232/422/485 ports (DB9 male)                                    | 2 RS-232/422/485 ports (DB9 male)  | 2 RS-232/422/485 ports   |
| <b>Physical Characteristics</b>     |  |  |  |  |  |
| Housing                             | Aluminum sheet metal   | Aluminum sheet metal   | Aluminum sheet metal   | Aluminum   | Aluminum   |
| Weight                              | • MD-219Z-HB: 7.8 kg (17.33 lb)<br>• MD-224Z-HB: 12 kg (26.67 lb)  | 6.5 kg (13.44 lb)  | 6.5 kg (14.44 lb)  | 15.8 kg (34.83 lb)   | 10.7 kg (23.78 lb) or 11.9 kg (26.44 lb)                             |
| Dimensions                          | • MD-219Z-HB: 429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)<br>• MD-224Z-HB: 595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in) | 356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)                        | 356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)                        | 483 x 408 x 99.5 mm (19.02 x 16.06 x 3.92 in)                                      | 483 x 408 x 99 mm (19.02 x 16.06 x 3.90 in)                          |
| Mounting                            | VESA, desktop, panel   | VESA, desktop, panel   | VESA, desktop, panel   | VESA, desktop, yoke, wall, panel   | VESA, desktop, yoke, wall, panel                                     |
| System Cooling                      | Fanless thermal design   | Fanless thermal design   | Fanless thermal design   | Fanless thermal design   | Fanless thermal design   |
| <b>Environmental Limits</b>         |  |  |  |  |  |
| Operating Temperature               | -20 to 60°C (-4 to 140°F)  | -40 to 70°C (-40 to 158°F)   | -40 to 70°C (-40 to 158°F)   | -40 to 70°C (-40 to 158°F)   | -20 to 60°C (-4 to 140°F) or -40 to 60°C (-40 to 140°F)              |
| Storage Temperature                 | -20 to 60°C (-4 to 140°F)  | -40 to 70°C (-40 to 158°F)   | -40 to 70°C (-40 to 158°F)   | -40 to 70°C (-40 to 158°F)   | -40 to 80°C (-40 to 176°F)   |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  | –  |
| <b>Power Requirements</b>           |  |  |  |  |  |
| Input Voltage                       | • DC: 24 VDC (with tolerance from 18 to 30 VDC, 2-pin terminal block)<br>• AC: 100 to 240 VAC                          | • DC: 12/24 VDC (Range 9 to 36 VDC)<br>• AC: 100 to 240 VAC          | • DC: 12/24 VDC (Range 9 to 36 VDC)<br>• AC: 100 to 240 VAC          | • DC: 24 VDC (2-pin terminal block)<br>• AC: 100 to 240 VAC (3-pin terminal block) | Typical 24 VDC   |
| <b>Standards and Certifications</b> |  |  |  |  |  |
| Safety                              | UL 60950-1, CCC  | UL 60950-1, CCC  | UL 60950-1, IEC 60950-1  | UL 60950-1, IEC 60950-1  | UL 60950-1, IEC 60950-1  |
| Ingress Protection Rating           | IP66 (front) / IP22 (rear)   | IP66 (front) / IP22 (rear)   | IP66 (front) / IP22 (rear)   | IP66 (front) / IP22 (rear) / NEMA 4X   | IP66 (front) / IP22 (rear) / NEMA 4X                                 |
| Hazardous Environments              | Class 1 Division 2   | –  | Class 1 Division 2, ATEX Zone2, IECEx                                | Class 1 Division 2, ATEX Zone2, IECEx  | Class 1 Division 2, ATEX Zone2, IECEx                                |
| Marine                              | IEC 60945 4th, DNV, IACS E10, IEC 61174  | IEC 60945 4th, DNV, IACS E10, IEC 61174                              | –  | –  | –  |
| Green Product                       | RoHS, cRoHS, WEEE  | RoHS, cRoHS, WEEE  | RoHS, cRoHS, WEEE  | RoHS, cRoHS, WEEE  | RoHS, cRoHS, WEEE  |
| <b>Warranty</b>                     |  |  |  |  |  |
| Warranty Period                     | • System: 3 years<br>• LCD panel: 1 year   | • System: 3 years<br>• LCD panel: 1 year                             | • Computer system: 3 years<br>• LCD panel: 1 year                    | • Computer system: 3 years<br>• LCD panel: 1 year                                  | • Computer system: 3 years<br>• LCD panel: 1 year                    |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>               | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |

Oil & Gas Displays and Panel Computers > Oil & Gas Displays & Panel Computers

# x86 Computers



|                                     | V2403 Series   | V2201 Series  |
|-------------------------------------|--|---|
| <b>Computer</b>                     |  |   |
| CPU                                 | V2403-C2 Series: Intel® Celeron 1047UE (Dual Core, 2M Cache, 1.40 GHz)<br>V2403-C3 Series: Intel® Core i3-3217UE (Dual Core, 2M Cache, 1.60 GHz)<br>V2403-C7 Series: Intel® Core i7-3517UE (Dual Core, 4M Cache, 1.70 GHz) | V2201-E1 Series: Intel® Atom™ Processor E3815 (Single Core, 512K Cache, 1.46 GHz)<br>V2201-E2 Series: Intel® Atom™ Processor E3826 (Dual Core, 1M Cache, 1.46 GHz)<br>V2201-E4 Series: Intel® Atom™ Processor E3845 (Quad Core, 1M Cache, 1.91 GHz) |
| OS                                  | Windows Embedded Standard 7 64-bit or Linux Debian 8 64-bit  | Windows Embedded Standard 7 64-bit or Linux Debian 8 64-bit   |
| System Memory                       | 1 DDR3-1600 SDRAM slot, 4 GB pre-installed, 8 GB max.  | 1 DDR3 SO-DIMM slot (2 GB pre-installed for Linux models, 4 GB pre-installed for Windows models, 8 GB max.)<br>• E3815 and E3826 support DDR3L-1066<br>• E3845 supports DDR3L-1333  |
| USB                                 | USB 2.0 hosts x 4, type A connectors   | USB 3.0 hosts x 1, USB 2.0 hosts x 2, type A connectors   |
| <b>Storage</b>                      |  |   |
| CFast                               | 1 removable CFast socket for OS storage, 1 internal CFast socket for OS backup   | –   |
| mSATA                               | 1 internal mini-PCIe socket for storage expansion  | 1 internal mini-PCIe socket for OS storage  |
| SD                                  | –  | 1 SD 3.0 (SDHC/SDXC) socket for storage expansion   |
| SSD/HDD                             | 1 internal SATA-II connector for 2.5" SSD/HDD  | –   |
| <b>Audio</b>                        |  |   |
| Input                               | Line-in interface (audio jack)   | –   |
| Output                              | Line-out interface (audio jack)  | Line-out interface (together with HDMI)   |
| <b>Other Peripherals</b>            |  |   |
| Expansion Slot                      | 2 Mini-PCIe sockets<br>• 1 USB signal, for Sierra Wireless 3G/LTE module<br>• 1 USB + PCIe signal  | 2 Mini-PCIe sockets<br>• 1 USB signal, for Sierra Wireless 3G/LTE module<br>• 1 USB + PCIe signal   |
| USIM                                | 2 USIM slot  | 1 USIM slot   |
| <b>Display</b>                      |  |   |
| Graphics Controller                 | Intel® HD (integrated)   | Intel® HD (integrated)  |
| Connector Type                      | 1 HDMI connector (type A), 1 DVI-I connector, 1 VGA connector (CV required)  | 1 HDMI connector (type A)   |
| Display Interface                   | HDMI supports HDMI 1.4b, 1920 x 1200 resolution @ 60 Hz<br>• DVI up to 1920x1200 resolution @ 60 Hz<br>• VGA up to 1920x1200 resolution @ 60 Hz<br>• VGA up to 2048x1536 resolution @ 75 Hz                                | Supports HDMI 1.4a, 1920 x 1080 pixels @ 60/24 Hz   |
| <b>Ethernet Interface</b>           |  |   |
| LAN                                 | Auto-sensing 10/100/1000 Mbps ports (RJ45) x 2   | Auto-sensing 10/100/1000 Mbps ports (RJ45) x 2  |
| Isolation Protection                | 1.5 kV   | 1.5 kV  |
| <b>Wireless SMA Interface</b>       |  |   |
| Wi-Fi                               | 2 SMA connectors   | 2 SMA connectors  |
| 3G/LTE                              | 2 SMA connectors   | 2 SMA connectors  |
| GPS                                 | 1 SMA connector  | 1 SMA connector   |
| <b>Serial Interface</b>             |  |   |
| Serial Standards                    | RS-232/422/485 x 4 (DB9 male)  | RS-232/422/485 x 2 (DB9 male)   |
| <b>Digital Input/Digital Output</b> |  |   |
| Input/Output Channels               | DI x 4, DO x 4, sink type  | DI x 4, DO x 4, sink type   |
| Connector Type                      | 10-pin screw-fastened Euroblock terminal   | 10-pin screw-fastened Euroblock terminal  |
| <b>Physical Characteristics</b>     |  |   |
| Weight                              | 2.247 kg (4.99 lb) or 2.168 kg (4.82 lb)   | 940 g (2.09 lb)   |
| Dimensions                          | 275 x 63 x 154 mm (10.83 x 2.47 x 6.06 in)   | 178 x 52.5 x 120.2 mm (7.01 x 2.07 x 4.73 in)   |
| Mounting                            | DIN-rail, wall   | DIN-rail, wall  |
| <b>Environmental Limits</b>         |  |   |
| Operating Temperature               | -40 to 70°C (-40 to 158°F)   | -40 to 85°C (-40 to 185°F) or -40 to 70°C (-40 to 158°F)  |
| Storage Temperature                 | -40 to 85°C (-40 to 185°F)   | -40 to 85°C (-40 to 185°F)  |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)   |
| Anti-Vibration                      | IEC 60068-2-64: 5 Grms, 5 Hz to 500 Hz, 1 hr/axis w/ mSATA, CFast, SSD   | IEC 60068-2-64: 5 Grms, 5 Hz to 500 Hz, 1 hr/axis w/ mSATA, SD  |
| Anti-Shock                          | IEC 60068-2-27: 50 g/11ms ±X, ±Y, ±Z, 3 shocks each axis w/ mSATA, CFast, SSD  | IEC 60068-2-27: 100 g/11ms ±X, ±Y, ±Z, 3 shocks each axis w/ mSATA, SD  |
| <b>Power Requirements</b>           |  |   |
| Input Voltage                       | 9 to 36 VDC (3-pin terminal block for V+, V-, SG)  | 9 to 36 VDC (3-pin terminal block for V+, V-, SG)   |
| Input Current                       | 1.39 A @ 24 VDC  | 2 A @ 9 VDC   |
| Power Consumption                   | 31.59 W  | 18 W  |
| <b>Standards and Certifications</b> |  |   |
| Safety                              | UL 60950-1, CSA C22.2 No. 60950-1-03 (60950-1-07), EN 60950-1, UL 508  | UL 60950-1, CSA C22.2 No. 60950-1-03 (60950-1-07), EN 60950-1, UL 508   |
| EMC                                 | EN 55022/24, EN 61000-6-2/6-4  | EN 55022/24, EN 61000-6-2/6-4*  |
| EMI                                 | CISPR 22, FCC Part 15B Class A   | CISPR 22, FCC Part 15B Class A  |
| EMS                                 | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8   | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8  |
| Green Product                       | RoHS, CRoHS, WEEE  | RoHS, CRoHS, WEEE   |
| <b>Warranty</b>                     |  |   |
| Warranty Period                     | 3 years  | 3 years   |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>  |

# RISC Computers



|                                     | UC-8416/8418 Series  | UC-7101/7110/7112 Series   | UC-7122/7124 Series  | IA260 Series  | IA240 Series   |
|-------------------------------------|--|--|--|---|--|
| <b>Computer</b>                     |  |  |  |   |  |
| CPU Speed                           | 533 MHz  | 192 MHz  | 200 MHz  | 200 MHz   | 192 MHz  |
| OS                                  | Linux or Windows CE 6.0  | µClinux or Linux   | Windows CE 5.0   | Linux or Windows CE 6.0   | Linux  |
| Expansion Bus                       | PCI/104 onboard  | –  | –  | –   | –  |
| USB                                 | USB 2.0 hosts x 2  | –  | USB 2.0 hosts x 1  | USB 2.0 hosts x 2   | USB 2.0 hosts x 1  |
| DRAM                                | DDR2 SDRAM, 256 MB (512 MB max.)   | UC-7101/7110/7112: 16 MB<br>UC-7112 Plus: 32 MB  | DDR2 SDRAM, 32 MB  | DDR2 SDRAM, 128 MB  | DDR2 SDRAM, 64 MB  |
| Flash                               | • NOR Flash, 16 MB<br>• NAND Flash, 32 MB  | UC-7101/7110/7112: 8 MB<br>UC-7112 Plus: 16 MB   | NOR Flash, 16 MB   | NOR Flash, 32 MB  | NOR Flash, 16 MB   |
| SRAM                                | 256 KB, battery backup   | –  | –  | –   | –  |
| <b>Storage</b>                      |  |  |  |   |  |
| Storage Expansion                   | CompactFlash socket  | SD slot (UC-7101, UC-7112, and UC-7112 Plus only)  | SD slot  | CompactFlash socket   | SD slot  |
| <b>Display</b>                      |  |  |  |   |  |
| Display Interface                   | –  | –  | –  | CRT interface for VGA output, DB15 female connector                               | –  |
| Resolution                          | –  | –  | –  | 1024 x 768, 8 bits  | –  |
| <b>Ethernet Interface</b>           |  |  |  |   |  |
| LAN                                 | 10/100 Mbps ports x 2 (RJ45)   | 10/100 Mbps ports x 1 or 2 (RJ45)  | 10/100 Mbps ports x 2 (RJ45)   | 10/100 Mbps ports x 2 (RJ45)  | 10/100 Mbps ports x 2 (RJ45)   |
| Switch Port                         | 10/100 Mbps unmanaged ports (RJ45) x 8 (UC-8416)   | –  | –  | –   | –  |
| <b>Serial Interface</b>             |  |  |  |   |  |
| Serial Standards                    | RS-232/422/485 x 8 (RJ45)  | RS-232/422/485 x 1 or 2 (DB9 male)   | RS-232/422/485 ports x 2 (DB9) or 4 (RJ45)   | RS-232/422/485 ports x 4 (DB9 male)   | RS-232/422/485 ports x 4 (RJ45)  |
| Console Port                        | RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)  | RS-232 (TxD, RxD, GND)<br>• UC-7101: 4-pin pin header output<br>• UC-7110/7112: 3-wire pin-header                          | RS-232 (TxD, RxD, GND), 4-pin pin header output  | RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)                     | RS-232, RJ45 connector, supports PPP   |
| <b>Digital Input</b>                |  |  |  |   |  |
| Input Channels                      | UC-8416: DI x 4<br>UC-8418: DI x 12  | –  | –  | DI x 8  | DI x 4   |
| Connector Type                      | 10-pin screw-fastened terminal block (4 points, COM, GND)  | –  | –  | 10-pin screw-fastened terminal block (8 points, COM, GND)                         | –  |
| <b>Digital Output</b>               |  |  |  |   |  |
| Output Channels                     | UC-8416: DO x 4, sink type<br>UC-8418: DO x 12, sink type  | –  | –  | DO x 8, sink type   | DO x 4   |
| Connector Type                      | 10-pin screw-fastened terminal block (4 points, GND)   | –  | –  | 9-pin screw-fastened terminal block   | –  |
| <b>Physical Characteristics</b>     |  |  |  |   |  |
| Weight                              | 1 kg (2.22 lb)   | • UC-7101: 130 g (0.29 lb)<br>• UC-7110/7112: 190 g (0.42 lb)  | UC-7122: 190 g (0.42 lb)<br>UC-7124: 200 g (0.44 lb)   | 1 kg (2.22 lb)  | 430 g (0.96 lb)  |
| Dimensions                          | 200 x 57 x 120 mm (7.87 x 2.24 x 4.72 in)  | • UC-7101: 67 x 22 x 100.4 mm (2.64 x 0.87 x 3.95 in)<br>• UC-7110/7112: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)          | 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)   | 52 x 112.6 x 162 mm (2.05 x 4.43 x 6.38 in)                                       | 60 x 137 x 100 mm (2.36 x 5.39 x 3.94 in)  |
| <b>Environmental Limits</b>         |  |  |  |   |  |
| Operating Temperature               | -10 to 60°C (14 to 140°F) or -40 to 75°C (-40 to 167°F)  | -10 to 60°C (14 to 140°F) or -40 to 75°C (-40 to 167°F)  | -10 to 60°C (14 to 140°F) or -40 to 75°C (-40 to 167°F)  | -10 to 60°C (14 to 140°F) or -40 to 75°C (-40 to 167°F)                           | -10 to 60°C (14 to 140°F) or -40 to 75°C (-40 to 167°F)  |
| Storage Temperature                 | -20 to 75°C (-4 to 167°F) or -40 to 85°C (-40 to 185°F)  | -20 to 75°C (-4 to 167°F) or -40 to 85°C (-40 to 185°F)  | -20 to 75°C (-4 to 167°F) or -40 to 85°C (-40 to 185°F)  | -20 to 75°C (-4 to 167°F) or -40 to 85°C (-40 to 185°F)                           | -20 to 75°C (-4 to 167°F) or -40 to 85°C (-40 to 185°F)  |
| Ambient Relative Humidity           | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)  | 5 to 95% (non-condensing)   | 5 to 95% (non-condensing)  |
| Anti-Vibration                      | 2 g rms @ IEC-68-2-34, random wave, 5-500 Hz, 1 hr per axis  | 1 g @ IEC-68-2-6, sine wave (resonance search), 5-500 Hz, 1 Oct/min, 1 cycle, 13 min 17 sec per axis (UC-7101/7110 only)   | 1 g @ IEC-68-2-6, sine wave (resonance search), 5-500 Hz, 1 Oct/min, 1 cycle, 13 min 17 sec per axis | 2 g rms @ IEC-68-2-34, random wave, 5-500 Hz, 1 hr per axis                       | 1 g @ IEC-68-2-6, sine wave (resonance search), 5-500 Hz, 1 Oct/min, 1 cycle, 13 min 17 sec per axis |
| Anti-Shock                          | 20 g @ IEC-68-2-27, half sine wave, 11 ms  | –  | –  | 20 g @ IEC-68-2-27, half sine wave, 11 ms   | –  |
| <b>Power Requirements</b>           |  |  |  |   |  |
| Input Voltage                       | 12 to 48 VDC (3-pin terminal block)  | 12 to 48 VDC   | 12 to 48 VDC   | 12 to 48 VDC (3-pin terminal block)   | 12 to 48 VDC   |
| Input Current                       | • 310 mA @ 48 VDC<br>• 625 mA @ 24 VDC<br>• 1350 mA @ 12 VDC   | • 170 mA @ 24 VDC<br>• 340 mA @ 12 VDC   | • 170 mA @ 24 VDC<br>• 340 mA @ 12 VDC   | • 450 mA @ 24 VDC<br>• 900 mA @ 12 VDC  | • 300 mA @ 24 VDC<br>• 600 mA @ 12 VDC   |
| Power Consumption                   | 15 W   | 4.5 W  | UC-7122: 4.1 W<br>UC-7124: 4.3 W   | 5.8 W/11 W  | 7 W  |
| <b>Standards and Certifications</b> |  |  |  |   |  |
| Safety                              | UL 60950-1, EN 60950-1, CCC (GB9254, GB17625.1)  | • UC-7101: UL 60950, CSA-C22.2 No. 60950-1, EN 60950-1<br>• UC-7110/7112: UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1 | UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1   | UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1, CCC (GB4943, GB9254, GB17625.1) | UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1   |
| EMC                                 | FCC Part 15 Subpart B Class A  | FCC Part 15 Subpart B Class A  | FCC Part 15 Subpart B Class A  | FCC Part 15 Subpart B Class A   | FCC Part 15 Subpart B Class A  |
| EMI                                 | –  | –  | –  | –   | –  |
| EMS                                 | IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 |  |  |   |  |
| Green Product                       | RoHS, CrRoHS, WEEE   | RoHS, CrRoHS, WEEE   | RoHS, CrRoHS, WEEE   | RoHS, CrRoHS, WEEE  | RoHS, CrRoHS, WEEE   |
| <b>Warranty</b>                     |  |  |  |   |  |
| Warranty Period                     | 5 years  | 5 years  | 5 years  | 5 years   | 5 years  |
| Details                             | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                                     | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>   | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                                 | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>              | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>                                 |

# Wireless Embedded Computers



|                                 | MAR-2000  | W6000   | UC-8100-ME-T  | UC-8410A  |
|---------------------------------|---|---|---|---|
| <b>Computer</b>                 |   |   |   |   |
| CPU Speed                       | 533 Mhz   | 300 MHz   | 1 GHz   | 1 GHz x 2   |
| OS (pre-installed)              | Linux   | Linux   | Linux   | Linux Debian 8  |
| DRAM                            | 512 MB  | 512 MB  | 512 MB  | 512 MB  |
| Flash                           | 32 MB   | 4 GB  | 4 GB  | -   |
| USB Ports                       | 2 (USB 2.0)   | -   | 1 (USB 2.0)   | 2 (USB 2.0 Type A)  |
| Relay Outputs                   | 4 DIs, 4 DOs  | -   | -   | 4 DIs, 4 DOs  |
| <b>Storage</b>                  |   |   |   |   |
| SD Slots                        | -   | mSD Slot x 1  | SD Slot x 1   | SD Slot x 1, with 1 GB pre-installed  |
| CompactFlash                    | ✓   | -   | -   | -   |
| mSATA Slots                     | -   | -   | -   | 1   |
| <b>LAN Interface</b>            |   |   |   |   |
| 10/100 Mbps Ethernet Ports      | 2   | 1   | 2   | -   |
| 10/100/1000 Mbps Ethernet Ports | -   | -   | -   | 3   |
| Magnetic Isolation Protection   | 1.5 kV  | 1.5 kV  | 1.5 kV  | 1.5 kV  |
| <b>WLAN Interface</b>           |   |   |   |   |
| Standard Compliance             | 802.11a/b/g/n   | 802.11a/b/g/n   | -   | 802.11a/b/g/n   |
| Radio Frequency Type            | DSSS, CCK, OFDM   | DSSS, CCK, OFDM   | -   | DSSS, CCK, OFDM   |
| Transmission Rate               | 54 Mbps (max.) with auto fallback (54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps) 802.11a/g; 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b; 1, 2, 5.5, 11 Mbps   | 54 Mbps (max.) with auto fallback (54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps) 802.11a/g; 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b; 1, 2, 5.5, 11 Mbps   | -   | 802.11a: 6 to 54 Mbps<br>802.11b: 1 to 11 Mbps<br>802.11g: 6 to 54 Mbps   |
| Wireless Security               | WEP: 64/128-bit WPA, WPA2 data encryption   | WEP: 64/128-bit WPA, WPA2 data encryption   | -   | 64/128-bit WEP, WPA, WPA2, 802.1x   |
| <b>Cellular Interface</b>       |   |   |   |   |
| Cellular Modes                  | GSM/GPRS/EDGE/UMTS/HSPA+  | GSM/GPRS/EDGE/UMTS/HSPA+/LTE  | GSM/GPRS/EDGE/UMTS/HSPA+/LTE  | GSM/GPRS/EDGE/UMTS/HSPA+/LTE  |
| Radio Frequency Bands           | <ul style="list-style-type: none"> <li>Five band UMTS(WCDMA/FDD)</li> <li>800/850/1900 AWS and 2100 MHz</li> <li>Quad-band GSM: 850/900/1800/1900 MHz</li> <li>4G: LTE-FDD / HSPA+ (B1, B2, B3, B5, B7, B8, B20)</li> <li>4G: LTE-FDD, HSPA+, GSM/GPRS/EDGE, GSM/GPRS/EDGE, CDMA (B1, B2, B4, B5, B8, B13, B17, B25, BC0, BC1, BC10)</li> </ul> | <ul style="list-style-type: none"> <li>Five band UMTS(WCDMA/FDD)</li> <li>800/850/1900 AWS and 2100 MHz</li> <li>Quad-band GSM: 850/900/1800/1900 MHz</li> <li>4G: LTE-FDD / HSPA+ (B1, B2, B3, B5, B7, B8, B20)</li> <li>4G: LTE-FDD, HSPA+, GSM/GPRS/EDGE, GSM/GPRS/EDGE, CDMA (B1, B2, B4, B5, B8, B13, B17, B25, BC0, BC1, BC10)</li> </ul> | <ul style="list-style-type: none"> <li>Five band UMTS(WCDMA/FDD)</li> <li>800/850/1900 AWS and 2100 MHz</li> <li>Quad-band GSM: 850/900/1800/1900 MHz</li> <li>4G: LTE-FDD / HSPA+ (B1, B2, B3, B5, B7, B8, B20)</li> <li>4G: LTE-FDD, HSPA+, GSM/GPRS/EDGE, GSM/GPRS/EDGE, CDMA (B1, B2, B4, B5, B8, B13, B17, B25, BC0, BC1, BC10)</li> </ul> | <ul style="list-style-type: none"> <li>Five band UMTS(WCDMA/FDD)</li> <li>800/850/1900 AWS and 2100 MHz</li> <li>Quad-band GSM: 850/900/1800/1900 MHz</li> <li>4G: LTE-FDD / HSPA+ (B1, B2, B3, B5, B7, B8, B20)</li> <li>4G: LTE-FDD, HSPA+, GSM/GPRS/EDGE, GSM/GPRS/EDGE, CDMA (B1, B2, B4, B5, B8, B13, B17, B25, BC0, BC1, BC10)</li> </ul> |
| Serial Interface                |   |   |   |   |
| RS-232/422/485 Ports            | 2 (DB9 male)  | 2 (terminal block)  | 2 (terminal block)  | 8   |
| ESD Protection                  | 4 kV  | 15 kV   | 15 kV   | 15 kV   |
| Console Port                    | -   | ✓   | ✓   | ✓   |
| Serial Communication Parameters | Even, Odd, Space, Mark  | 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   | Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark   |
| Flow Control                    | Flow Control RTS/CTS, XON/XOFF  | RTS/CTS, XON/XOFF, ADDC™  | RTS/CTS, XON/XOFF, ADDC™  | RTS/CTS, XON/XOFF, ADDC™  |
| Baudrate                        | 50 bps to 115.2 kbps  | 50 bps to 921.6 kbps (nonstandard baudrates supported)  | 50 bps to 921.6 kbps (nonstandard baudrates supported)  | 50 bps to 115.2 kbps (nonstandard baudrates supported)  |
| <b>LEDs</b>                     |   |   |   |   |
| System                          | Power, Ready, Storage, Programmable   | Ready, PWR  | Ready, PWR  | Ready, PWR  |
| Diagnostics                     | -   | -   | ✓   | ✓   |
| LAN                             | 10M, 100M   | 10M, 100M   | 10M, 100M   | 10M, 100M, 1000M  |
| WAN                             | -   | -   | -   | -   |
| Cellular                        | -   | Cellular Enabled, Signal Strength   | Cellular Enabled, Signal Strength   | Signal Strength   |
| Serial                          | -   | TxD, RxD  | TxD, RxD  | TxD, RxD  |
| <b>Physical Characteristics</b> |   |   |   |   |
| Housing                         | SECC sheet metal (1 mm)   | SECC sheet metal (1 mm)   | SECC sheet metal  | SECC sheet metal (1 mm)   |
| Weight                          | 1 kg (2.22 lb)  | 875 g (1.94 lb)   | 1.02 kg (2.27 lb)   | 1 kg (2.22 lb)  |
| Dimensions                      | 200 x 57 x 120 mm   | 111 x 25 x 77 mm  | 141 x 54.8 x 125.6 mm   | 200 x 120 x 48.6 mm   |
| Mounting                        | DIN rail, wall  | DIN rail, wall  | DIN rail, wall  | DIN rail, wall  |
| <b>Environmental Limits</b>     |   |   |   |   |
| Operating Temperature           | -25 to 70°C (-13 to 158°F)  | -40 to 70°C (-40 to 158°F)  | -40 to 85°C (-40 to 185°F)  | -10 to 60°C / -40 to 75°C (-14 to 140°F / -40 to 167°F)   |
| Operating Humidity              | 5 to 95% RH   | 5 to 95% RH   | 5 to 95% RH   | 5 to 95% RH   |
| Storage Temperature             | -40 to 80°C (-40 to 176°F)  | -40 to 85°C (-40 to 185°F)  | -40 to 85°C (-40 to 185°F)  | -20 to 75°C / -40 to 85°C (-4 to 167°F / -40 to 185°F)  |
| Anti Vibration/Shock            | IEC 61373 standard  | IEC 61373 standard  | IEC 61373 standard  | IEC 61373 standard  |
| <b>Regulatory Approvals</b>     |   |   |   |   |
| Safety                          | UL 60950-1, EN 60950-1  | UL 60950-1, EN 60950-1  | UL 60950-1, EN 60950-1  | UL 60950-1, EN 60950-1  |
| EMC                             | EN 55022 Class B, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class B   | EN 55022 Class B, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class B   | EN 55022 Class B, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class B   | EN 55022 Class B, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class B   |
| Wheeled Vehicles                | EN 50155, EN 50121-2-3, EN -4, IEC 61373  | -   | -   | -   |
| Green Product                   | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE   | RoHS, CRoHS, WEEE   |
| <b>Reliability</b>              |   |   |   |   |
| Buzzer, RTC, WDT                | ✓   | ✓   | ✓   | ✓   |
| Warranty                        | 5 years (see www.moxa.com/warranty)   |   |   |   |



# Embedded CPU Modules



|                                 | EM-2260-CE  | EM-2260-LX                | EM-1220-LX   | EM-1220-T-LX               | EM-1240-LX                  | EM-1240-T-LX               |
|---------------------------------|---|---------------------------|--|----------------------------|-----------------------------|----------------------------|
| <b>Computer</b>                 |   |                           |  |                            |                             |                            |
| CPU Speed                       | 200 MHz   | 200 MHz                   | 192 MHz  | 192 MHz                    | 192 MHz                     | 192 MHz                    |
| OS (pre-installed)              | WinCE 6.0   | Linux                     | Embedded µClinux   | Embedded µClinux           | Embedded µClinux            | Embedded µClinux           |
| DRAM                            | 128 MB  | 128 MB                    | 16 MB  | 16 MB                      | 16 MB                       | 16 MB                      |
| Flash                           | 32 MB   | 32 MB                     | 8 MB   | 8 MB                       | 8 MB                        | 8 MB                       |
| Digital I/O                     | 8 DIs, 8 DOs  | 8 DIs, 8 DOs              | 10 GPIOs   | 10 GPIOs                   | 10 GPIOs                    | 10 GPIOs                   |
| <b>Storage</b>                  |   |                           |  |                            |                             |                            |
| SD Slot                         | –   | –                         | ✓  | ✓                          | ✓                           | ✓                          |
| EIDE Interface                  | ✓   | ✓                         | –  | –                          | –                           | –                          |
| <b>Display</b>                  |   |                           |  |                            |                             |                            |
| Graphics Controller             | ✓   | ✓                         | –  | –                          | –                           | –                          |
| <b>LAN Interface</b>            |   |                           |  |                            |                             |                            |
| 10/100 Mbps Ethernet Ports      | 2   | 2                         | 2  | 2                          | 2                           | 2                          |
| Magnetic Isolation Protection   | 1.5 kV  | 1.5 kV                    | 1.5 kV   | 1.5 kV                     | 1.5 kV                      | 1.5 kV                     |
| <b>Serial Interface</b>         |   |                           |  |                            |                             |                            |
| RS-232/422/485 Ports            | 4   | 4                         | 2  | 2                          | 4                           | 4                          |
| ESD Protection                  | 15 kV   | 15 kV                     | 15 kV  | 15 kV                      | 15 kV                       | 15 kV                      |
| 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, XON/XOFF, ADDC®  |                           |  |                            |                             |                            |
| Baudrate                        | 50 bps to 921.6 Kbps (nonstandard baudrates supported; see user's manual for details)         |                           |  |                            |                             |                            |
| <b>Physical Characteristics</b> |   |                           |  |                            |                             |                            |
| Weight                          | 70 g (0.16 lb)  |                           | 40 g (0.09 lb)   |                            | 50 g (0.11 lb)              |                            |
| Dimensions                      | 106 x 87 mm (4.17 x 3.43 in)  |                           | 80 x 50 mm (3.15 x 1.97 in)  |                            | 90 x 80 mm (3.54 x 3.15 in) |                            |
| Module Interface                | –   |                           | Two 2 x 28 pin-headers (1.27 x 1.27 mm pitch)  |                            |                             |                            |
| <b>Environmental Limits</b>     |   |                           |  |                            |                             |                            |
| Operating Temperature           | -10 to 60°C (14 to 140°F)   | -10 to 60°C (14 to 140°F) | -10 to 60°C (14 to 140°F)  | -40 to 75°C (-40 to 167°F) | -10 to 60°C (14 to 140°F)   | -40 to 75°C (-40 to 167°F) |
| Storage Temperature             | -20 to 80°C (-4 to 176°F)   | -20 to 80°C (-4 to 176°F) | -20 to 80°C (-4 to 176°F)  | -40 to 85°C (-40 to 185°F) | -20 to 80°C (-4 to 176°F)   | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity       | 5 to 95% RH   |                           | 5 to 95% RH  |                            | 5 to 95% RH                 |                            |
| <b>Regulatory Approvals</b>     |   |                           |  |                            |                             |                            |
| EMC                             | EN 55022 Class A, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A |                           | CE (EN55022 Class A, EN61000-3-2 Class A, EN61000-3-3, EN55024), FCC (Part 15 Subpart B, CISPR 22 Class A) |                            |                             |                            |
| Green Product                   | RoHS, CRoHS, WEEE   |                           |  |                            |                             |                            |
| <b>Reliability</b>              |   |                           |  |                            |                             |                            |
| Buzzer, RTC, WDT                | ✓   | ✓                         | ✓  | ✓                          | ✓                           | ✓                          |
| Warranty                        | 5 years (see <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> )               |                           |  |                            |                             |                            |

# 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)                                 | -             |
| Connection 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)                                     | -             |
| Connection 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    | <table border="1"> <thead> <tr> <th>PIN</th> <th>RS-232</th> </tr> </thead> <tbody> <tr><td>1</td><td>DCD</td></tr> <tr><td>2</td><td>RxD</td></tr> <tr><td>3</td><td>TxD</td></tr> <tr><td>4</td><td>DTR</td></tr> <tr><td>5</td><td>GND</td></tr> <tr><td>6</td><td>DSR</td></tr> <tr><td>7</td><td>RTS</td></tr> <tr><td>8</td><td>CTS</td></tr> </tbody> </table> | PIN | RS-232 | 1 | DCD | 2 | RxD | 3 | TxD | 4 | DTR | 5 | GND | 6 | DSR | 7 | RTS | 8 | CTS |
| PIN               | RS-232  |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 1                 | DCD   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 2                 | RxD   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 3                 | TxD   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 4                 | DTR   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 5                 | GND   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 6                 | DSR   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 7                 | RTS   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| 8                 | CTS   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| Description       | DB25 male to DB9 male x 2   |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| Cable Length      | 50 cm (19.69 in)  |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |
| Related Products  | See page A-2 for details  |     |        |   |     |   |     |   |     |   |     |   |     |   |     |   |     |   |     |

## 4-port Connection Cables

| Model Name        | CBL-M44M9x4-50  | CBL-M44M25x4-50           |           |           |           |           |   |     |         |         |   |   |     |         |         |   |   |     |         |         |          |   |     |         |         |          |   |     |     |     |     |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |        |        |           |           |   |     |         |         |          |   |     |         |         |   |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |     |     |     |     |   |     |         |         |   |    |     |         |         |          |    |   |   |   |   |
|-------------------|---|---------------------------|-----------|-----------|-----------|-----------|---|-----|---------|---------|---|---|-----|---------|---------|---|---|-----|---------|---------|----------|---|-----|---------|---------|----------|---|-----|-----|-----|-----|---|-----|---|---|---|---|-----|---|---|---|---|-----|---|---|---|---|---|---|---|---|---|-----|--------|--------|-----------|-----------|---|-----|---------|---------|----------|---|-----|---------|---------|---|---|-----|---|---|---|---|-----|---|---|---|---|-----|---|---|---|---|-----|-----|-----|-----|---|-----|---------|---------|---|----|-----|---------|---------|----------|----|---|---|---|---|
| Accessories Image |   |                           |           |           |           |           |   |     |         |         |   |   |     |         |         |   |   |     |         |         |          |   |     |         |         |          |   |     |     |     |     |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |        |        |           |           |   |     |         |         |          |   |     |         |         |   |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |     |     |     |     |   |     |         |         |   |    |     |         |         |          |    |   |   |   |   |
| Pin Assignment    | <table border="1"> <thead> <tr> <th>PIN</th> <th>RS-232</th> <th>RS-422</th> <th>RS-485-4w</th> <th>RS-485-2w</th> </tr> </thead> <tbody> <tr><td>1</td><td>DCD</td><td>TxD-(A)</td><td>TxD-(A)</td><td>-</td></tr> <tr><td>2</td><td>RxD</td><td>TxD+(B)</td><td>TxD+(B)</td><td>-</td></tr> <tr><td>3</td><td>TxD</td><td>RxD+(B)</td><td>RxD+(B)</td><td>Data+(B)</td></tr> <tr><td>4</td><td>DTR</td><td>RxD-(A)</td><td>RxD-(A)</td><td>Data-(A)</td></tr> <tr><td>5</td><td>GND</td><td>GND</td><td>GND</td><td>GND</td></tr> <tr><td>6</td><td>DSR</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7</td><td>RTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>8</td><td>CTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>9</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> | 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 | - | - | - | - | <table border="1"> <thead> <tr> <th>PIN</th> <th>RS-232</th> <th>RS-422</th> <th>RS-485-4w</th> <th>RS-485-2w</th> </tr> </thead> <tbody> <tr><td>2</td><td>TxD</td><td>RxD+(B)</td><td>RxD+(B)</td><td>Data+(B)</td></tr> <tr><td>3</td><td>RxD</td><td>TxD+(B)</td><td>TxD+(B)</td><td>-</td></tr> <tr><td>4</td><td>RTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>5</td><td>CTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>6</td><td>DSR</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7</td><td>GND</td><td>GND</td><td>GND</td><td>GND</td></tr> <tr><td>8</td><td>DCD</td><td>TxD-(A)</td><td>TxD-(A)</td><td>-</td></tr> <tr><td>20</td><td>DTR</td><td>RxD-(A)</td><td>RxD-(A)</td><td>Data-(A)</td></tr> <tr><td>22</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> | 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 | - | - | - | - |
| 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                | -   | -                         | -         | -         |           |           |   |     |         |         |   |   |     |         |         |   |   |     |         |         |          |   |     |         |         |          |   |     |     |     |     |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |        |        |           |           |   |     |         |         |          |   |     |         |         |   |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |     |     |     |     |   |     |         |         |   |    |     |         |         |          |    |   |   |   |   |
| 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  |                           |           |           |           |           |   |     |         |         |   |   |     |         |         |   |   |     |         |         |          |   |     |         |         |          |   |     |     |     |     |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |        |        |           |           |   |     |         |         |          |   |     |         |         |   |   |     |   |   |   |   |     |   |   |   |   |     |   |   |   |   |     |     |     |     |   |     |         |         |   |    |     |         |         |          |    |   |   |   |   |

## 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 mm <sup>2</sup> )  |                                     |   |                                      |
| 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        | <table border="1"> <thead> <tr> <th>DB9-F</th> <th>TB</th> </tr> </thead> <tbody> <tr><td>1</td><td>2</td></tr> <tr><td>2</td><td>1</td></tr> <tr><td>3</td><td>3</td></tr> <tr><td>4</td><td>4</td></tr> <tr><td>5</td><td>5</td></tr> </tbody> </table> | DB9-F                    | TB                         | 1                          | 2 | 2 | 1 | 3 | 3 | 4 | 4 | 5 | 5 | <table border="1"> <thead> <tr> <th>DB9-M</th> <th>RJ45</th> </tr> </thead> <tbody> <tr><td>1</td><td>6</td></tr> <tr><td>2</td><td>5</td></tr> <tr><td>3</td><td>4</td></tr> <tr><td>4</td><td>8</td></tr> <tr><td>5</td><td>3</td></tr> <tr><td>6</td><td>1</td></tr> <tr><td>7</td><td>2</td></tr> <tr><td>8</td><td>7</td></tr> </tbody> </table> | DB9-M | RJ45 | 1 | 6 | 2 | 5 | 3 | 4 | 4 | 8 | 5 | 3 | 6 | 1 | 7 | 2 | 8 | 7 | <table border="1"> <thead> <tr> <th>DB9-F</th> <th>RJ45</th> </tr> </thead> <tbody> <tr><td>1</td><td>6</td></tr> <tr><td>2</td><td>4</td></tr> <tr><td>3</td><td>5</td></tr> <tr><td>4</td><td>1</td></tr> <tr><td>5</td><td>3</td></tr> <tr><td>6</td><td>8</td></tr> <tr><td>7</td><td>7</td></tr> <tr><td>8</td><td>2</td></tr> </tbody> </table> | DB9-F | RJ45 | 1 | 6 | 2 | 4 | 3 | 5 | 4 | 1 | 5 | 3 | 6 | 8 | 7 | 7 | 8 | 2 | <table border="1"> <thead> <tr> <th>DB9</th> <th>RJ45</th> </tr> </thead> <tbody> <tr><td>1</td><td>6</td></tr> <tr><td>2</td><td>5</td></tr> <tr><td>3</td><td>4</td></tr> <tr><td>4</td><td>8</td></tr> <tr><td>5</td><td>7</td></tr> <tr><td>6</td><td>1</td></tr> <tr><td>7</td><td>2</td></tr> <tr><td>8</td><td>7</td></tr> </tbody> </table> | DB9 | RJ45 | 1 | 6 | 2 | 5 | 3 | 4 | 4 | 8 | 5 | 7 | 6 | 1 | 7 | 2 | 8 | 7 |
| 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-to-DB9 male adapter | RJ45-to-DB9 female adapter | RJ45-to-DB9 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   |
|---------------------------------|--|---|---|---|---|
|                                 |   |  |  |  |  |
| <b>Input Rating</b>             | 100 to 240 VAC<br>50 to 60 Hz  |   |   |   |   |
| <b>Input Plug</b>               | US/JP  | EU  | UK  | AU  | CN  |
| <b>Output Rating</b>            | 0.5 A @ 12 VDC   |   |   |   |   |
| <b>Output Plug</b>              | S-Type 5.5/2.1/7.5   |   |   |   |   |
| Outer Diameter                  | 5.5±0.1 mm (0.22±0.004 in)   |   |   |   |   |
| Inner Diameter                  | 2.1±0.1 mm (0.08±0.004 in)   |   |   |   |   |
| <b>Physical Characteristics</b> | 64 x 40.5 x 47.5 mm (2.52 x 1.59 x 1.87 in)  |   |   |   |   |
| Dimensions (L x W x H)          | 64 x 40.5 x 68.7 mm (2.52 x 1.59 x 2.71 in)  |   |   |   |   |
| Packaged Dimensions (L x W x H) | 83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)  |   |   |   |   |
| Weight                          | 70 g (0.15 lb)   |   |   |   |   |
| Cord Length                     | 1530±100 mm (60.24±3.94 in)  |   |   |   |   |
| <b>Environmental Limits</b>     | 0 to 40°C (32 to 104°F)  |   |   |   |   |
| Operating Temperature           | -10 to 70°C (14 to 158°F)  |   |   |   |   |
| Storage Temperature             | CE/FCC/UL/GS/PSE/RCM/CCC   |   |   |   |   |
| Safety                          | CE/FCC/UL/GS/PSE/RCM/CCC   |   |   |   |   |
| Regulatory Approvals            | NPort 5110A, NPort 5130A, NPort 5150A, NPort 5210A, NPort 5230A, NPort 5250A, NPort Z2150/Z3150, NPort W2150A/W2250A, NPort P5110A |   |   |   |   |
| Related Products                |  |   |   |   |   |

Accessories > Power Accessories

## 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   |
|---------------------------------|---|---|---|---|---|
|                                 |  |  |  |  |  |
| <b>Input Rating</b>             |   |   |   |   |   |
| I/P                             | 100-240 VAC<br>50-60 Hz   | 100-240 VAC<br>50-60 Hz   | 100-240 VAC<br>50-60 Hz   | 100-240 VAC<br>50-60 Hz   | 100-240 VAC<br>50-60 Hz   |
| <b>Input Plug</b>               |   |   |   |   |   |
| Plug Type                       | US/JP   | EU  | UK  | AU  | CN  |
| <b>Output Rating</b>            |   |   |   |   |   |
| O/P                             | 3 A @ 12 VDC  | 3 A @ 12 VDC  | 3 A @ 12 VDC  | 3 A @ 12 VDC  | 3 A @ 12 VDC  |
| <b>Output Plug</b>              |   |   |   |   |   |
| 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)  |
| <b>Physical Characteristics</b> |   |   |   |   |   |
| Dimensions (L x W x H)          | 74 x 43.5 x 52.3 mm<br>(2.91 x 1.71 x 2.06 in)                                    | 74 x 43.5 x 73.5 mm<br>(2.91 x 1.71 x 2.89 in)                                    | 74 x 43.5 x 61 mm<br>(2.91 x 1.71 x 2.40 in)                                      | 74 x 43.5 x 63.3 mm<br>(2.91 x 1.71 x 2.49 in)                                      | 74 x 43.5 x 51.3 mm<br>(2.91 x 1.71 x 2.02 in)                                      |
| Packaged Dimensions (L x W x H) | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)                                       | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)                                       | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)                                       | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)   | 100 x 60 x 90 mm<br>(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)   |
| <b>Environmental Limits</b>     |   |   |   |   |   |
| 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)   |
| <b>Regulatory Approvals</b>     |   |   |   |   |   |
| 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  |
| <b>Related Products</b>         |   |   |   |   |   |
| Related Products                | UPort 204, UPort 207, UPort 404, UPort 407  |   |   |   |   |

Accessories > Power Accessories

**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   |
|---------------------------------|--|---|---|---|---|
|                                 |   |  |  |  |  |
| <b>Input Rating</b>             |  |   |   |   |   |
| I/P                             | 100 to 240 VAC<br>50 to 60 Hz  | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz   |
| <b>Input Plug</b>               |  |   |   |   |   |
| Plug Type                       | US/JP  | EU  | UK  | AU  | CN  |
| <b>Output Rating</b>            |  |   |   |   |   |
| 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  |
| <b>Output Plug</b>              |  |   |   |   |   |
| 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)  |
| <b>Physical Characteristics</b> |  |   |   |   |   |
| Dimensions (L x W x H)          | 64 x 40.5 x 30 mm<br>(2.52 x 1.59 x 1.18 in)   | 64 x 40.5 x 68.7 mm<br>(2.52 x 1.59 x 2.71 in)                                    | 64 x 40.5 x 56.2 mm<br>(2.52 x 1.59 x 2.21 in)                                    | 64 x 40.5 x 58.5 mm<br>(2.52 x 1.59 x 2.30 in)                                      | 64 x 40.5 x 46.5 mm<br>(2.52 x 1.59 x 1.83 in)                                      |
| Packaged Dimensions (L x W x H) | 83 x 50 x 70 mm<br>(3.27 x 1.97 x 2.76 in)   | 83 x 50 x 70 mm<br>(3.27 x 1.97 x 2.76 in)  | 83 x 50 x 70 mm<br>(3.27 x 1.97 x 2.76 in)  | 83 x 50 x 70 mm<br>(3.27 x 1.97 x 2.76 in)  | 83 x 50 x 70 mm<br>(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)   |
| <b>Environmental Limits</b>     |  |   |   |   |   |
| 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)   |
| <b>Regulatory Approvals</b>     |  |   |   |   |   |
| 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   |
| <b>Regulatory Products</b>      |  |   |   |   |   |
| 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   |
|---------------------------------|---|---|---|---|---|
|                                 |  |  |  |  |  |
| <b>Input Rating</b>             |   |   |   |   |   |
| I/P                             | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz   |
| <b>Input Plug</b>               |   |   |   |   |   |
| Plug Type                       | US/JP   | EU  | UK  | AU  | CN  |
| <b>Output Rating</b>            |   |   |   |   |   |
| 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  |
| <b>Output Plug</b>              |   |   |   |   |   |
| 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)  |
| <b>Physical Characteristics</b> |   |   |   |   |   |
| Dimensions (L x W x H)          | 74 x 43.5 x 52.5 mm<br>(2.91 x 1.71 x 2.07 in)                                    | 70 x 45 x 66.5 mm<br>(2.76 x 1.77 x 2.62 in)                                      | 70 x 48 x 60 mm<br>(2.76 x 1.89 x 2.36 in)  | 70 x 55 x 56 mm<br>(2.76 x 2.17 x 2.21 in)  | 70 x 45 x 54 mm<br>(2.76 x 1.77 x 2.13 in)  |
| Packaged Dimensions (L x W x H) | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)                                       | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)                                       | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)                                       | 100 x 60 x 90 mm<br>(3.94 x 2.36 x 3.54 in)   | 100 x 60 x 90 mm<br>(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)   |
| <b>Environmental Limits</b>     |   |   |   |   |   |
| 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)   |
| <b>Regulatory Approvals</b>     |   |   |   |   |   |
| Safety                          | CE/FCC/UL/RMC/PSE/GS  | CE/GS   | CE  | RMC   | CCC   |
| <b>Related Products</b>         |   |   |   |   |   |
| 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  |
|---------------------------------|---|--|
|                                 |    |   |
| <b>Input Rating</b>             |   |  |
| I/P                             | 100 to 240 VAC<br>50 to 60 Hz   | 100 to 240 VAC<br>50 to 60 Hz  |
| <b>Input Plug</b>               |   |  |
| Plug Type                       | Desktop   | Desktop  |
| <b>Output Rating</b>            |   |  |
| O/P                             | 2 A @ 12 VDC  | 1.25 A @ 12 VDC  |
| <b>Output Plug</b>              |   |  |
| 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)   |
| <b>Physical Characteristics</b> |   |  |
| 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)  |
| <b>Environmental Limits</b>     |   |  |
| 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)  |
| <b>Regulatory Approvals</b>     |   |  |
| Safety                          | Efficiency Level 5: CE/FCC/UL/PSE/RCM/CCC<br>Efficiency Level 6: CE/FCC/UL/PSE  | CE/FCC/UL/PSE/GS   |
| <b>Related Products</b>         |   |  |
| 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-S1 and PWR-12125-DT-S2 not included with power cord

| Model Name       | PWC-C13US-3B-183  | PWC-C-13EU-3B-183<br>(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<br>(0.25±0.01 in)  | 6.7±0.2 mm<br>(0.26±0.01 in)  | 6.7±0.2 mm<br>(0.26±0.01 in)  | 7.0±0.2 mm<br>(0.28±0.01 in)  | 6.7±0.2 mm<br>(0.26±0.01 in)  | 6.7±0.2 mm<br>(0.26±0.01 in)  |
| Max. Current     | 10 A  | 10 A  | 10 A  | 7 A   | 10 A  | 10 A  |
| Length           | 1830±30 mm<br>(72.05±1.18 in)   | 1830±30 mm<br>(72.05±1.18 in)   | 1830±30 mm<br>(72.05±1.18 in)   | 1830±30 mm<br>(72.05±1.18 in)   | 1830±30 mm<br>(72.05±1.18 in)   | 1830±30 mm<br>(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<br>(72.05±7.87 in)  | 1830±200 mm<br>(72.05±7.87 in)  | 1830±200 mm<br>(72.05±7.87 in)  | 1830±200 mm<br>(72.05±7.87 in)   | 1830±200 mm<br>(72.05±7.87 in)  | 1830±200 mm<br>(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               |   |   |   |   |   |
| <b>Input Rating</b>             |   |   |   |   |   |
| 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             |
| <b>Input Plug</b>               |   |   |   |   |   |
| Plug Type                       | US/JP   | EU  | UK  | AU  | CN                                      |
| <b>Output Rating</b>            |   |   |   |   |   |
| O/P                             | 1.5A @ 12VDC  | 1.5A @ 12VDC                              | 1.5A @ 12VDC                              | 1.5A @ 12VDC                                | 1.5A @ 12VDC                            |
| <b>Protection Requirements</b>  |   |   |   |   |   |
| Protection                      | Over current protection/ Over voltage protection  |   |   |   |   |
| <b>Output Plug</b>              |   |   |   |   |   |
| 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)              |
| <b>Physical Characteristics</b> |   |   |   |   |   |
| 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)             |
| <b>Environmental Limits</b>     |   |   |   |   |   |
| 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)              |
| <b>Regulatory Approvals</b>     |   |   |   |   |   |
| Safety                          | FCC/UL/PSE  | TUV/CE/GS                                 | CE  | RCM   | CCC                                     |
| <b>Related Products</b>         |   |   |   |   |   |
| Related Products                | NPort 5110-T, NPort 5450-T, NPort 5450-I, 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**

| Model Name   | 24 VDC DIN-Rail Power Supplies   |   |   |  |  | 48 VDC DIN-Rail Power Supplies                |   |  |   |
|--|--|---|---|--|--|---|---|--|---|
|  | 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                                      |  |   |   |  |  |   |   |  |   |
| <b>Physical Characteristics and Temperature Limits</b> |  |   |   |  |  |   |   |  |   |
| 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                                   | 10 to 95% RH                                    |
| <b>Power Requirements</b>                              |  |   |   |  |  |   |   |  |   |
| 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 Type                               | 105-150% 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                    |
| <b>Reliability</b>                                     |  |   |   |  |  |   |   |  |   |
| 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<br>AWK-4131-M12<br>AWK-6222<br>AWK-6232-M12<br><br>DI/O cap for the AWK-4131-M12<br>AWK-6232-M12<br>PM-7200-4M12<br>TN Series | DI/O cap for the AWK-4121<br>AWK-6222<br><br>LAN cap for the AWK-3121-M12-RTG<br>AWK-3131-M12-RCC<br>AWK-5232-M12-RCC<br>AWK-4131-M12<br>AWK-6232-M12<br>TN Series | Antenna cap for the AWK-4121<br>AWK-4131-M12<br>AWK-6222<br>AWK-6232-M12          | SFP cap for the AWK-4131-M12  | Console & LAN caps for the AWK-4121<br>AWK-6222<br><br>Console cap for the AWK-4131-M12<br>AWK-6232-M12 |

# Connectors

| Model Name        | CBL-M12(FF5P)/<br>OPEN-100 IP67   | CBL-M12D(MM4P)/<br>RJ45-100 IP67   | CBL-M23(FF6P)/<br>OPEN-BK-100<br>IP67  | M12A-5P-IP68  | M12A-8PMM-IP68  | CBL-<br>M12DFF4PRJ45-<br>BK-10-IP67  | CBL-<br>M12MM8PRJ45-<br>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<br>AWK-4131-M12<br>AWK-6222<br>AWK-6232-M12                                | TN Series<br>ioPAC 8000 Series   | TN Series<br>TAP-6226-TC   | Power connector for the AWK-4121<br>AWK-4131-M12<br>AWK-6222<br>AWK-6232-M12          | DI/O connector for the AWK-4121<br>AWK-6222<br><br>LAN connector for the AWK-4131-M12<br>AWK-6232-M12 | AWK-4121<br>AWK-6222   | AWK-4131-M12<br>AWK-6232-M12   | DI/DO connector for the AWK-4131-M12<br>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<br>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<br>(1.57 x 1.18 x 0.04 in)                                       | 30.3 x 140 x 12.3 mm<br>(1.19 x 5.51 x 0.48 in) | 35 x 44 x 2.5 mm<br>(1.38 x 1.73 x 0.10 in)     | 35 x 24 x 1.2 mm<br>(1.38 x 0.94 x 0.05 in)      | 36 x 67 x 2 mm<br>(1.42 x 2.64 x 0.08 in)   | 44 x 57.5 x 1.6 mm<br>(1.73 x 2.26 x 0.06 in)   | 45 x 57 x 2.5 mm<br>(1.77 x 2.24 x 0.10 in)  | 51.6 x 66.8 x 1 mm<br>(2.03 x 2.63 x 0.04 in)   |
| Related Products   | EDS-205A Series<br>EDS-G205 Series<br>EDS-G205A-4PoE Series<br>ICF-1170I Series | EDS-828 Series<br>EDS-728 Series                | NPort 6450, UPort 1410, UPort 1450, UPort 1450I | NPort 6150/6250 Series<br>UPort 404<br>UPort 407 | NPort IA5150A Series<br>NPort IA5250A Series<br>MGate<br>4101-MB-PBS<br>MGate<br>4101I-MB-PBS | NPort 6600-8 Series<br>NPort 6600-16 Series<br>NPort 6600-32 Series<br>UPort 1600-16 Series | NPort 5600-8 Series<br>NPort 5600-16 Series<br>NPort 5650-8-HV-T<br>NPort 5650-16-HV-T<br>CN2600-8 Series<br>CN2600-16 Series<br>CN2600-8-2AC Series<br>CN2600-16-2AC Series | EDS-208A Series<br>EDS-300 Series<br>EDS-400A Series<br>EDS-500A Series<br>EDS-G308 Series<br>EDS-G509 Series<br>EDS-P206A-4PoE Series<br>EDS-P308 Series<br>EDS-P510 Series<br>OBU-102 Series<br>IMC-101G/101 Series<br>PT-500 Series<br>VPort 354 Series<br>VPort 364A Series<br>VPort 461A Series<br>NPort S8455I-MM-SC<br>NPort S8455I-MM-SC-T<br>NPort S8455I-SS-SC<br>NPort S8455I-SS-SC-T<br>NPort S8458-4S-SC-T |

Accessories > Mounting Kits

| 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<br>(2.17 x 2.64 x 0.04 in)  | 55 x 34.5 x 2.5 mm<br>(2.17 x 1.36 x 0.10 in)        | 75 x 90 x 2.5 mm<br>(2.95 x 3.54 x 0.10 in) | 99 x 62 x 2.5 mm<br>(3.90 x 2.44 x 0.10 in) | 195 x 17.5 x 52.5 mm<br>(7.68 x 0.69 x 2.07 in) |
| Related Products   | AWK-1000 Series<br>AWK-3000 Series<br>AWK-5222 Series<br>AWK-1000A Series<br>AWK-3000A Series<br>OnCell 5104-HSPA<br>OnCell G3470A-LTE<br>WDR-3124A<br>WAC-1001<br>EDR-G902 Series<br>EDR-G903 Series<br>EDS-P506A-4PoE Series<br>EDS-316 Series<br>IMC-101/IMC-P101 Series<br>PTC-101 Series<br>NPort IA5450A Series<br>ioPAC 5500 Series | AWK-4121<br>AWK-4131-M12<br>AWK-6222<br>AWK-6232-M12 | EDS-600 Series<br>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-DC2D0F   |
| Accessories Image |   |  |  |  |    |  |
| Dimensions        | 50 x 131 x 1 mm<br>(1.97 x 5.16 x 0.05 in)   | 66 x 174 x 12.8 mm<br>(2.60 x 6.85 x 0.50 in)                                     | 60 x 125 x 12.8 mm<br>(2.36 x 4.92 x 0.50 in)                                     | 25 x 48.3 mm<br>(0.98 x 1.90 in)   | 42.5 x 10 x 19.34 mm<br>(1.67 x 0.39 x 0.76 in)   | -   |
| Related Products  | TN-5500 Series<br>AWK-4121<br>AWK-4131-M12<br>AWK-6222<br>AWK-6232-M12<br>ioPAC 5500 Series<br>ioPAC 8000 Series<br>ioLogik E1500 Series<br>MxNVR-MO4 Series | TN-5308 Series  | TN-5305 Series  | UPort 404<br>UPort 407   | MGate™ 3x80 Series<br>NPort Express DE-211<br>NPort Express DE-311<br>NPort 5100 Series<br>NPort 5100A Series<br>NPort 5200 Series<br>NPort 5200A Series<br>NPort 5400 Series<br>NPort 6150/6250/6450<br>NPort W2x50A<br>UPort 1150I<br>UPort 404/407<br>UPort 1250/1250I<br>TCF-142 Series<br>TCC-100/100I<br>TCC-120/120I | AWK-4121<br>AWK-4131-M12<br>AWK-6222<br>AWK-6232-M12                                |



Simplicity



Robustness



User-Centric Experience

# Moxa Green Core

## Delivering a Unified Brand Presence

Moxa's brand new "Green Core" product identity incorporates a special shade of green to deliver a unified brand presence. The Green Core product identity emphasizes the three design concepts of simplicity, robustness, and user-centric experience, and was carefully planned to complement our brand promise of "Reliable Networks, Sincere Service."

New Moxa products already adhere to the Green Core product identity, and existing products will be converted to the Green Core design starting in May 2014. All Moxa products will be Green Core by the end of 2016. For more information about Moxa Green Core, please visit [www.moxa.com/greencore](http://www.moxa.com/greencore) to understand our brand promise, essence, and story.