



Enabling Connectivity for Industrial Transformation

• Network Infrastructure • Edge Connectivity • Industrial Computing

Your Trusted Partner in Automation

Transforming your ideas into tomorrow's innovations with robust connectivity technologies

Moxa is a leader in industrial networking and communications, enabling connectivity for the automated world of today and tomorrow and enhancing cybersecurity for industrial automation systems. We achieve this by collaborating with customers and partners to transform their unique ideas into feasible network solutions for mission-critical applications.

Enabling Connectivity for **Automation Networks**

Communications and networking within the industrial automation world have become increasingly sophisticated and complex. This is because greater cross-system collaboration and integration can be achieved when networks are converged into a single-system architecture that is based on open standards and technologies. With distinctive technical capabilities and values that stand out from the competition, Moxa is uniquely positioned to deliver on this transformation towards converged automation networks.

The value we bring with our connectivity solutions is building reliable and secure networks that connect all the requirements for automation and improving productivity and efficiency in many industrial applications, such as smart rail, smart grid, intelligent transportation, smart manufacturing, oil and gas, and maritime.



Enabling Connectivity in **Critical Environments**


Moxa develops reliable connectivity solutions that enable devices to connect, communicate, and collaborate with systems, processes, and people, realizing critical connectivity for automation harsh environments and uninhabitable terrains — establishing connectivity from the ocean floor to the highest peak, as well as from earth to outer space. It helps make people's lives better and properties more secure by addressing the challenges of withstanding extreme temperatures, hazardous gases, and intense radiation.

With over 30 years of experience in connectivity for industrial automation, Moxa has connected more than 65 million devices worldwide and delivered lasting business value by empowering industry with leading-edge connectivity, industrial computing, and communication networks that provide maximum reliability and security.




Enabling IIoT Connectivity From Edge to Cloud

With rapid globalization and information digitalization, industrial operators have begun to adopt Industrial Internet of Things (IIoT) applications to enhance operational efficiency. Moxa is here to provide you with practical technologies to optimize network infrastructure and simplify industrial edge-to-cloud connectivity for accelerating OT/IT convergence. You also have our strong commitment to protecting connectivity from edge to cloud.




We take care of interoperability




So you can keep your legacy machines



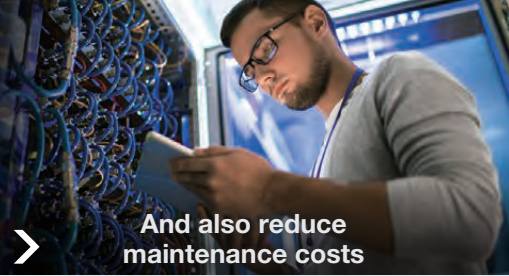
And also interconnect with various platforms




We take care to keep it simple




So you can set up devices easily




And also reduce maintenance costs




We take care of device security



So you can operate with confidence




And also identify threats to your assets



We take care of reliability



So you can operate at -40°C



Or even at 75°C

Cloud Infrastructure and Analytics

Connectivity

Optimizing network infrastructure



Industrial Network Infrastructure

Unifying connectivity of diverse OT and IT interfaces



Industrial Edge Connectivity

Integrating OT data to IT platforms with ease



Industrial Computing

Devices

CANopen

OPC UA

dnp

PROFIBUS

PROFINET

DeviceNet

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Industrial Edge Connectivity

- 45** Serial Device Servers
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Unmanaged Switches

Moxa has a large portfolio of industrial unmanaged switches that have been specifically designed for industrial Ethernet infrastructure. Our unmanaged Ethernet switches uphold the stringent standards that are required for operational reliability in harsh environments.



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DIN-rail Managed Switches

Our DIN-rail managed switches feature industrial-grade reliability, network redundancy, and security features based on the IEC 62443 standard. The compact DIN-rail managed switches have a variety of copper and fiber port combinations that provide customers with greater flexibility when deploying networks.



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Rackmount Managed Switches

The industrial rackmount switches provide modular flexibility with 24 to 52-port routing and switching capabilities, security features based on the IEC 62443 standard, and millisecond-level, fast multicast traffic redundancy to strengthen IIoT infrastructures as in city, transportation, manufacturing, and surveillance applications.

Ethernet Switches

Moxa provides a wide range of industrial Ethernet switches that feature industrial-grade reliability, network redundancy, strengthened security, easy management, and competitive price-to-performance ratios. Our comprehensive portfolio includes unmanaged switches, managed switches, PoE switches, rackmount switches, and switches designed for use in the rail industry that meet parts of the EN 50155 standard.



Ethernet Switches
Product Pages



PoE Switches

We provide a wide range of PoE/PoE+ switches with up to 48-port fiber optic Gigabit PoE+ ports and up to 60 W output per port to deliver high-speed data transmission while powering high-power devices over long distances. With an industrial-grade design, our PoE switches provide surge protection of 3 kV per LAN port, and Smart PoE management features to simplify PoE network deployment and maintenance.



EN 50155 Ethernet Switches

Moxa is an IRIS-certified company that offers a large portfolio of rugged Ethernet switches that comply with the mandatory sections of the EN 50155 standard. These products have been deployed in many rail and metro systems around the world. With our innovative solutions and technologies, we help train builders achieve overall transport safety, efficiency, and significant cost and time savings on railway operation and maintenance.



Ethernet Extenders

Our Ethernet extenders simplify long-distance network deployment and reduce construction costs with existing twisted-pair copper wires. Our Ethernet extenders can achieve transmission speeds up to 100 Mbps and feature plug-and-play deployment, DSL bypass, millisecond-level redundancy, and multiple industry certifications, making them suitable for a variety of industrial applications.

Unmanaged Switches



Product Series	EDS-G308	EDS-G205	EDS-316	EDS-309	EDS-308	EDS-305	EDS-208A	EDS-205A	EDS-208	EDS-205	
Ethernet Interface											
Max. Number of Ports	8	5	16	9	8	5	8	5	8	5	
10/100/1000BaseT(X) Ports (RJ45 connector)	Up to 8	4	–	–	–	–	–	–	–	–	
10/100BaseT(X) Ports (RJ45 connector)	–	–	Up to 16	6	Up to 8	Up to 5	Up to 8	Up to 5	Up to 8	5	
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	Up to 2	1	–	–	–	–	–	–	–	–	
100BaseFX Ports (multi-mode SC connector)	–	–	Up to 2	Up to 3	Up to 2	Up to 1	Up to 2	Up to 1	Up to 1	–	
100BaseFX Ports (multi-mode ST connector)	–	–	Up to 2	Up to 3	Up to 2	Up to 1	Up to 2	Up to 1	Up to 1	–	
100BaseFX Ports (single-mode SC connector)	–	–	Up to 2	–	Up to 2	Up to 1	Up to 2	Up to 1	–	–	
100BaseFX Ports (single-mode SC connector, 80 km)	–	–	Up to 2	–	Up to 2	Up to 1	–	–	–	–	
Input Voltage											
24 VDC	–	–	–	–	–	✓	–	–	✓	✓	
12/24/48 VDC	✓	✓	✓	✓	✓	–	✓	✓	–	–	
Alarm Contact Channels											
1 Relay Output With Current Carrying Capacity of 1 A @ 24 VDC	✓	✓	✓	✓	✓	✓	–	–	–	–	
Installation Options											
DIN-rail Mounting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Wall Mounting (with optional kit)	✓	✓	✓	✓	✓	✓	✓	✓	–	–	
Operating Temperature											
0 to 60°C (32 to 140°F)	–	–	–	–	–	✓	–	–	–	–	
-10 to 60°C (14 to 140°F)	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	
-40 to 75°C (-40 to 167°F)	✓	✓	✓	✓	✓	✓	✓	✓	–	–	
Standards and Certifications											
EMI	CISPR 32, FCC Part 15B Class A										
Safety	UL 508, UL 60950-1		UL 508, UL 60950-1				UL 508			UL 508, EN 60950-1	
Hazardous Locations	ATEX, Class I Division 2						ATEX, Class I Division 2, IECEx		–		
Railway	EN 50121-4		–				EN 50121-4			–	
Traffic Control	–						NEMA TS2			–	
Power Substation	–										
Maritime	ABS, DNV GL, LR, NK		DNV GL		–		DNV GL		ABS, DNV GL, LR, NK		–

Unmanaged Switches



	EDS-2018-ML	EDS-2016-ML	EDS-2010-ML	EDS-2008-EL	EDS-2008-ELP	EDS-2005-EL	EDS-2005-ELP
Ethernet Interface							
Max. Number of Ports	18	16	10	8	8	5	5
10/100/1000BaseT(X) Ports (RJ45 connector)	–	–	–	–	–	–	–
10/100BaseT(X) Ports (RJ45 connector)	16	Up to 16	8	Up to 8	8	5	5
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	2	–	2	–	–	–	–
100BaseFX Ports (multi-mode SC connector)	–	Up to 2 ¹	–	Up to 1	–	–	–
100BaseFX Ports (multi-mode ST connector)	–	Up to 2 ¹	–	Up to 1	–	–	–
100BaseFX Ports (single-mode SC connector)	–	Up to 2 ¹	–	–	–	–	–
Input Voltage							
12/24/48 VDC	✓	✓	✓	✓	✓	✓	✓
DIP Switch Configuration							
Quality of Service (QoS)	✓	✓	✓	✓	✓	✓	✓
Broadcast Storm Protection (BSP)	✓	✓	✓	✓	✓	✓	✓
Port Break Alarm	✓	✓	✓	–	–	–	–
Alarm Contact Channels							
1 Relay Output with Current Carrying Capacity of 1 A @ 24 VDC	✓	✓	✓	–	–	–	–
Installation Options							
DIN-rail Mounting	✓	✓	✓	✓	✓	✓	✓
Wall Mounting (with optional kit)	✓	✓	✓	✓	✓	✓	✓
Operating Temperature							
-10 to 60°C (14 to 140°F)	✓	✓	✓	✓	✓	✓	✓
-40 to 75°C (-40 to 167°F)	✓	✓	✓	✓	–	✓	–
Standards and Certifications							
EMI	CISPR 32, FCC Part 15B Class A			CISPR 22, 32, FCC Part 15B Class A			
Safety	UL 61010-2-201, EN 62368-1 (LVD)						
Hazardous Locations	–						
Railway	EN 50121-4			–			
Traffic Control	NEMA TS2	–	NEMA TS2	–			
Power Substation	–						
Marine	–						

1. EDS-2016-ML fiber models will be available in the second half of 2020.

DIN-rail Managed Switches



	MDS-G4028	MDS-G4020	MDS-G4012
Ethernet Interface			
Max. Number of Ports	28	20	12
Modular 10/100/1000BaseT(X) or 1000BaseSFP Ports	Up to 28 (up to 24 for SFP ports)	Up to 20 (up to 16 for SFP ports)	Up to 12 (up to 8 for SFP ports)
Modular 10/100BaseT(X) or 100BaseSFP Ports	Up to 24	Up to 16	Up to 8
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	-	-	-
Optical Fiber			
100Base Fiber	Up to 24	Up to 16	Up to 8
1000Base Fiber	Up to 24	Up to 16	Up to 8
Filter			
802.1p Class of Service	✓	✓	✓
802.1Q VLAN	✓	✓	✓
IGMP v1/v2/v3 Snooping	✓	✓	✓
Industrial Protocols			
EtherNet/IP	-	-	-
Modbus TCP	-	-	-
PROFINET	-	-	-
Management			
DHCP Option 82	-	-	-
Port Mirror	✓	✓	✓
RMON	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓
Syslog	✓	✓	✓
Console Port	✓	✓	✓
Telnet/SSH	✓	✓	✓
TFTP	✓	✓	✓
Redundancy Protocols			
STP/RSTP/MSTP	no MSTP	no MSTP	no MSTP
Turbo Ring/Turbo Chain	✓	✓	✓
Security			
HTTPS/SSL	✓	✓	✓
TACACS+	✓	✓	✓
MAC Sticky	✓	✓	✓
MAB Authentication	-	-	-
RADIUS	✓	✓	✓
SSH	✓	✓	✓
Access Control List	-	-	-
Layer 3 Switching	-	-	-
Input Voltage			
12 VDC	-	-	-
24 VDC	✓	✓	✓
48 VDC	✓	✓	✓
110 VAC/VDC	✓	✓	✓
220 VAC/VDC	✓	✓	✓
Installation			
DIN-rail Mounting	✓	✓	✓
Wall Mounting (with optional kit)	✓	✓	✓
Rack Mounting (with optional kit)	✓	-	-
Operating Temperature			
0 to 60°C (32 to 140°F)	-	-	-
-10 to 60°C (14 to 140°F)	✓	✓	✓
-40 to 75°C (-40 to 167°F)	✓	✓	✓
Standards and Certifications			
EMI	CISPR 32, FCC Part 15B Class A		
Safety	UL 62368-1, IEC/EN 62368-1, IEC/EN 60950-1		
Hazardous Locations	ATEX, Class I Division 2		
Railway	EN 50121-4		
Traffic Control	NEMA TS2		
Power Substation	IEC 61850 Edition 2 Class 1, IEEE 1613 Class 1		
Marine	-		

DIN-rail Managed Switches



Product Series	EDS-828	EDS-728	EDS-619	EDS-616	EDS-611	EDS-608
Ethernet Interface						
Max. Number of Ports	28	28	19	16	11	8
Modular 10/100/1000BaseT(X) or 1000BaseSFP Ports	Up to 4	Up to 4	–	–	–	–
Modular 10/100BaseT(X) or 100BaseSFP Ports	Up to 24	Up to 24	Up to 16	Up to 16	Up to 8	Up to 8
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	–	–	3	–	3	–
Optical Fiber						
100Base Fiber	Up to 24	Up to 24	Up to 16	Up to 16	Up to 8	Up to 8
1000Base Fiber	Up to 4	Up to 4	Up to 3	–	Up to 3	–
Filter						
802.1p Class of Service	✓	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3 Snooping	✓	✓	✓	✓	✓	✓
Industrial Protocols						
EtherNet/IP	✓	✓	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓	✓	✓
PROFINET	–	–	–	–	–	–
Management						
DHCP Option 82	✓	✓	✓	✓	✓	✓
Port Mirror	✓	✓	✓	✓	✓	✓
RMON	✓	✓	✓	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓
Console Port	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓
Redundancy Protocols						
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓
Security						
HTTPS/SSL	✓	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓	✓
MAC Sticky	–	–	–	–	–	–
MAB Authentication	–	–	–	–	–	–
RADIUS	✓	✓	✓	✓	✓	✓
SSH	✓	✓	✓	✓	✓	✓
Access Control List	✓	–	–	–	–	–
Layer 3 Switching	✓	–	–	–	–	–
Input Voltage						
12 VDC	–	–	✓	✓	✓	✓
24 VDC	✓	✓	✓	✓	✓	✓
48 VDC	–	–	✓	✓	✓	✓
Installation						
DIN-rail Mounting	✓	✓	✓	✓	✓	✓
Wall Mounting (with optional kit)	✓	✓	✓	✓	✓	✓
Operating Temperature						
0 to 60°C (32 to 140°F)	✓	✓	✓	✓	✓	✓
-10 to 60°C (14 to 140°F)	–	–	–	–	–	–
-40 to 75°C (-40 to 167°F)	–	–	✓	✓	✓	✓
Standards and Certifications						
EMI	CISPR 32, FCC Part 15B Class A					
Safety	EN 60950-1, UL 508, UL 60950-1		EN 60950-1, UL 508, UL 60950-1			
Hazardous Locations	–		ATEX, Class I Division 2			
Railway	–		EN 50121-4			
Traffic Control	–		NEMA TS2			
Power Substation	–					
Maritime	ABS, DNV GL, LR, NK					

DIN-rail Managed Switches



Product Series	EDS-G516E	EDS-G512E	EDS-G509	EDS-G508E	EDS-528E	EDS-518E	EDS-510E
Ethernet Interface							
Max. Number of Ports	16	12	9	8	28	18	10
10/100/1000BaseT(X) Ports (RJ45 connector)	12	8	4	8	–	–	–
10/100BaseT(X) Ports (RJ45 connector)	–	–	–	–	24	Up to 14	7
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	–	–	5	–	4	4	3
100/1000Base SFP Slots	4	4	–	–	–	–	–
100BaseFX Ports (ST or SC connector)	–	–	–	–	–	Up to 2	–
Filter							
802.1p Class of Service	✓	✓	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3 Snooping	✓	✓	✓	✓	✓	✓	✓
Industrial Protocols							
EtherNet/IP	✓	✓	✓	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓	✓	✓	✓
PROFINET	✓	✓	–	✓	✓	✓	✓
Management							
DHCP Option 82	✓	✓	✓	✓	✓	✓	✓
Port Mirror	✓	✓	✓	✓	✓	✓	✓
RMON	✓	✓	✓	✓	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓	✓
Console Port	✓	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓	✓
Redundancy Protocols							
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓	✓
Security							
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓	✓	✓
MAC Sticky	✓	✓	–	✓	✓	✓	✓
MAB Authentication	✓	✓	–	✓	✓	✓	–
RADIUS	✓	✓	✓	✓	✓	✓	✓
Access Control List	✓	✓	–	✓	✓	✓	–
Layer 3 Switching	–	–	–	–	–	–	–
Input Voltage							
12 VDC	✓	✓	✓	✓	✓	✓	✓
24 VDC	✓	✓	✓	✓	✓	✓	✓
48 VDC	✓	✓	✓	✓	✓	✓	✓
-48 VDC	✓	✓	–	✓	✓	✓	✓
110/220 VDC/VAC	–	–	–	–	✓	–	–
Installation							
DIN-rail Mounting	✓	✓	✓	✓	✓	✓	✓
Wall Mounting (with optional kit)	✓	✓	✓	✓	✓	✓	✓
Operating Temperature							
0 to 60°C (32 to 140°F)	–	–	✓	–	–	–	–
-10 to 60°C (14 to 140°F)	✓	✓	–	✓	✓	✓	✓
-40 to 75°C (-40 to 167°F)	✓	✓	✓	✓	✓	✓	✓
Standards and Certifications							
EMI	CISPR 32, FCC Part 15B Class A						
Safety	UL 508	All models: UL 508 PoE models: EN 60950-1 (LVD)	UL 508, EN 60950-1	UL 508	UL 61010-2-201, EN 60950-1 (LVD)	UL 508, EN 60950-1 (LVD)	UL 508
Hazardous Locations	ATEX, Class I Division 2	non-PoE models: ATEX, Class I Division 2	–	ATEX, Class I Division 2	–	ATEX, Class I Division 2	
Railway	EN 50121-4						
Traffic Control	NEMA TS2	non-PoE models: NEMA TS2	–	NEMA TS2	–	NEMA TS2	
Power Substation	IEC 61850-3, IEEE 1613			–	IEC 61850-3, IEEE 1613		
Maritime	ABS, DNV GL, LR, NK	ABS, DNV GL, LR, NK	ABS, DNV GL, LR, NK	ABS, DNV GL, LR, NK	–	ABS, DNV GL, LR, NK	

DIN-rail Managed Switches



Product Series	EDS-518A	EDS-516A	EDS-510A	EDS-508A	EDS-505A
Ethernet Interface					
Max. Number of Ports	18	16	10	8	5
10/100/1000BaseT(X) Ports (RJ45 connector)	–	4	Up to 3	–	–
10/100BaseT(X) Ports (RJ45 connector)	Up to 16	12	7	Up to 8	Up to 5
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	2	–	–	–	–
1000Base SFP Slots	–	–	Up to 3	–	–
100BaseFX Ports (ST or SC connector)	Up to 2	–	–	Up to 2	Up to 2
Filter					
802.1p Class of Service	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓
IGMP v1/v2/v3 Snooping	✓	✓	✓	✓	✓
Industrial Protocols					
EtherNet/IP	✓	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓	✓
PROFINET	–	–	–	–	–
Management					
DHCP Option 82	✓	✓	✓	✓	✓
Port Mirror	✓	✓	✓	✓	✓
RMON	✓	✓	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓
Console Port	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓
Redundancy Protocols					
STP/RSTP/MSTP	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓
Security					
HTTPS/SSL	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓
MAC Sticky	–	–	–	–	–
MAB Authentication	–	–	–	–	–
RADIUS	✓	✓	✓	✓	✓
Access Control List	–	–	–	–	–
Layer 3 Switching	–	–	–	–	–
Input Voltage					
12 VDC	–	–	–	✓	✓
24 VDC	✓	✓	✓	✓	✓
48 VDC	–	–	–	✓	✓
Installation					
DIN-rail Mounting	✓	✓	✓	✓	✓
Wall Mounting (with optional kit)	✓	✓	✓	✓	✓
Operating Temperature					
0 to 60°C (32 to 140°F)	✓	✓	–	–	–
-10 to 60°C (14 to 140°F)	–	–	✓	✓	✓
-40 to 75°C (-40 to 167°F)	✓	✓	✓	✓	✓
Standards and Certifications					
EMI	CISPR 32, FCC Part 15B Class A				
Safety	EN 60950-1, UL 60950-1, CSA C22.2 No. 60950-1, UL 508				
Hazardous Locations	ATEX, Class I Division 2				
Railway	–				
Traffic Control	–	NEMA TS2		–	
Power Substation	–				
Maritime	DNV GL, NK	DNV GL	–		

DIN-rail Managed Switches



Product Series	EDS-408A	EDS-405A	EDS-405A-PTP	SDS-3008
Ethernet Interface				
Max. Number of Ports	8	5	5	8
10/100BaseT(X) Ports (RJ45 connector)	Up to 8	Up to 5	5	8
100BaseFX Ports (ST or SC connector)	Up to 3	Up to 2	-	-
Optical Fiber				
100Base Fiber	Up to 3	Up to 2	-	-
1000Base Fiber	-	-	-	-
Filter				
802.1p Class of Service	✓	✓	✓	Fixed profiles
802.1Q VLAN	✓	✓	✓	✓
IGMP v1/v2/v3 Snooping	✓	✓	✓	Enabled by EtherNet/IP function
Industrial Protocols				
EtherNet/IP	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓
PROFINET	-PN models	-PN models	-	✓
Management				
DHCP Option 82	✓	✓	✓	-
Port Mirror	✓	✓	✓	✓
RMON	✓	✓	✓	-
SNMPv1/v2c/v3	✓	✓	✓	✓
Syslog	✓	✓	✓	✓
Console Port	✓	✓	✓	-
Telnet/SSH	Telnet only	Telnet only	Telnet only	✓
TFTP	✓	✓	✓	✓
Redundancy Protocols				
STP/RSTP/MSTP	✓	✓	✓	STP/RSTP only
Turbo Ring/Turbo Chain	✓	✓	✓	-
Security				
HTTPS/SSL	-	-	-	✓
TACACS+	-	-	-	-
MAC Sticky	-	-	-	-
MAB Authentication	-	-	-	-
RADIUS	-	-	-	-
Access Control List	-	-	-	-
Layer 3 Switching	-	-	-	-
Input Voltage				
12 VDC	✓	✓	✓	✓
24 VDC	✓	✓	✓	✓
48 VDC	✓	✓	✓	✓
-24 VDC	✓	-	-	-
-48 VDC	✓	-	-	✓
Installation				
DIN-rail Mounting	✓	✓	✓	✓
Wall Mounting (with optional kit)	✓	✓	✓	-
Operating Temperature				
0 to 60°C (32 to 140°F)	-	-	-	-
-10 to 60°C (14 to 140°F)	✓	✓	✓	✓
-40 to 75°C (-40 to 167°F)	✓	✓	✓	✓
Standards and Certifications				
EMI CISPR 32, FCC Part 15B Class A				
Safety	All models: EN 60950-1, UL 508 EDS-408A/408A-T, EDS-408A-MM-SC/MM-ST/ SS-SC Series, EDS-408A-EIP/PN Series: UL 60950-1	UL 508, UL 60950-1	UL 508	EN 60950-1 (LVD), UL 61010-2-201, UL 508
Hazardous Locations	EDS-408A/408A-T, EDS-408A-MM-SC/MM-ST/ SS-SC Series, EDS-408A-EIP/PN Series: ATEX, Class I Division 2	ATEX, Class I Division 2	-	-
Railway	EN 50121-4	-	-	-
Traffic Control	NEMA TS2	NEMA TS2	-	-
Power Substation	-	-	-	-
Maritime	EDS-408A/408A-T, EDS-408A-MM/SS Series: NK EDS-408A/408A-T, EDS-408A-MM/SS Series, EDS-408A-EIP/PN Series: DNV GL	DNV GL	-	-

Product Series	PT-508/510	PT-G503-PHR-PTP
Ethernet Interface		
Max. Number of Ports	8/10	3
Gigabit Ethernet 10/100/1000 BaseT(X)	-	3
Gigabit Ethernet 1000BaseSFP	-	3
Fast Ethernet 10/100 BaseT(X)	6/8	-
Fast Ethernet 100BaseFX	2/2	-
Filter		
802.1Q VLAN	✓	-
IGMP v1/v2/v3	✓	-
802.1p Class of Service	✓	-
Management		
DHCP Option 82	✓	✓
SNMPv1/v2c/v3	✓	✓
Fiber Check	-	✓
Power Substation		
IEC 61850 QoS	-	-
GOOSE Check	-	-
MMS Server	-	✓
Redundancy Protocols		
STP	✓	-
RSTP	✓	✓
MSTP	✓	-
Turbo Ring/Turbo Chain	✓	-
PRP / HSR	-	✓
Security		
Access Control List	-	-
Broadcast Storm Protection	-	-
HTTPS/SSL	✓	✓
RADIUS / TACACS+	✓	✓
Port Lock	✓	-
Rate Limit	✓	-
SSH	✓	✓
Time Management		
SNTP / NTP Server / Client	✓	✓
IEEE 1588v2 PTP (hardware-based)	-	✓
Available Power Input		
24/48 VDC	✓	✓
110/220 VDC/VAC	✓	✓
Operating Temperature		
-40 to 85°C (-40 to 167°F)	✓ ¹	✓
Standards and Certifications		
Safety	UL 508	
EMI	EN 55032 Class A, CISPR 32, FCC Part 15B Class A	
Power Substation	IEC 61850-3, IEEE 1613	

1. Cold start requires minimum of 100 VAC at -40°C.

Rackmount Managed Switches



Product Series	ICS-G7852A	ICS-G7850A	ICS-G7848A	ICS-G7752A	ICS-G7750A	ICS-G7748A	ICS-G7828A	ICS-G7826A
Modular Switch	✓	✓	✓	✓	✓	✓	–	–
Ethernet Interface								
Max. Number of Ports	52	50	48	52	50	48	28	26
10GbE SFP+ Slots	4	2	–	4	2	–	4	2
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	–	–	–	–	–	–	4	4
Gigabit Ethernet 10/100/1000	Up to 48	Up to 48	Up to 48	Up to 48	Up to 48	Up to 48	20	20
Filter								
IGMP v1/v2/v3	✓	✓	✓	✓	✓	✓	✓	✓
802.1p Class of Service	✓	✓	✓	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓	✓	✓	✓
Management								
Port Mirror	✓	✓	✓	✓	✓	✓	✓	✓
RMON	✓	✓	✓	✓	✓	✓	✓	✓
DHCP Option 82	✓	✓	✓	✓	✓	✓	✓	✓
LLDP	✓	✓	✓	✓	✓	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓	✓	✓
Console Port	✓	✓	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓	✓	✓
Redundancy Protocols								
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓	✓	✓
Layer 3 Software Features								
Layer 3 Switching	✓	✓	✓	–	–	–	✓	✓
Multicast Routing	✓	✓	✓	–	–	–	✓	✓
VRRP	✓	✓	✓	–	–	–	✓	✓
Security								
MAB Authentication	✓	✓	✓	✓	✓	✓	✓	✓
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓	✓
Sticky MAC	✓	✓	✓	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓	✓	✓	✓	✓
Access Control List	✓	✓	✓	✓	✓	✓	✓	✓
802.1X	✓	✓	✓	✓	✓	✓	✓	✓
Available Power Input								
24 VDC	–	–	–	–	–	–	–	–
48 VDC	–	–	–	–	–	–	–	–
110/220 VAC	✓	✓	✓	✓	✓	✓	✓	✓
Installation								
Rack Mounting	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature								
-10 to 60°C (14 to 140°F)	✓	✓	✓	✓	✓	✓	✓	✓
-40 to 75°C (-40 to 167°F)	–	–	–	–	–	–	✓	✓
Standards and Certifications								
EMI	CISPR 32, FCC Part 15B Class A							
Safety	UL 60950-1, EN 60950-1							
Railway	EN 50121-4							

Rackmount Managed Switches



Product Series	ICS-G7528A	ICS-G7526A	IKS-G6824A	IKS-G6524A	IKS-G728A	IKS-6726A
Modular Switch	–	–	–	–	✓	✓
Ethernet Interface						
Max. Number of Ports	28	26	24	24	28	26
10GbE SFP+ Slots	4	2	–	–	–	–
Combo Ports 10/100/1000BaseT(X) or 100/1000BaseSFP	4	4	4	4	4	2
Gigabit Ethernet 10/100/1000	20	20	20	20	–	–
Fast Ethernet 10/100	–	–	–	–	Up to 24	Up to 24
Filter						
802.1p Class of Service	✓	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓	✓	✓
Management						
Port Mirror	✓	✓	✓	✓	✓	✓
DHCP Option 82	✓	✓	✓	✓	✓	✓
LLDP	✓	✓	✓	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓
Console Port	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓
Redundancy Protocols						
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓
Layer 3 Software Features						
Layer 3 Switching	–	–	✓	–	–	–
Multicast Routing	–	–	✓	–	–	–
VRRP	–	–	✓	–	–	–
Security						
MAB Authentication	✓	✓	✓	✓	✓	✓
HTTPS/SSL	✓	✓	✓	✓	✓	✓
Sticky MAC	✓	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓	✓	✓
Access Control List	✓	✓	✓	✓	✓	✓
802.1X	✓	✓	✓	✓	✓	✓
Available Power Input						
24 VDC	–	–	–	–	✓	✓
48 VDC	–	–	–	–	✓	✓
110/220 VAC	✓	✓	✓	✓	✓	✓
Installation						
Rack Mounting	✓	✓	✓	✓	✓	✓
Operating Temperature						
-10 to 60°C (14 to 140°F)	✓	✓	✓	✓	–	–
-40 to 75°C (-40 to 167°F)	✓	✓	✓	✓	✓	✓
Standards and Certifications						
EMI	CISPR 32, FCC Part 15B Class A					
Safety	UL 60950-1, EN 60950-1					
Railway	EN 50121-4					
Maritime	–				non-PoE models: ABS, DNV GL, LR, NK	ABS, DNV GL, LR, NK

Rackmount Managed Switches



Product Series	PT-G7828	PT-G7728	PT-7728-PTP	PT-7828	PT-7728	PT-7528	PT-7710	PT-G7509
Modular Switch	✓	✓	✓	✓	✓	✓	✓	–
Ethernet Interface								
Max. Number of Ports	28	28	28	28	28	28	10	9
Gigabit Ethernet 10/100/1000 BaseT(X)	2 to 26	2 to 26	–	–	–	–	–	9
Gigabit Ethernet 1000BaseSFP	2 to 26	2 to 26	Up to 4	Up to 4	Up to 4	Up to 4	Up to 2	9
Fast Ethernet 10/100 BaseT(X)	–	–	Up to 28	Up to 28	Up to 28	Up to 28	Up to 10	–
Fast Ethernet 100BaseFX	–	–	Up to 24	Up to 24	Up to 24	Up to 20	–	–
Filter								
802.1Q VLAN	✓	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓	✓	✓	✓	✓
802.1p Class of Service	✓	✓	✓	✓	✓	✓	✓	✓
Management								
DHCP Option 82	–	–	✓	✓	✓	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓	✓	✓	–	–
Power Substation								
IEC 61850 QoS	✓	✓	✓	✓	✓	✓	✓	✓
GOOSE Check	✓	✓	–	–	–	–	–	–
MMS Server	✓	✓	✓	–	✓	✓	–	–
Redundancy Protocols								
STP	✓	✓	✓	✓	✓	✓	✓	✓
RSTP	✓	✓	✓	✓	✓	✓	✓	✓
MSTP	✓	✓	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓	✓	✓
PRP / HSR	–	–	✓	–	–	–	–	–
Layer 3 Software Features								
Multicast Routing	✓	–	–	✓	–	–	–	–
VRRP	✓	–	–	✓	–	–	–	–
Security								
Access Control List	✓	✓	–	✓	–	–	–	–
Broadcast Storm Protection	✓	✓	✓	✓	✓	✓	✓	–
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓	✓
RADIUS / TACACS+	✓	✓	✓	✓	✓	✓	✓	✓
Port Lock	✓	✓	✓	✓	✓	✓	✓	✓
Rate Limit	✓	✓	✓	✓	✓	✓	✓	–
SSH	✓	✓	✓	✓	✓	✓	✓	✓
Time Management								
SNTP / NTP Server / Client	✓	✓	✓	✓	✓	✓	✓	✓
IEEE 1588v2 PTP (hardware-based)	✓	✓	✓	–	–	–	–	–
Available Power Input								
24/48 VDC	✓	✓	✓	✓	✓	✓	✓ ¹	✓
110/220 VDC/VAC	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature								
-40 to 85°C (-40 to 167°F)	✓	✓	✓ ²	✓ ²	✓ ²	✓ ²	✓ ²	✓ ²
Standards and Certifications								
Safety	UL 62368-1		UL 60950-1			UL 508	UL 60950-1, EN 60950-1, CSA C22.2 No. 60950-1	
EMI	CISPR 32, FCC Part 15B Class A		EN 55032 Class A, CISPR 32, FCC Part 15B Class A					
Power Substation	IEC 61850-3 Edition 2.0 Class 2, IEEE 1613		IEC 61850-3, IEEE 1613			IEC 61850-3, IEEE 1613 Class 2 ³	IEC 61850-3, IEEE 1613	

1. Supports 12/24/48 VDC.

2. Cold start requires minimum of 100 VAC at -40°C.

3. Models with MCS and SSC fiber ports are compliant with IEEE 1613 Class 1.

PoE Switches



Product Series	IKS-6728A-8PoE	EDS-G512E-8PoE	EDS-P510A-8PoE	EDS-P510	EDS-P506E-4PoE	EDS-G205A-4PoE	EDS-P206A-4PoE
Ethernet Interface							
Max. Number of Ports	28	12	10	10	6	5	6
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	4	-	2	3	2	-	-
PoE Ports (10/100BaseT(X), RJ45 connector)	Up to 24	-	8	4	4	-	4
PoE Ports (10/100/1000BaseT(X), RJ45 connector)	-	8	-	-	-	4	-
10/100/1000BaseT(X) Ports (RJ45 connector)	-	-	-	-	-	Up to 1	-
10/100BaseT(X) Ports (RJ45 connector)	Up to 16	-	-	3	-	-	Up to 2
100/1000BaseSFP Slots	-	4	-	-	-	Up to 1	-
100BaseFX Ports	-	-	-	-	-	-	Up to 2
Filter							
802.1Q VLAN	✓	✓	✓	✓	✓	-	-
802.1p Class of Service	✓	✓	✓	✓	✓	-	-
IGMP v1/v2/v3 Snooping	✓	✓	✓	✓	✓	-	-
Management							
Port Mirror	✓	✓	✓	✓	✓	-	-
DHCP Option 82	✓	✓	✓	✓	✓	-	-
LLDP	✓	✓	✓	✓	✓	-	-
SNMPv1/v2c/v3	✓	✓	✓	✓	✓	-	-
Fiber Check	✓	✓	✓	✓	✓	-	-
Redundancy Protocols							
Link Aggregation	✓	✓	✓	✓	✓	-	-
STP/RSTP	✓	✓	✓	✓	✓	-	-
MSTP	✓	✓	✓	✓	✓	-	-
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	-	-
Security							
MAB Authentication	✓	✓	-	-	✓	-	-
Sticky MAC	✓	✓	-	-	✓	-	-
TACACS+	✓	✓	✓	✓	✓	-	-
RADIUS	✓	✓	✓	✓	✓	-	-
HTTPS/SSL	✓	✓	✓	✓	✓	-	-
802.1X	✓	✓	✓	✓	✓	-	-
Access Control List	✓	✓	-	-	✓	-	-
Input Voltage							
12/24 VDC	-	-	-	-	✓	✓	✓
48 VDC	✓	✓	✓	✓	✓	✓	✓
Power Over Ethernet							
802.3af/at	✓	✓	✓	802.3af only	✓	✓	✓
High Power PoE	✓	✓	✓	-	✓	✓	✓
Total PD Consumption (max.)	720 W	240 W	240 W	61.6 W	180 W @ 48 VDC 150 W @ 24 VDC 62 W @ 12 VDC	144 W @ 48 VDC 120 W @ 24 VDC 62 W @ 12 VDC	120 W @ 48 VDC 120 W @ 24 VDC 62 W @ 12 VDC
Each PoE Port (max.)	36 W	36 W	36 W	15.4 W	60 W	36 W	30 W
Installation							
DIN-rail Mounting	-	✓	✓	✓	✓	✓	✓
Wall Mounting (with optional kit)	-	✓	✓	✓	✓	✓	✓
Rack Mounting	✓	-	-	-	-	-	-
Operating Temperature							
0 to 60°C (32 to 140°F)	-	-	-	✓	-	✓	-
-10 to 60°C (14 to 140°F)	-	✓	✓	-	✓	-	✓
-40 to 75°C (-40 to 167°F)	✓	✓	✓	✓	✓	✓	✓
Standards and Certifications							
EMI	CISPR 32, FCC Part 15B Class A						
EMC	EN 55032/24	EN 61000-6-2/-6-4	EN 55032/24	EN 55032/24	EN 61000-6-2/-6-4	EN 61000-6-2/-6-4	EN 55032/24
Safety	UL 60950-1, EN 60950-1	UL 508, EN 60950-1	UL 508	UL 508	UL 61010-2-201, EN 61010-2-201	UL 508	UL 508
Hazardous Locations	-	-	Class I Division 2	-	-	-	-
Railway	EN 50121-4	EN 50121-4	EN 50121-4	-	EN 50121-4	EN 50121-4	-
Traffic Control	-	-	NEMA TS2	-	NEMA TS2	-	-
Maritime	-	-	-	ABS, DNV GL, LR, NK	-	-	-

EN 50155 Ethernet Switches



Product Series	TN-G4516	TN-G6512	TN-4516A	TN-4516A-PoE	TN-4516A-PoE-ODC	TN-4524A-PoE	TN-4528A-PoE	TN-4528A-PoE-ODC
Ethernet Interface								
Max. Number of Ports	16	12	16	16	16	24	28	28
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector)	4	4	Up to 4	-	-	-	-	-
10/100 BaseT(X) Ports (M12 D-coded 4-pin female connector)	-	-	12	-	-	8	8	8
10G Ports (M12 connector with bypass relay)	Up to 2	-	-	-	-	-	-	-
PoE Ports (10/100 BaseT(X), M12 D-coded 4-pin female connector)	-	-	-	12	12	16	16	16
PoE Ports (100/1000 BaseT(X), M12 X-coded 8-pin female connector)	8	8	-	Up to 4	2	-	Up to 4	2
PoE Ports (10G BaseT(X), M12 connector)	Up to 4	-	-	-	-	-	-	-
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector with bypass relay)	-	-	Up to 2	Up to 2	-	-	Up to 2	-
10/100/1000 BaseT(X) Ports, Q-ODC Fiber Connector	-	-	-	-	2	-	-	2
Filter								
802.1Q	✓	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓	✓	✓	✓	✓
Port-based VLAN	✓	✓	✓	✓	✓	✓	✓	✓
Management								
DHCP Option 66/67/82	✓	✓	✓	✓	✓	✓	✓	✓
IPv4/IPv6	✓	✓	✓	✓	✓	✓	✓	✓
QoS/CoS/ToS	✓	✓	✓	✓	✓	✓	✓	✓
Redundancy Protocols								
MSTP	✓	✓	✓	✓	✓	✓	✓	✓
RSTP	✓	✓	✓	✓	✓	✓	✓	✓
Turbo Ring v1/v2	✓	✓	✓	✓	✓	✓	✓	✓
Turbo Ring With DRC	✓	✓	✓	✓	✓	✓	✓	✓
Security								
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓	✓	✓	✓
Port Lock	✓	✓	✓	✓	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓	✓	✓	✓	✓
Time Management								
IEEE 1588 PTP v1/v2	✓	✓	✓	✓	✓	✓	✓	✓
NTP Server/Client	✓	✓	✓	✓	✓	✓	✓	✓
Power Parameters								
Input Voltage	24/36/48/72/96/110 VDC, redundant dual inputs							
Power Connector	M12 K-coded male connector			M23 connector				
Total PoE Power Budget	120 W	96 W	-	120 W				
Physical Characteristics								
IP Rating	IP40	IP67	IP42					
Protection	-CT models: PCB conformal coating (optional)							
Environmental Limits								
Operating Temperature	-40 to 70°C (-40 to 158°F)			-40 to 75°C (-40 to 167°F)				
Standards and Certifications								
EN 50121-4	✓	✓	✓	✓	✓	✓	✓	✓
EN 50155 ¹	✓	✓	✓	✓	✓	✓	✓	✓
EN 45545-2	✓	✓	✓	✓	✓	✓	✓	✓

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.

EN 50155 Ethernet Switches



Product Series	TN-5508A	TN-5508A-8PoE	TN-5510A	TN-5510A-8PoE	TN-5510A-0DC
Ethernet Interface					
Max. Number of Ports	8	8	10	10	10
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector)	–	–	Up to 2	Up to 2	–
10/100 BaseT(X) Ports (M12 D-coded 4-pin female connector)	8	–	8	–	Up to 8
PoE Ports (10/100 BaseT(X), M12 D-coded 4-pin female connector)	–	8	–	8	Up to 8
PoE Ports (100/1000 BaseT(X), M12 X-coded 8-pin female connector)	–	–	–	–	–
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector with bypass relay)	–	–	Up to 2	Up to 2	–
10/100/1000 BaseT(X) Ports, Q-ODC Fiber Connector	–	–	–	–	2
Filter					
802.1Q	✓	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓	✓
Port-based VLAN	✓	✓	✓	✓	✓
Management					
DHCP Option 66/67/82	✓	✓	✓	✓	✓
IPv4/IPv6	✓	✓	✓	✓	✓
QoS/CoS/ToS	✓	✓	✓	✓	✓
Redundancy Protocols					
MSTP	✓	✓	✓	✓	✓
RSTP	✓	✓	✓	✓	✓
Turbo Ring	✓	✓	✓	✓	✓
Turbo Ring With DRC	✓	✓	✓	✓	✓
Security					
HTTPS/SSL	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓
Port Lock	✓	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓	✓
Time Management					
IEEE 1588 PTP v1/v2	✓	✓	✓	✓	✓
NTP Server/Client	✓	✓	✓	✓	✓
Power Parameters					
Input Voltage	24/36/48/72/96/110 VDC, redundant dual inputs				
Power Connector	M23 connector				
Total PoE Power Budget	–	120 W	–	120 W	120 W (for PoE model)
Physical Characteristics					
IP Rating	IP54				
Protection	TN-5500A Series -CT models: PCB conformal coating (optional)				
Environmental Limits					
Operating Temperature	-40 to 75°C (-40 to 167°F)				
Standards and Certifications					
EN 50121-4	✓	✓	✓	✓	✓
EN 50155 ¹	✓	✓	✓	✓	✓
EN 45545-2	✓	✓	✓	✓	✓

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.

EN 50155 Ethernet Switches



Product Series	TN-5516A	TN-5516A-8PoE	TN-5518A	TN-5518A-8PoE
Ethernet Interface				
Max. Number of Ports	16	16	18	18
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector)	–	–	Up to 2	Up to 2
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector)	16	8	16	8
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector with bypass relay)	–	–	–	–
PoE Ports (10/100 BaseT(X), M12 D-coded 4-pin female connector)	–	8	–	8
PoE Ports (100/1000 BaseT(X), M12 X-coded 8-pin female connector)	–	–	–	–
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector with bypass relay)	–	–	Up to 2	Up to 2
10/100/1000 BaseT(X) Ports, Q-ODC Fiber Connector	–	–	–	–
Filter				
802.1Q	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓
Port-based VLAN	✓	✓	✓	✓
Management				
DHCP Option 66/67/82	✓	✓	✓	✓
IPv4/IPv6	✓	✓	✓	✓
QoS/CoS/ToS	✓	✓	✓	✓
Redundancy Protocols				
MSTP	✓	✓	✓	✓
RSTP	✓	✓	✓	✓
Turbo Ring	✓	✓	✓	✓
Turbo Ring With DRC	✓	✓	✓	✓
Security				
HTTPS/SSL	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓
Port Lock	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓
Time Management				
IEEE 1588 PTP v1/v2	✓	✓	✓	✓
NTP Server/Client	✓	✓	✓	✓
Power Parameters				
Input Voltage	24/36/48/72/96/110 VDC, redundant dual inputs			
Power Connector	M23 connector			
Total PoE Power Budget	–	120 W	–	120 W
Physical Characteristics				
IP Rating	IP54			
Protection	TN-5500A Series -CT models: PCB conformal coating (optional)			
Environmental Limits				
Operating Temperature	-40 to 75°C (-40 to 167°F)			
Standards and Certifications				
EN 50121-4	✓	✓	✓	✓
EN 50155 ¹	✓	✓	✓	✓
EN 45545-2	✓	✓	✓	✓

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.

EN 50155 Ethernet Switches



Product Series	TN-5305	TN-5308	TN-5308-PoE	TN-5816A	TN-5818A
Ethernet Interface					
Max. Number of Ports	5	8	8	16	18
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector)	–	–	–	–	–
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector)	5	8	Up to 4	12	12
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector with bypass relay)	–	–	–	4	4
PoE Ports (10/100 BaseT(X), M12 D-coded 4-pin female connector)	–	–	Up to 8	–	–
PoE Ports (100/1000 BaseT(X), M12 X-coded 8-pin female connector)	–	–	–	–	–
10/100/1000 BaseT(X) Ports (M12 X-coded 8-pin female connector with bypass relay)	–	–	–	–	2
10/100/1000 BaseT(X) Ports, Q-ODC Fiber Connector	–	–	–	–	–
Filter					
802.1Q	–	–	–	✓	✓
IGMP v1/v2/v3	–	–	–	✓	✓
Port-based VLAN	–	–	–	✓	✓
Management					
DHCP Option 66/67/82	–	–	–	✓	✓
IPv4/IPv6	–	–	–	IPv4	IPv4
QoS/CoS/ToS	–	–	–	✓	✓
Redundancy Protocols					
MSTP	–	–	–	–	–
RSTP	–	–	–	✓	✓
Turbo Ring	–	–	–	✓	✓
Turbo Ring With DRC	–	–	–	–	–
Security					
HTTPS/SSL	–	–	–	✓	✓
TACACS+	–	–	–	–	–
Port Lock	–	–	–	–	–
RADIUS	–	–	–	✓	✓
Time Management					
IEEE 1588 PTP v1/v2	–	–	–	✓	✓
NTP Server/Client	–	–	–	✓	✓
Power Parameters					
Input Voltage	18 to 30 VAC (47 to 63 Hz), 24 to 36 VDC	-LV Series: 12 to 48 VDC -MV Series: 72 to 110 VDC	48 VDC	24/36/48/72/96/110 VDC, redundant dual inputs	
Power Connector	M12 A-coded male connector	-LV Series: M12 A-coded male connector -MV Series: M23 connector	M12 A-coded male connector	M23 connector	
Total PoE Power Budget	–	–	–	–	–
Physical Characteristics					
IP Rating	IP67	IP40		IP54	
Protection	–	-CT models: PCB conformal coating			
Environmental Limits					
Operating Temperature	Standard Models: -25 to 60°C (-13 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)			-40 to 75°C (-40 to 167°F)	
Standards and Certifications					
EN 50121-4	✓	✓	✓	✓	✓
EN 50155 ¹	✓	✓	✓	✓	✓
EN 45545-2	✓	✓	✓	✓	✓

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.

Ethernet Extenders

Preliminary



Product Series	IEX-408E	IEX-402-SHDSL	IEX-402-VDSL2
Ethernet Interface			
10/100BaseT(X) Ports (RJ45 connector)	6	1	1
Combo Port, RJ-11 (RJ45 connector) or Detachable 2-contact Terminal Block	2	1	1
Input Voltage			
110/220 VDC/VAC	✓	–	–
12/24/48 VDC	✓	✓	✓
Filter			
Port-based VLAN	✓	–	–
802.1Q VLAN	✓	–	–
802.1p Class of Service	✓	✓	✓
IGMP v1/v2c/v3 Snooping	✓	–	–
GVRP	✓	–	–
GMRP	✓	–	–
Industrial Protocols			
EtherNet/IP	✓	–	–
Modbus TCP	✓	–	–
PROFINET	✓	–	–
Management			
BOOTP	✓	–	–
LLDP	✓	✓	✓
DHCP Server	✓	–	–
DHCP Client	✓	✓	✓
DHCP Option 82	✓	–	–
RMON	✓	–	–
SNMPv1/v2c/v3	✓	✓	✓
Syslog	✓	✓	✓
Console Port	✓	✓	✓
Telnet/SSH	✓	–	–
TFTP	✓	✓	✓
Redundancy Protocols			
STP/RSTP	✓	–	–
MSTP	✓	–	–
Link Aggregation	✓	–	–
Turbo Ring / Turbo Chain	✓	–	–
Security			
HTTPS/SSL	✓	–	–
RADIUS	✓	–	–
TACACS+	✓	–	–
Port Lock	✓	–	–
Broadcast Storm Protection	✓	–	–
Sticky MAC	✓	–	–
NTP Authentication	✓	–	–
Operating Temperature			
-10 to 60°C (14 to 140°F)	✓	✓	✓
-40 to 75°C (-40 to 167°F)	–	✓	✓
Max. Supported Speed/Distance Over Twisted-pair Copper			
100 Mbps / 3 km	✓	–	✓
15.3 Mbps / 8 km	–	✓	–
Standards and Certifications			
EMI	CISPR 32, FCC Part 15B Class A	CISPR 32, FCC Part 15B Class A	CISPR 32, FCC Part 15B Class A
Safety	All models: UL 61010-2-201 IEX-408E-2VDSL2-LV Series: EN 60950-1	UL 508	UL 508
Hazardous Locations	–	–	ATEX, Class I Division 2
Railway	EN 50121-4	EN 50121-4	EN 50121-4
Traffic Control	NEMA TS2	–	NEMA TS2
Power Substation	–	–	–
Maritime	–	–	–



Secure Routers

Moxa offers industrial secure routers with a high-performance design to protect critical automation assets and ensure secure remote access via VPN technology for smart factory, transportation, rail, as well as oil and gas applications. With the IEC 61162-460 certification, our secure router is the ideal choice to enhance the safety of maritime applications. In addition, the Ethernet router complies with the IEC 61375-2-5 standard making it suitable for deployment on Ethernet train backbones and consist networks.



Secure Routers
Product Pages

Secure Routers / EN 50155 Secure Routers



Product Series	Secure Routers			EN 50155 Routers
	EDR-810	EDR-G902	EDR-G903	TN-5916
Input/Output Interface				
Alarm Contact Channels	Resistive load: 1 A @ 24 VDC	1 relay output with current carrying capacity of 1 A @ 24 VDC		2 x relay output with current carrying capacity of 1 A @ 30 VDC
Digital Input Channels	+13 to +30 V for state 1, -30 to +3 V for state 0, Max. input current: 8 mA			–
Ethernet Interface				
10/100BaseT(X) Ports (RJ45 connector)	8	–	–	–
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector)	–	–	–	12
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector with bypass relay)	–	–	–	4
100/1000BaseSFP Slots	2	–	–	–
10/100/1000BaseT(X) Ports (RJ45 connector)	–	1	–	–
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	–	1	3	–
Ethernet Software Features				
Management	Web console (TTP/ HTTPS), SNMP (v1, v2, v3), CLI (Telnet/ SSH), DHCP Server			
Multicast Routing	DVMRP, PIM-SM, PIM-SSM	–	–	–
Routing	Throughput: 10,000 packets per second (max. 100 Mbps)	Throughput: 25,000 packets per second (max. 300 Mbps)	Throughput: 40,000 packets per second (max. 500 Mbps)	–
Routing Redundancy	VRRP			
Time Management	NTP Server/Client, SNTP			
Unicast Routing	OSPF, RIPV1/V2, Static Route			Static Route, RIPV1/V2
Filter	IGMP v1/v2/v3	–	–	802.1Q, IGMP v1/v2, Static Multicast
DoS and DDoS Protection				
Technology	ARP-Flood, FIN Scan, ICMP-Death, NEWWithout-SYN Scan, NMAP-ID Scan, NMAP-Xmas Scan, Null Scan, SYN/FIN Scan, SYN/RST Scan, SYN-Flood, Xmas Scan			–
Firewall				
Deep Packet Inspection	Modbus TCP, Modbus UDP			–
Stateful Inspection	Router firewall, Transparent (bridge) firewall			
Throughput (max.)	10,000 packets per second (100 Mbps)	25,000 packets per second (300 Mbps)	40,000 packets per second (500 Mbps)	–
IPsec VPN				
Concurrent VPN Tunnels (max.)	10 IPsec VPN tunnels	50 IPsec VPN tunnels	100 IPsec VPN tunnels	10 IPsec VPN tunnels
Open VPN				
Concurrent VPN Tunnels	Client Mode: max. 2 external servers, Server Mode: max. 5 external clients			–
Protocols	OpenVPN (client and server), UDP, and TCP, Tunnel mode (routing) and TAP mode (bridge)			–
Power Parameters				
Connection	Removable terminal block			M23 connector
Input Voltage	12/24/48 VDC, 0.32 A @ 24 VDC	12/24/48 VDC		24/36/48/72/96/110 VDC, redundant dual inputs, No. of power inputs: 2
Physical Characteristics				
Housing	Metal			
Dimensions	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)	51 x 152 x 131.1 mm (2.01 x 5.98 x 5.16 in)		250 x 175.8 x 116.3 mm (9.84 x 6.92 x 4.58 in)
Weight	875 g (1.92 lb)	1,272 g (2.80 lb)	1,294 g (2.85 lb)	4,030 g (8.88 lb)
Installation	DIN-rail mounting, wall mounting (with optional kit)			DIN-rail mounting (optional), wall mounting
Environmental Limits				
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)			-40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)			
Ambient Relative Humidity	5 to 95% (non-condensing)			
Standards and Certifications				
Safety	UL 508			IEC 60905-1, UL 61010-2-201
EMC	EN 55032/24			
Hazardous Locations	UL/cUL Class I Division 2 Groups A/B/C/D	–		
EMI	CISPR 32, FCC Part 15B Class A			–
Radio Frequency	–			FCC
Railway	EN 50121-4	–		EN 50121-4, EN 50155 ¹ , IEC 60571
Railway Fire Protection	–			EN 45545-2
Traffic Control	NEMA TS2	–		
Maritime	DNV GL			–
Power Substation	–		IEC 61850-3	–

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.



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WLAN AP/Bridge/Client

Moxa's extensive collection of industrial-grade wireless 3-in-1 AP/bridge/client products combine a rugged casing with high-performance Wi-Fi connectivity to deliver a secure and reliable wireless network connection that will not fail, even in environments with water, dust, and vibration.



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Rail Wireless LAN AP/Client

Moxa's field-proven wireless LAN products enable operators to manage carriage-to-carriage and train-to-ground communications with increased efficiency, enabling you to create helpful onboard multimedia services that enhance the safety and comfort of your passengers.

Wireless AP/Bridge/Client

Moxa's industrial IEEE 802.11n wireless AP/bridge/client products are designed to overcome the challenges of harsh industrial environments. High electromagnetic immunity protects the devices against electromagnetic disturbances, galvanic isolation guards them against voltage instability, and wide-temperature ranges and shock and vibration resistance ensure reliable operation even in difficult environments.



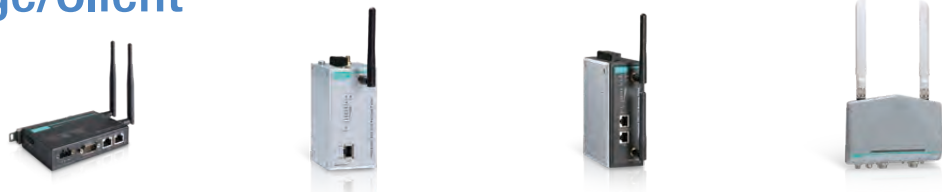
Wireless AP/Bridge/Client
Product Pages



Rail Wireless Access Controller

The goal of zero-latency roaming is to allow clients to seamlessly maintain a connection as they move from one access point to another. Moxa provides advanced wireless access controllers together with our controller-based Turbo Roaming technology, enabling millisecond-level roaming across different IP subnets.

WLAN AP/Bridge/Client



Product Series	AWK-1137C	AWK-1131A	AWK-3131A	AWK-4131A
WLAN Interface				
WLAN Standards	802.11a/b/g/n			
WLAN Operation Mode	Client, Client-Router, Slave, Sniffer	Access point, Client, Sniffer	Access point, Client, Client-Router, Master, Slave, Sniffer	
Antenna	2, RP-SMA female			2, N-type female
Antenna Isolation	✓	✓	✓	✓
AeroMag Mode	AeroMag Client, AeroMag Client-Router	–	AeroMag AP, AeroMag Client, AeroMag Client-Router	AeroMag AP, AeroMag Client, AeroMag Client-Router
Client-based Turbo Roaming	✓	✓	✓	✓
AeroLink Protection	–	–	✓	✓
Ethernet Interface				
Ethernet Ports	2 x 10/100BaseT(X) ports (RJ45 connector)	1 x 10/100/1000BaseT(X) port (RJ45 connector)	1 x PoE port, 10/100/1000BaseT(X) (RJ45 connector)	
Serial Interface				
Serial Port	RS-232/422/485, DB9 male	–	–	–
Console Port	–	RS-232, 8-pin RJ45		
Input/Output Interface				
Digital Inputs	–	–	✓	✓
Physical Characteristics				
IP Rating	IP30			IP68
Installation	DIN-rail mounting, wall mounting (optional)			Wall mounting, DIN-rail mounting (optional), pole mounting (optional)
Power Parameters				
Input Voltage	9 to 30 VDC	12 to 48 VDC, redundant dual inputs	12 to 48 VDC, redundant dual inputs, 48 VDC PoE	
Power Connector	1 removable 3-contact terminal block(s)	1 removable 4-contact terminal block(s)	1 removable 10-contact terminal block(s)	M12 A-coded 5-pin male connector
Power Isolation	✓	✓	✓	✓
Reverse Polarity Protection	Supported			
Environmental Limits				
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		Standard Models: -25 to 60°C (-13 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)
Standards and Certifications				
EMC	EN 61000-6-2/-6-4, EN 55032/24	EN 55032/24	EN 61000-6-2/-6-4	
EMI	CISPR 22, FCC Part 15B Class A	CISPR 32, FCC Part 15B Class B		
Hazardous Locations	–	–	ATEX, Class I Division 2, IECEx	–
Radio	ANATEL, EN 300 328, EN 301 489-1/17, EN 301 893, FCC ID SLE-1137C, MIC, NCC, SRRRC, WPC, KC, RCM	ANATEL, EN 300 328, EN 301 489-1/17, EN 301 893, FCC ID SLE-WAPN008, MIC, NCC, RCM, SRRRC, WPC, KC		
Safety	EN 60950-1, UL 60950-1			

Railway Wireless LAN



Product Series	TAP-213	TAP-323	AWK-3131A-M12-RTG	AWK-3131A-SSC-RTG	AWK-3131A-RCC
WLAN Interface					
Number of Antenna Connectors	2	5	2	2	2
Number of RF Modules	1	2	1	1	1
WLAN Antenna Connector	N-type female	N-type female	QMA	QMA	QMA
WLAN Standards	802.11a/b/g/n 802.11i Wireless Security				
Ethernet Interface					
Number of LAN Ports	2	6	1	1	1
LAN Port Type	M12 X-coded 8-pin female connector, 1 x fiber	4 x M12 D-coded 4-pin female connector, 2 x fiber	M12 D-coded 4-pin female connector	SC connector	M12 A-coded 8-pin female connector
LAN Port Speed	10/100/1000BaseT(X), 1000BaseSFP	10/100BaseT(X), 1000BaseSFP	10/100BaseT(X)	10/100BaseFX	10/100/1000BaseT(X)
Serial Interface					
Console Port	USB-M12 console (M12 B-coded 5-pin female connector)		RS-232 (RJ45-type)		
Input/Output Interface					
DI/DO	-	-	✓	✓	✓
DI/DO Connector Type	-	-	1 removable 10-contact terminal block(s)		
Power Parameters					
Input Voltage	24 to 110 VDC, redundant dual DC power inputs	110/220 VAC/VDC (85 to 264 VAC, 88 to 300 VDC), redundant dual inputs	12 to 48 VDC, redundant dual inputs	12 to 48 VDC, redundant dual inputs	12 to 48 VDC, redundant dual inputs
Power Connector	M12 A-coded 4-pin male connector	M23 6-pin connector	1 removable 10-contact terminal block(s)		
PoE Support	✓	✓	✓	-	✓
Reverse Polarity Protection	Supported				
Source of Input Power	PoE (IEEE 802.3af)				
Physical Characteristics					
IP Rating	IP68		IP30		
Installation	Wall mounting (standard), DIN-rail mounting (optional), pole mounting (optional)		DIN-rail mounting, wall mounting (with optional kit)		

Rail Wireless Access Controller



Product Series	WAC-1001
Ethernet Interface	
10/100/1000BaseT(X) Ports (RJ45 connector)	1
Total Port Count	1
LAN Port Speed	10/100BaseT(X)
Serial Interface	
Console Port	RS-232 (RJ45)
Wireless Access Control	
WLAN Security Support	WPA, WPA2 Personal, WPA2 Enterprise
Turbo Roaming for Layer 2 Networks	✓
Turbo Roaming for Layer 3 Networks	-
Power Parameters	
Input Voltage	12 to 48 VDC, redundant dual inputs
Source of Input Power	10-pin terminal block
PoE Support	✓ (IEEE 802.3af)
Physical Characteristics	
IP Rating	IP30
Installation	DIN-rail mounting, wall mounting (with optional kit)



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Cellular Gateways

Moxa's LTE gateways are easy to configure and provide an efficient way to implement high-performance long-distance network applications. These LTE gateways secure your communication channels, enable smart remote management, and provide reliable connections.

Cellular Gateways/Routers

Moxa's industrial cellular products are designed for wireless wide area network (WWAN) communication with serial and Ethernet devices over cellular networks. To meet the growing demand for increased bandwidth over cellular connections, Moxa's WWAN products now support 4G-LTE communication that enables cellular remote access for devices over the network.



Cellular Gateways/Routers
Product Pages



Cellular Routers

Industrial applications involving mobile communications—such as moving vehicles, industrial M2M, and monitoring geographically dispersed sites—must be reliable and fail-safe even in dynamic and radio-hostile environments. Our industrial-grade cellular routers are able to meet this challenge, and enable reliable mobile data access anytime, anywhere.

Cellular Gateways/Routers



Product Series	Cellular Gateways			Cellular Routers	
	OnCell 3120-LTE-1	OnCell G3150A-LTE	OnCell G3470A-LTE	OnCell 5104-HSPA	WDR-3124A
Cellular Interface					
Cellular Standards	LTE CAT-1, HSPA, UMTS, EDGE, GPRS, GSM	LTE CAT-3, HSPA, UMTS, EDGE, GPRS, GSM		HSPA, UMTS, EDGE, GPRS, GSM	
Band Options (EU)	LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 8 (900 MHz) / LTE Band 20 (800 MHz) / LTE Band 28 (700 MHz) / UMTS/HSPA 2100 MHz / 900 MHz / GSM 900 MHz / 1800 MHz	LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 7 (2600 MHz) / LTE Band 8 (900 MHz) / LTE Band 20 (800 MHz) / UMTS/HSPA 2100 MHz / 1900 MHz / 850 MHz / 800 MHz / 900 MHz		-	-
Band Options (US)	-	LTE Band 2 (1900 MHz) / LTE Band 4 (AWS MHz) / LTE Band 5 (850 MHz) / LTE Band 13 (700 MHz) / LTE Band 17 (700 MHz) / LTE Band 25 (1900 MHz) / UMTS/HSPA 2100 MHz / 1900 MHz / AWS / 850 MHz / 900 MHz / Universal quad-band GSM/GPRS/EDGE 850 MHz / 900 MHz / 1800 MHz / 1900 MHz		-	-
Band Options (AU)	LTE Band 3 (1800 MHz) / LTE Band 5 (850 MHz) / LTE Band 8 (900 MHz) / LTE Band 28 (700 MHz) / UMTS/HSPA 2100 MHz / 850 MHz / 900 MHz	-	-	-	-
Band Options	-	-	-	UMTS/HSPA 800 MHz / 850 MHz / AWS MHz / 1900 MHz / 2100 MHz / GSM/GPRS/EDGE 850 MHz / 900 MHz / 1800 MHz / 1900 MHz	UMTS/HSPA 800 MHz / 850 MHz / 900 MHz / 1900 MHz / 2100 MHz / GSM/GPRS/EDGE 850 MHz / 900 MHz / 1800 MHz / 1900 MHz
No. of SIMs	2	2	2	2	2
WLAN Interface					
WLAN Standards	-	-	-	-	802.11a/b/g/n 802.11i Wireless Security
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 connector)	2	1	-	5	-
10/100/1000 BaseT(X) Ports (RJ45 connector)	-	-	4	-	4
Input/Output Interface					
Alarm Contact Channels	-	1, resistive load: 1 A @ 24 VDC	1, resistive load: 1 A @ 24 VDC	1, resistive load: 1 A @ 24 VDC	1, resistive load: 1 A @ 24 VDC
Digital Input Channels	-	2	2	2	2
IPsec VPN					
Encryption	DES, 3DES, AES, MD5, SHA-1, DH2, DH5				
OpenVPN					
Encryption	Blowfish CBC, DES CBC, DES-EDE3 CBC, AES-128/192/256 CBC		-	-	-
Serial Interface					
No. of Ports	1	1	-	-	-
Serial Standards	RS-232/422/485		-	-	-
Power Parameters					
Input Voltage	9 to 36 VDC	Redundant dual inputs, 12 to 48 VDC			
Input Current	0.8 A (max.)	0.7 A @ 12 VDC, 0.2 A @ 48 VDC		0.95 A @ 12 VDC, 0.25 A @ 48 VDC	0.7 A @ 12 VDC, 0.2 A @ 48 VDC
Environmental Limits					
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -30 to 70°C (-22 to 158°F) ¹	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -30 to 70°C (-22 to 158°F)	Standard Models: -30 to 55°C (-22 to 131°F) Wide Temp. Models: -30 to 70°C (-22 to 158°F)		Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -30 to 70°C (-22 to 158°F)
Standards and Certifications					
Safety	UL 60950-1, UL 62368-1		UL 60905-1		
Hazardous Locations	ATEX, Class I Division 2, IECEx	ATEX, IECEx	-	-	-
Radio Frequency	FCC, PTCRB, EN 301489-1/17, EN 301511, EN 301908-1, AS/CA S042, EN 62311(MPE SAR)	FCC, EN 301 489-1, EN 301 489-7, EN 301 511		FCC Part 22H, FCC Part 24E, EN 301 489-1, EN 301 489-7, EN 301 489-24, EN 301 511, EN 301 908	EN 301 489-1, EN 301 489-7, EN 301 511, EN 301 908, EN 300 328, EN 301 893, FCC ID SLE-WAPN005

1. When continuously operating in temperatures below -25°C (-13°F), the device may experience a very brief loss of cellular connectivity. The device will automatically attempt to reconnect and should have no impact on performance.



Chassis Media Converters

Our TRC series of rackmount chassis media converters provide up to 19 slots and a variety of media converter modules to choose from to fulfill your various media conversion requirements in high-density applications.

Ethernet Media Converters

Moxa's industrial Ethernet media converters provide reliable and stable conversion of Ethernet data to fiber optic signals, even in harsh industrial environments.



Ethernet Media Converters
Product Pages



Ethernet-to-fiber Media Converters

We offer a wide selection of Ethernet-to-fiber media converters, from entry-level to industrial-grade, covering specific industries such as railway and power applications. They provide a cost-effective solution for your long-distance transmissions requirements.

Chassis Media Converters

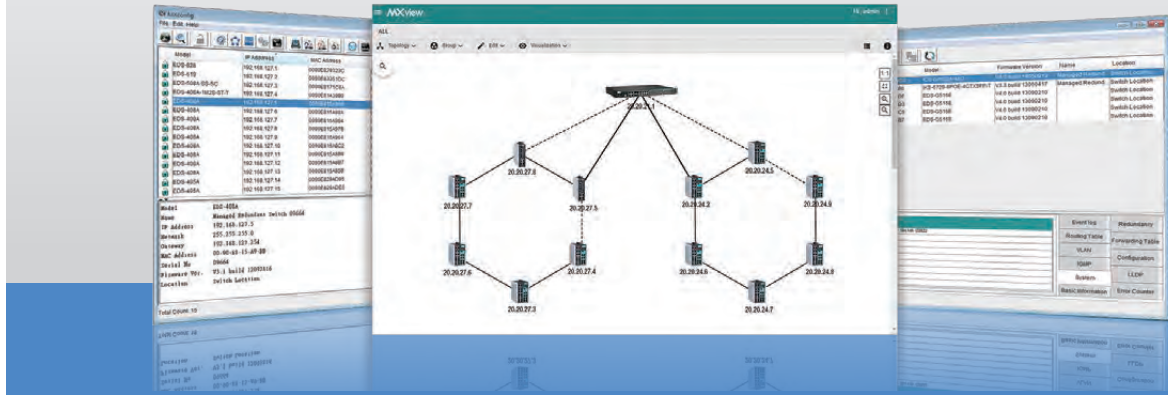


Product Series	TRC-2190	TRC-190	CSM-400	CSM-200
Ethernet Interface				
10/100BaseT(X) Ports (RJ45 connector)	2	–	1	1
Optical Fiber	–	–	100BaseFX ports Multi-mode, Single-mode, WDM-A Single-mode, or WDM-B Single-mode SC or ST connector	100BaseFX ports Multi-mode or Single-mode SC or ST connector
Typical Distance	–	–	Multi-mode: 4 km or 5 km, Single-mode: 40 km WDM-A: 20 km, WDM-B: 20 km	Multi-mode: 4 km or 5 km Single-mode: 40 km
Wavelength (typical)	–	–	Multi-mode: 1300 nm, Single-mode: 1310 nm WDM-A: 1310 or 1340 nm, WDM-B: 1550 or 1310 nm	Multi-mode: 1300 nm Single-mode: 1310 nm
Optical Power (TX range)	–	–	Multi-mode: -10 to -20 dBm Single-mode: 0 to -5 dBm WDM-A/WDM-B: -5 to -15 dBm	Multi-mode: -10 to -20 dBm Single-mode: 0 to -5 dBm
Optical Power (RX range)	–	–	Multi-mode/MDM-A/MDM-B: -3 to -32 dBm Single-mode: -3 to -34 dBm	Multi-mode: -3 to -32 dBm Single-mode: -3 to -34 dBm
Optical Power (link budget)	–	–	Multi-mode: 12 dB Single-mode: 29 dB WDM-A/WDM-B: 17 dB	Multi-mode: 12 dB Single-mode: 29 dB
Power Parameters				
Input Voltage	TRC-2190-AC: 100 to 240 VAC TRC-2190-DC-48V: 36 to 53 VDC	TRC-190-AC: 100 to 240 VAC TRC-190-DC-48: 36 to 53 VDC	12 VDC	12 VDC
No. of Power Inputs	2	2	–	–
Power Consumption	TRC-2190-AC: 1.5 A @ 100 to 240 VAC TRC-2190-DC-48V: 3.2 A @ 48 VDC	TRC-190-AC: 1.5 A @ 100 to 240 VAC TRC-190-DC-48V: 3.2 A @ 48 VDC	220 mA @ 12 VDC	180 mA @ 12 VDC
Physical Characteristics				
Dimensions	440 x 260 x 77 mm (17.32 x 10.24 x 3.03 in)	440 x 260 x 88 mm (17.32 x 10.24 x 3.46 in)	86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in)	86.8 x 124.3 x 21 mm (3.42 x 4.89 x 0.83 in)
Environmental Limits				
Operating Temperature	-20 to 55°C (-4 to 131°F)	0 to 60°C (32 to 140°F)	Standard Models: -20 to 55°C (-4 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	0 to 55°C (32 to 131°F)
Standards and Certifications				
EMC	EN 55032/24			
EMI	CISPR 32, FCC Part 15B Class A			
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 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
Safety	EN 60950-1, IEC 60950-1		EN 60950-1, UL 60950-1	

Ethernet-to-fiber Media Converters



Product Series	IMC-21	IMC-21A	IMC-101	IMC-101G	IMC-21GA	PTC-101	IMC-P101
Ethernet Interface							
10/100 BaseT(X) Ports (RJ45 connector)	1	1	1	-	-	1	-
10/100/1000 BaseT(X) Ports (RJ45 connector)	-	-	-	1	1	-	-
PoE Ports (10/100 BaseT(X), RJ45 connector)	-	-	-	-	-	-	1
100/1000 BaseSFP Ports	-	-	-	1	1	-	-
Optical Fiber	100BaseFX ports Multi-mode or Single-mode SC or ST connector	100BaseFX ports Multi-mode or Single-mode SC or ST connector	100BaseFX ports Multi-mode, Single-mode (40 km), or Single-mode (80 km) SC or ST connector	Optional 1000BaseSX/LSX/LX/LH/LHX/ZX/EZX Multi-mode or Single-mode LC connector	100/1000 BaseSX/LX or 100/1000 BaseSFP slot Multi-mode SC or LC connector	100BaseT(X) ports Multi-mode or Single-mode SC, ST, or LC connectors	100BaseT(X) ports Multi-mode or Single-mode SC or ST connector
Typical Distance	Multi-mode: 4 km or 5 km Single-mode: 40 km		Multi-mode: 4 km or 5 km Single-mode: 40 km or 80 km	40 or 80 or 110 or 120 km	1000BaseSX: 500 m 1000BaseLX: 10 km	Multi-mode: 5 km or 4 km Single-mode: 40 km	Multi-mode: 5 km Single-mode: 40 km
Wavelength (typical)	Multi-mode: 1300 nm Single-mode: 1310 nm		Multi-mode: 1300 nm Single-mode: 1310 nm or 1550 nm	1310 or 1550	1000BaseSX: 850 nm 1000BaseLX: 1310 nm	Multi-mode: 1300 nm Single-mode: 1310 nm	Multi-mode: 850 nm Single-mode: 1310 nm
Optical Power (TX range)	Multi-mode: -10 to -20 dBm Single-mode: 0 to -5 dBm			+3 to -4 / +5 to 0 / +3 to -2	1000BaseSX: -3 to -10 dBm 1000BaseLX: -3 to -9 dBm	Multi-mode: -10 to -20 dBm Single-mode: 0 to -5 dBm	Multi-mode/ Single-mode: 0 to -8 dBm
Optical Power (RX range)	Multi-mode: -3 to -32 dBm Single-mode: -3 to -34 dBm			-1 to -24 / -9 to -30 / -8 to -33	1000BaseSX: -3 to -20 dBm 1000BaseLX: -3 to -21 dBm	Multi-mode: -32 dBm Single-mode: -34 dBm	Multi-mode/ Single-mode: 0 to -25 dBm
Optical Power (link budget)	Multi-mode: 12 dB Single-mode: 29 dB			20 or 24 or 30 or 31	1000BaseSX: 10 dBm 1000BaseLX: 12 dBm	Multi-mode: 12 dBm Single-mode: 29 dBm	Multi-mode: 15 dB Single-mode: 20 dB
Power Parameters							
Input Current	300 mA @ 12 VDC	265 mA @ 12 VDC	200 mA @ 12 to 45 VDC	229 mA @ 12 VDC	285 mA @ 12 VDC	LV-DC models: 170 mA @ 20 VDC HV-AC models: 73 mA @ 85 VDC HV-DC models: 47 mA @ 88 VDC	430 mA @ 46 to 57 VDC
Input Voltage	12 to 48 VDC	12 to 48 VDC	12 to 45 VDC	12 to 48 VDC	12 to 48 VDC	LV-DC models: 20 to 72 VDC HV-AC models: 85 to 264 VAC HV-DC models: 88 to 300 VDC	46 to 57 VDC
Physical Characteristics							
Dimensions	25 x 109 x 97 mm (0.98 x 4.29 x 3.82 in)	30 x 125 x 79 mm (1.18 x 4.92 x 3.11 in)	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)		30 x 125 x 79 mm (1.19 x 4.92 x 3.11 in)	152.15 x 126.46 x 66.65 mm (5.99 x 4.98 x 2.62 in)	144.5 x 122.3 x 51.65 mm (5.69 x 4.81 x 2.03 in)
Environmental Limits							
Operating Temperature	-10 to 60°C (14 to 140°F)	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	-40 to 85°C (-40 to 185°F)	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Standards and Certifications							
EMC	EN 55032/24						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs
Safety	EN 60950-1, UL 60950-1						
Power Substation	-	-	-	-	-	IEC 61850-3	-
Railway	-	-	-	-	-	EN 50121-4	-



Moxa's MXstudio industrial network management suite combines all the tools you need throughout the network's life cycle into one toolbox, including MXview industrial management software, the MXconfig industrial network configuration tool, and the N-Snap industrial network snapshot tool.

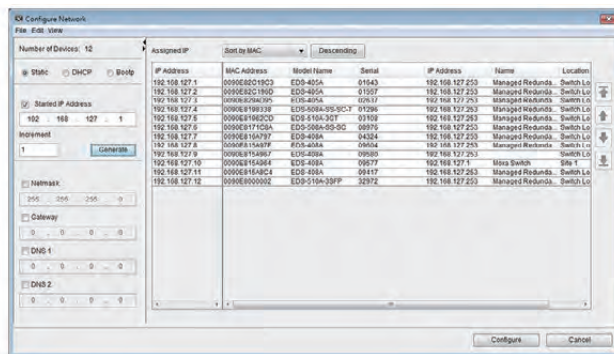
MXconfig Industrial Network Configuration Tool

Mass Configuration to Effectively Reduce Setup and Maintenance Costs

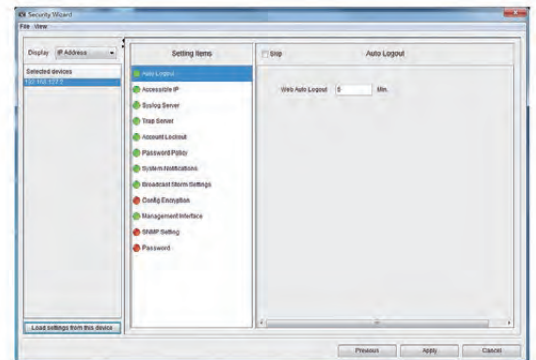
Moxa's MXconfig is a comprehensive Windows-based utility that is used to install, configure, and maintain multiple Moxa devices on industrial networks. MXconfig gives device installers and control engineers a powerful and easy way to mass configure devices, and it effectively reduces setup and maintenance costs.

Highlights

- Set the IP addresses of multiple devices with one click
- Configure redundant protocols and VLAN settings
- Modify the network configurations of multiple Moxa devices
- Upload firmware to multiple devices
- Set up security-related parameters with the Security Wizard in just a few clicks



Network Settings



Security Wizard

For a list of supported devices, please visit the MXconfig product page.

Network Management Software

Moxa's industrial network management software offers visibility of operational technology (OT), allowing network operators to make more informed decisions throughout network deployment, maintenance, and diagnostics. The visualized, engineer-friendly interface presents all network settings, conditions, and traceable records, making it easier for engineers to manage networks.



Network Management Software Product Pages

MXview Industrial Network Management Software

Visualized, Engineer-friendly Interfaces to Efficiently Manage Networks

Moxa's MXview is designed for configuring, monitoring, and diagnosing network devices on industrial networks. MXview provides an integrated management platform that can discover networking devices and SNMP/IP devices installed on subnets. All selected network components can be managed via a web browser from both local and remote sites—anytime and anywhere.

Highlights

- Easily integrate the software into third-party applications with a web widget and RESTful API interface
- Centralize management of device monitoring, configurations, and firmware for 10 different sites with up to 2,000 devices per site
- Check the network status via the dashboard
- Discover and visualize network devices and physical connections automatically
- Monitor the security status of network devices via Security View



Dashboard



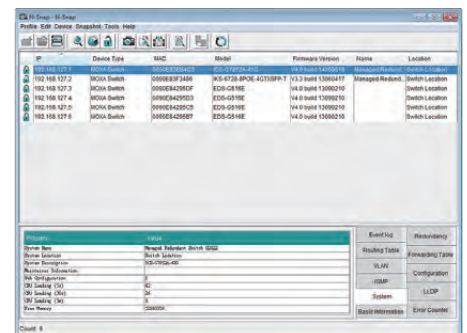
Security View

For a list of supported devices, please visit the product page.

N-Snap Industrial Network Snapshot Tool

Network Snapshots to Quickly Identify the Root Cause of Network Disruptions

- A standalone data collection tool to take network snapshots for quick troubleshooting
- Compares network and device data, and highlights the differences





Moxa Remote Connect Suite

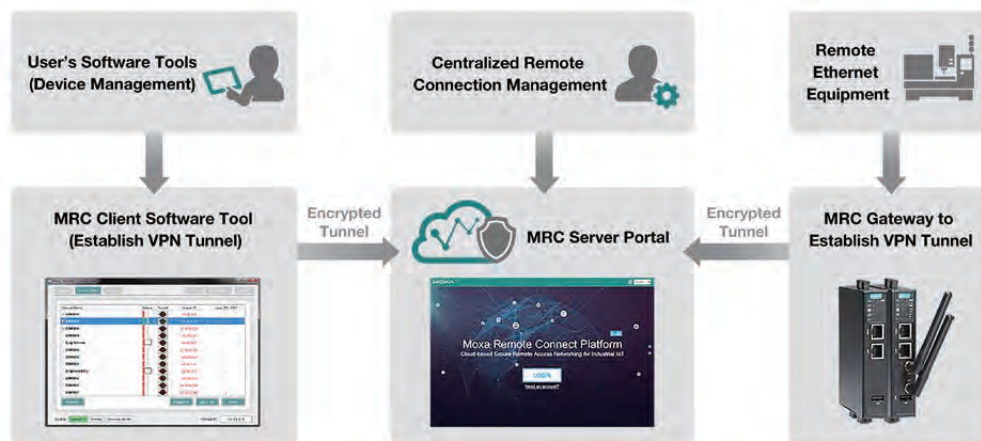
Effortless Access to Your Remote Machines

Moxa Remote Connect (MRC) is a convenient, secure, and versatile networking solution designed to seamlessly bridge field devices and engineers together over the Internet for industrial applications. The solution includes the MRC Server, MRC Gateway, and MRC Client. The MRC Server is a centralized connection management platform that determines the security level, user privileges, and configurations of the MRC Gateway and MRC Client. The MRC Gateway is a secure gateway that connects Ethernet-ready devices at remote sites to the MRC Client. The MRC Client is a software tool that allows engineers to choose which remote device to connect to from an engineer's laptop. A benefit of the MRC Server is that it gives administrators a lot of control over the remote connection including which periods of time a device can be accessed and the kind of features that are available.

Users can choose either the **BYOS (build your own server)** business model to have full control of their MRC, or **MRC Quick Link**, which is a remote connection service hosted by Moxa to minimize maintenance efforts and allow users to focus more on their business.

Highlights

- Machine access is fully controlled by machine operators for on-demand maintenance service
- Four types of access control are available to minimize the risks associated with remote access
- Specialized IT knowledge is not required to use the Suite
- Easy to integrate with existing security policies to reduce configuration efforts
- Changes to firewall settings are not required at field sites
- Connect with multiple field machines simultaneously via a virtual IP mapping scheme



Secure Remote Access

Moxa Remote Connect gives you a secure, easy-to-deploy, flexible, and scalable remote access solution that enables you to remotely configure, maintain, and troubleshoot your devices. It empowers machine builders by creating new business models for them to expand their services and keep their customers satisfied.



Secure Remote Access Product Pages

User Scenarios

The MRC Suite supports multiple connection types and provides numerous benefits. Below are three examples where the Moxa Remote Connect Suite can benefit engineers and businesses.

◆ On-demand Remote Maintenance, Diagnosis, and Troubleshooting

To minimize security issues and reduce costs, Moxa Remote Connect allows engineers to build remote connections only when necessary.



◆ Remote Monitoring Minimizes Onsite Maintenance

Moxa Remote Connect helps engineers monitor the status of machines operating at remote sites. Continuous monitoring of machine status allows engineers to make adjustments to settings remotely, reducing the need for engineers to make site visits to troubleshoot and fix onsite issues.



◆ LAN-like Site-to-site Secure Network Infrastructure

Moxa Remote Connect enables communication between different machines even if the machines are not at the same location. With Moxa Remote Connect, machines can transmit data to and from each other, just as though they were communicating over a local area network (LAN).



Product Portfolio

MRC Client Software

A software tool that connects engineers to the MRC Server, enabling them to perform remote troubleshooting and maintenance tasks.



- Windows-based connectivity and control software
- Supported on Microsoft Windows 7/10 (32/64-bit)
- Download for free from Moxa's website

MRC Server Software

A connection management platform that provides a centralized management portal for users.



- Connection management platform
- Centralized security management
- Supports BYOS and MRC Quick Link Service
- MRC Quick Link includes 5 year free connection service

MRC Gateway

A secure gateway that connects Ethernet-based edge devices—such as HMIs, PLCs, and cameras—to the MRC Server.



- Ethernet or LTE WAN connectivity
- Supports USA/Europe/Japan LTE bands
- An embedded whitelist firewall enables high levels of access control
- Site-to-site connections or connect up to 25 local devices per gateway



Visit our website to learn how to register your MRC gateways and use MRC Quick Link.



Read the White Paper to learn more about the key considerations when implementing secure remote access to your machines.



Watch a video that shows how Moxa Remote Connect is ideal for making remote access easy, secure, and flexible.



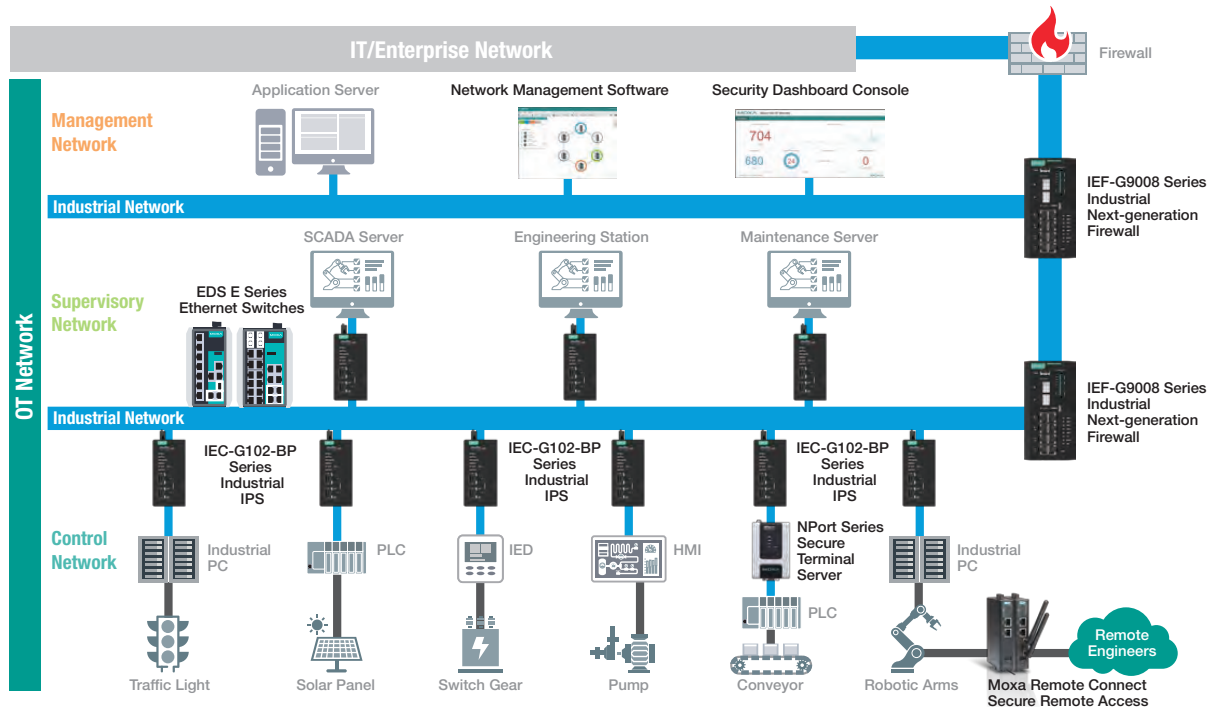
OT-IT Integrated Security

Protect OT assets from cyberthreats and mitigate cyberrisks

Moxa has introduced a new product category, Network Security Appliance, that protects industrial networks from intruders and unwanted traffic. It is specifically designed to secure industrial networks from both an Operations Technology (OT) and Information Technology (IT) perspective to better address the surging market demand for a comprehensive cybersecurity solution for industrial networks. Moxa's solution includes critical IT cybersecurity technologies such as an Intrusion Prevention System (IPS), a key component for defense-in-depth strategies, which has been specifically tailored to protect OT networks from cyberthreats without disrupting industrial operations.

- **IEC-G102-BP Series** protects mission-critical assets with an Industrial IPS and whitelisting
- **IEF-G9008 Series** realizes segmentation and IPS protection with an OT firewall, NAT, and VPN
- **Security Dashboard Console (SDC)** provides central management of the IEC-G102-BP Series and IEF-G9008 Series with visibility of critical assets, network analysis, and auto pattern updates

Defend Industrial Networks at All Levels



Network Security Appliance

Moxa's Network Security Appliance is designed to protect your critical industrial assets from industrial cybersecurity threats with OT-IT integrated cybersecurity technologies such as OT-centric Deep Packet Inspection (DPI).



Network Security Appliance
Product Pages

IEC-G102-BP Series Industrial IPS



Highlights

- “OT-centric Deep Packet Inspection (DPI)” allows users to create a whitelist of industrial protocols and control the network traffic that can be sent to critical controllers.
- “Monitor” and “Protect” modes offer flexibility for different OT scenarios. The “Monitor” mode gives administrators visibility of potential cyberthreats. In the event of an emergency, administrators can easily switch to “Protect” mode to block and contain any malicious operations.
- Enhance OT Visibility by utilizing Asset Identification and Network Analysis technologies.
- Pattern-based virtual patching complements existing patch management processes by shielding against vulnerabilities. Virtual patching acts as a security tool that OT administrators and operators can use to quickly fix vulnerabilities on affected OT equipment.

IEF-G9008 Series Industrial Next-generation Firewall Preliminary



Highlights

- Compact, security-hardened, and rugged hardware design.
- Includes all security features of IEC-G102-BP Series industrial IPS.
- Fine-grained Layer 2 to Layer 7 firewall policy with IPS capability.
- Industrial NAT and network segmentation.

Security Dashboard Console Preliminary



Highlights

- A security management platform that allows administrators or operators to effectively manage and monitor all IEC-G102-BP Series and IEF-G9008 Series devices from one place.
- A user-friendly UI provides an easier way to monitor the devices and execute policy updates, firmware updates, and pattern updates.



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Secure Terminal Servers

Moxa's terminal servers are equipped with the specialized functions and security features needed to establish reliable terminal connections to a network, and can connect various devices such as terminals, modems, data switches, mainframe computers, and POS devices to make them available to network hosts and processes.



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Combo Switch / Serial Device Servers

Moxa's NPort S8000 Series combine a serial device server with a full-function managed Ethernet switch, allowing you to save space in your cabinet, reduce overall power consumption, and reduce costs by eliminating the need to purchase and deploy separate devices.



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Combo I/O / Serial Device Servers

Moxa's NPort IA(W)5000A-I/O Series combines a serial device server, remote I/O, and wireless client into a single device. This design saves on installation space, simplifies device configuration, and reduces operational and maintenance costs.



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Substation-level Device Servers

The NPort S9000 Series device servers come with a built-in full-function managed Ethernet switch, and are designed specifically for the harsh environmental conditions found in electrical substations.

Serial Device Servers

With a portfolio of over 500 serial/USB connectivity products, Moxa has been committed to providing reliable industrial solutions for device connectivity since 1987. As a worldwide industry leader, our portfolio includes products with industry-specific certifications for harsh environments, rail applications, intelligent transportation systems, and power automation.



Serial Device Servers
Product Pages



Railway Device Servers

The NPort 5000AI-M12 is compliant with EN 50121-4 and all mandatory sections of EN 50155, covering operating temperature, power input voltage, surge, ESD, and vibration, making it suitable for rolling stock and wayside applications.



General-purpose Device Servers

Our NPort device servers make your serial devices network-ready in an instant. Their compact size makes them ideal for connecting devices such as card readers and payment terminals to an IP-based Ethernet LAN.



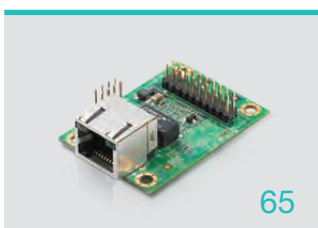
Industrial-grade Device Servers

These industrial device servers offer enhanced surge protection and are designed to ensure reliable serial-to-Ethernet connectivity when operating in harsh environments, such as oil and gas and power automation.



Wireless Device Servers

Our wireless device servers are the ideal choice for connecting your serial or Ethernet devices—such as PLCs, meters, and sensors—to a wireless network, avoiding the hassle of running a network cable to each device.



Embedded Device Servers

Moxa's embedded serial-to-Ethernet device server modules are compact, power-efficient, and easy to integrate.

Secure Terminal Servers



Product Series	NPort 6150 (-T)	NPort 6250 (-T)	NPort 6250-M-SC (-T)	NPort 6250-S-SC (-T)	NPort 6450 (-T)	NPort 6610-8	NPort 6610-16
Memory							
SD Slot	Up to 32 GB (SD 2.0 compatible)						
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 connector)	1, Auto MDI/MDI-X connection		-	-	1, Auto MDI/MDI-X connection		
100BaseF(X) Ports (SC connector)	-	-	1, Multi-mode	1, Single-mode	-	-	-
Magnetic Isolation Protection	1.5 kV (built-in)						
Expansion Modules							
10/100BaseT(X) (RJ45)	-	-	-	-	1 port: NM-TX01 (-T), 2 ports: NM-TX02 (-T)		
Multi-mode Fiber (SC)	-	-	-	-	1 port: NM-FX01-M-SC (-T), 2 ports: NM-FX02-M-SC (-T)		
Single-mode Fiber (SC)	-	-	-	-	1 port: NM-FX01-S-SC (-T), 2 ports: NM-FX02-S-SC (-T)		
Ethernet Software Features							
Configuration Options	Web Console (HTTP/HTTPS), Serial Console, Telnet/SSH Console, Windows Utility						
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, IPv4/IPv6, SMTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, PPPoE, ICMP						
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x						
Android API	Android 3.1.x and later						
Serial Interface							
Connector	DB9 male				8-pin RJ45		
No. of Ports	1	2		4	8	16	
Serial Standards	RS-232/422/485				RS-232		
Secure Operation Modes	Reverse SSH, Secure Pair Connection, Secure Real COM, Secure TCP Client, Secure TCP Server, SSH						
Standard Operation Modes	Disabled, Ethernet Modem, Pair Connection, PPP, Printer, Real COM, RTelnet, RFC2217, TCP Client, TCP Server, Terminal, UDP						
Baudrate	50 bps to 921.6 kbps (supports nonstandard baudrates)						
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						
RS-485 Data Direction Control	ADDCC® (automatic data direction control)						
Power Parameters							
Input Current	285 mA @ 12 VDC	333 mA @ 12 VDC	428 mA @ 12 VDC	376 mA @ 12 VDC	730 mA @ 12 VDC	140 mA @ 100 VAC	192 mA @ 100 VAC
Input Voltage	12 to 48 VDC				100 to 240 VAC		
Physical Characteristics							
Housing	Metal						
Dimensions (without ears)	67 x 100.4 x 29 mm (2.64 x 3.95 x 1.14 in)	77 x 111 x 29 mm (3.03 x 4.37 x 1.14 in)			158 x 103 x 35 mm (6.22 x 4.06 x 1.38 in)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)	
Weight	700 g (1.54 lb)	730 g (1.61 lb)		1,020 g (2.25 lb)	3,460 g (7.63 lb)	3,580 g (7.89 lb)	
Interactive Interface	-	-	-	-	LCD panel display (non-T models only), push buttons for configuration (non-T models only)		
Installation	Desktop, DIN-rail mounting (with optional kit), wall mounting				Rack mounting (with optional kit)		
Environmental Limits							
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)				0 to 55°C (32 to 131°F)		
Standards and Certifications							
EMC	EN 55032/24						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs				IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power 1 kV; Signal 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs		
Safety	UL 60950-1						
Traffic Control	NEMA TS2		-		NEMA TS2		
Declaration							
Green Product	RoHS, CRoHS, WEEE						
Warranty							
Warranty Period	5 years						

Secure Terminal Servers



Product Series	NPort 6610-32	NPort 6650-8 (-T)	NPort 6650-16 (-T)	NPort 6650-32	NPort 6610-8-48V (-16/-32)	NPort 6650-8-48V (-16/-32)	NPort 6650-8-HV-T (-16/-32)
Memory	Up to 32 GB (SD 2.0 compatible)						
Ethernet Interface	10/100BaseT(X) Ports (RJ45 connector) 1, Auto MDI/MDI-X connection						
Magnetic Isolation Protection	1.5 kV (built-in)						
Expansion Modules	10/100BaseT(X) (RJ45) 1 port: NM-TX01 (-T), 2 ports: NM-TX02 (-T) Multi-mode fiber (SC) 1 port: NM-FX01-M-SC (-T), 2 ports: NM-FX02-M-SC (-T) Single-mode fiber (SC) 1 port: NM-FX01-S-SC (-T), 2 ports: NM-FX02-S-SC (-T)						
Ethernet Software Features	Web Console (HTTP/HTTPS), Serial Console, Telnet/SSH Console, Windows Utility						
Configuration Options	ARP, BOOTP, DHCP Client, DNS, HTTP, IPv4/IPv6, SMTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, PPPoE, ICMP						
Management	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Windows Real COM Drivers	SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Fixed TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x						
Linux Real TTY Drivers	Android 3.1.x and later						
Android API	8-pin RJ45						
Serial Interface	8-pin RJ45						
Connector	8-pin RJ45						
No. of Ports	32	8	16	32	8 or 16 or 32	8 or 16 or 32	8 or 16 or 32
Serial Standards	RS-232	RS-232/422/485			RS-232	RS-232/422/485	
Secure Operation Modes	Reverse SSH, Secure Pair Connection, Secure Real COM, Secure TCP Client, Secure TCP Server, SSH						
Standard Operation Modes	Disabled, Ethernet Modem, Pair Connection, PPP, Printer, Real COM, RTelnet, RFC2217, TCP Client, TCP Server, Terminal, UDP						
Baudrate	50 bps to 921.6 kbps (supports nonstandard baudrates)						
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						
RS-485 Data Direction Control	ADDC® (automatic data direction control)						
Power Parameters	ADDC® (automatic data direction control)						
Input Current	285 mA @ 100 VAC	140 mA @ 100 VAC	192 mA @ 100 VAC	285 mA @ 100 VAC	293 mA @ 48 VDC, 200 mA @ 88 VDC		
Input Voltage	100 to 240 VAC				±48 VDC (20 to 72 VDC, -20 to -72 VDC)		110 VDC (88 to 300 VDC)
Physical Characteristics	Metal						
Housing	Metal						
Dimensions (without ears)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)						
Weight	3,600 g (7.94 lb)	3,460 g (7.63 lb)	3,580 g (7.89 lb)	3,600 g (7.94 lb)	8 ports: 3,460 g (7.63 lb), 16 ports: 3,580 g (7.89 lb), 32 ports: 3,600 g (7.94 lb)		
Interactive Interface	LCD panel display (non-T models only), push buttons for configuration (non-T models only)						
Installation	Rack mounting (with optional kit)						
Environmental Limits	Rack mounting (with optional kit)						
Operating Temperature	0 to 55°C (32 to 131°F)	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)			0 to 55°C (32 to 131°F)		-40 to 85°C (-40 to 185°F)
Standards and Certifications	Rack mounting (with optional kit)						
EMC	EN 55032/24						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPS			IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF			IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Safety	UL 60950-1						
Traffic Control	NEMA TS2						
Declaration	NEMA TS2						
Green Product	RoHS, CRoHS, WEEE						
Warranty	RoHS, CRoHS, WEEE						
Warranty Period	5 years						

Secure Terminal Servers



Product Series	CN2610-8-2AC	CN2610-16-2AC	CN2650-8	CN2650-16	CN2650-8-2AC (-T)	CN2650-16-2AC (-T)
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 connector)	2					
Magnetic Isolation Protection	1.5 kV (built-in)					
Ethernet Software Features						
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console, Device Search Utility (DSU)					
Management	ARP, BOOTP, DDNS, DHCP Client, DNS, HTTP, IPv4, SMTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, ICMP, SLIP					
Security	HTTPS/SSL, RADIUS, SSH, PAP, CHAP					
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X					
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x					
Android API	Android 3.1.x and later					
Serial Interface						
Connector	8-pin RJ45					
No. of Ports	8	16	8	16	8	16
Serial Standards	RS-232		RS-232/422/485			
Baudrate	50 bps to 921.6 kbps					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF					
Isolation	-	-	-	-	-	-
RS-485 Data Direction Control	ADDC® (automatic data direction control)					
Power Parameters						
No. of Power Inputs	2	2	1	1	2	2
Input Current	130 mA @ 110 VAC					
Input Voltage	100 to 240 VAC, 47 to 63 Hz					
Physical Characteristics						
Housing	Metal					
Dimensions (without ears)	440 x 198 x 45.5 mm (17.32 x 7.78 x 1.79 in)					
Weight	2,560 g (5.64 lb)	2,640 g (5.82 lb)	2,410 g (5.31 lb)	2,460 g (5.42 lb)	2,560 g (5.64 lb)	2,640 g (5.82 lb)
Installation	19-inch rack mounting					
Environmental Limits						
Operating Temperature	0 to 55°C (32 to 131°F)				Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	
Standards and Certifications						
EMC	EN 55032/24					
EMI	CISPR 32, FCC Part 15B Class A					
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 IEC 61000-4-11 DIPS					
Safety	UL 60950-1					
Declaration						
Green Product	RoHS, CRoHS, WEEE					
Warranty						
Warranty Period	5 years					

Secure Terminal Servers



Product Series	CN2650I-8	CN2650I-16	CN2650I-8-2AC	CN2650I-16-2AC	CN2650I-8-HV-T	CN2650I-16-HV-T
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 connector)	2					
Magnetic Isolation Protection	1.5 kV (built-in)					
Ethernet Software Features						
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console, Device Search Utility (DSU)					
Management	ARP, BOOTP, DDNS, DHCP Client, DNS, HTTP, IPv4, SMTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, ICMP, SLIP					
Security	HTTPS/SSL, RADIUS, SSH, PAP, CHAP					
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X					
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x					
Android API	Android 3.1.x and later					
Serial Interface						
Connector	DB9 male					
No. of Ports	8	16	8	16	8	16
Serial Standards	RS-232/422/485					
Baudrate	50 bps to 921.6 kbps					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF					
Isolation	2 kV					
RS-485 Data Direction Control	ADDC® (automatic data direction control)					
Power Parameters						
No. of Power Inputs	1	1	2	2	2	2
Input Current	130 mA @ 110 VAC				200 mA @ 88 VDC	
Input Voltage	100 to 240 VAC, 47 to 63 Hz				110 VDC (88 to 300 VDC)	
Physical Characteristics						
Housing	Metal					
Dimensions (without ears)	440 x 198 x 45.5 mm (17.32 x 7.80 x 1.77 in)					
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)
Installation	19-inch rack mounting					
Environmental Limits						
Operating Temperature	0 to 55°C (32 to 131°F)				-40 to 85°C (-40 to 185°F)	
Standards and Certifications						
EMC	EN 55032/35					
EMI	CISPR 32, FCC Part 15B Class A					
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 IEC 61000-4-11 DIPs				IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8	
Safety	UL 62368-1					
Declaration						
Green Product	RoHS, CRoHS, WEEE					
Warranty						
Warranty Period	5 years					

Combo Switch / Serial Device Servers



Product Series	NPort S8455I (-T)	NPort S8455I-MM-SC (-T)	NPort S8455I-SS-SC (-T)
Ethernet Interface			
10/100BaseT(X) Ports (RJ45 connector)	5	3	3
100BaseFX Ports (multi-mode SC connector)	–	2	–
100BaseFX Ports (single-mode SC connector)	–	–	2
Magnetic Isolation Protection	1.5 kV (built-in)		
Standards	IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1X for authentication IEEE 802.3 for 10BaseT IEEE 802.3ad for Port Trunk with LACP IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for flow control		
Switch Properties			
IGMP Groups	256		
Max. No. of VLANs	64		
Priority Queues	4		
VLAN ID Range	VID 1 to 4094		
Ethernet Software Features			
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Serial Console, Telnet Console		
Management	BOOTP, Device Search Utility (DSU), DHCP Client, DHCP Option 82, HTTP, IPv4, LLDP, Port Mirror, RMON, SMTP, SNMPv1/v2c/v3, Syslog, TCP/IP, Telnet, Web Console		
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded		
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x		
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		
Android API	Android 3.1.x and later		
Redundancy Protocols	RSTP, Turbo Chain, Turbo Ring		
Security	HTTPS, SSL, SSH		
Authentication	Local Account Accessibility, RADIUS, TACACS+		
Serial Interface			
No. of Ports	4		
Serial Standards	RS-232/422/485		
Baudrate	50 to 921.6 kbps		
Data Bits	5, 6, 7, 8		
Stop Bits	1, 1.5, 2		
Parity	None, Even, Odd, Space, Mark		
Flow Control	None, RTS/CTS, XON/XOFF		
Isolation	2 kV		
RS-485 Data Direction Control	ADDCC® (automatic data direction control)		
Power Parameters			
Input Current	935 mA @ 12 VDC		
Input Voltage	12 to 48 VDC		
Physical Characteristics			
Housing	Metal		
Dimensions	73.1 x 134 x 125 mm (2.88 x 5.27 x 4.92 in)		
Weight	578 g (1.27 lb)		
Installation	DIN-rail mounting, wall mounting (with optional kit)		
Environmental Limits			
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 0.25 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8		
Hazardous Locations	Class I Division 2		
Safety	EN 60950-1, IEC 60950-1, UL 508, UL 60950-1		
Warranty			
Warranty Period	5 years		

Combo I/O / Serial Device Servers



Product Series	NPort IA5150A-6I/O	NPort IA5250A-6I/O	NPort IA5150A-12I/O	NPort IA5250A-12I/O	NPort IAW5150A-6I/O	NPort IAW5250A-6I/O	NPort IAW5150A-12I/O	NPort IAW5250A-12I/O
Memory								
microSD Slot	Up to 32 GB (SD 2.0 compatible)							
Input/Output Interface								
Digital Input	4 channels		8 channels		4 channels		8 channels	
Digital Output	2 channels		4 channels		2 channels		4 channels	
Alarm Contact	Relay output with current carrying capacity of 2 A @ 30 VDC							
Digital Inputs								
Sensor Type	Dry contact; Wet contact (NPN or PNP)							
Dry Contact	On: short to GND; Off: open							
Wet Contact	On: 10 to 30 VDC; Off: 0 to 3 VDC (DI to COM)							
I/O Mode	DI or event counter							
Counter Freq.	20 Hz							
Digital Outputs								
I/O Mode	DO or pulse output							
I/O Type	Sink							
Ethernet Interface								
10/100 BaseT(X)	2 RJ45 ports, auto MDI/MDI-X connection				1 RJ45 port, auto MDI/MDI-X connection			
Ethernet Software Features								
Configuration	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console							
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded							
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x							
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X							
Android API	Android 3.1.x and later							
Serial Interface								
No. of Ports	1	2	1	2	1	2	1	2
Serial Standards	RS-232/422/485 (4 kV serial surge protection)							
Baudrate	50 bps to 921.6 kbps				50 bps to 921.6 kbps (supports nonstandard baudrates)			
Data Bits/Stop Bits	5, 6, 7, 8/ 1, 1.5, 2							
Parity	None, Even, Odd, Space, Mark							
Flow Control	None, RTS/CTS, XON/XOFF							
WLAN Interface								
WLAN Standards	-		-		-		802.11a/b/g/n	
Transmission Distance	-		-		-		Up to 100 meters (in open areas)	
Transmission Rate	-		-		-		802.11a/g: 54 Mbps 802.11b: 11 Mbps 802.11n: 6.5 to 150 Mbps	
Wireless Security	-		-		-		WEP encryption (64-bit and 128-bit), WPA/WPA2-Personal, WPA/WPA2-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES)	
WLAN Modes	-		-		-		Ad-hoc mode, Infrastructure mode	
Power Parameters								
Input Current	300 mA @ 12 VDC							
Input Voltage	12 to 48 VDC							
Physical Characteristics								
Housing	Metal							
Dimensions	59.6 x 101.4 x 134 mm (2.35 x 4 x 5.28 in)							
Weight	740 g (1.63 lb)	750 g (1.65 lb)	750 g (1.65 lb)	760 g (1.68 lb)	740 g (1.63 lb)	760 g (1.68 lb)	760 g (1.68 lb)	780 g (1.72 lb)
Installation	DIN-rail mounting, wall mounting (with optional kit)							
Environmental Limits								
Operating Temp.	0 to 55°C (32 to 131°F)							
Standards and Certifications								
EMC	EN 61000-6-2/-6-4							
EMI	CISPR 32, FCC Part 15B Class A							
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: Ethernet: 2 kV, Serial: 4 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF							
Radio Frequency Safety	-		-		-		EN 300 328, EN 301 893	
Declaration	EN 60950-1, UL 60950-1							
Green Product	RoHS, CRoHS, WEEE							
Warranty	5 years							
Warranty Period	5 years							

Substation-level Device Servers



Product Series	NPort S9450I-WV-T NPort S9450I-HV-T	NPort S9450I-2M-SC-WV-T NPort S9450I-2M-SC-HV-T	NPort S9450I-2M-ST-WV-T NPort S9450I-2M-ST-HV-T	NPort S9450I-2S-SC-WV-T NPort S9450I-2S-SC-HV-T	NPort S9450I-2S-ST-WV-T NPort S9450I-2S-ST-HV-T
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 connector)	5	3	3	3	3
100BaseFX Ports (multi-mode SC connector)	-	2	-	-	-
100BaseFX Ports (multi-mode ST connector)	-	-	2	-	-
100BaseFX Ports (single-mode SC connector)	-	-	-	2	-
100BaseFX Ports (single-mode ST connector)	-	-	-	-	2
Magnetic Isolation Protection	1.5 kV (built-in)				
Switch Properties					
IGMP Groups	256				
Max. No. of VLANs	64				
Priority Queues	4				
VLAN ID Range	VID 1 to 4094				
Ethernet Software Features					
Configuration Options	Command Line Interface (CLI) through Serial/Telnet/SSH, Web Console (HTTP/HTTPS), Windows Utility				
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded				
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x				
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X				
Android API	Android 3.1.x and later				
Industrial Protocols	Modbus TCP Server (slave), DNP3 TCP Outstation				
Redundancy Protocols	RSTP, Turbo Chain, Turbo Ring				
Security	HTTPS/SSL, Local Account Accessibility, TACACS+, RADIUS, SSH				
Serial Interface					
No. of Ports	4				
Serial Standards	RS-232/422/485				
Baudrate	50 bps to 921.6 kbps (supports nonstandard baudrates)				
Isolation	2 kV				
Surge	4 kV				
RS-485 Data Direction Control	ADDC® (automatic data direction control)				
Power Parameters					
Input Current	-WV Series: 520 mA @ 24 VDC -HV Series: 80 mA @ 110 VDC				
Input Voltage	-WV Series: 24/48 VDC (18 to 72 VDC) -HV Series: 110/220 VAC/VDC (110 to 220 VAC, 110 to 220 VDC)				
Physical Characteristics					
Housing	Metal				
Dimensions	80 x 160 x 109 mm (3.15 x 6.30 x 4.29 in)				
Weight	Product only: 2,540 g (5.60 lb)				
Installation	DIN-rail mounting, wall mounting (with optional kit)				
Environmental Limits					
Operating Temperature	-40 to 85°C (-40 to 185°F)				
Standards and Certifications					
EMC	EN 61000-6-2/-6-4				
EMI	CISPR 32, FCC Part 15B Class A				
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 6 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs				
Power Substation	IEC 61850-3, IEEE 1613				
Hazardous Locations	UL/cUL Class I Division 2 Groups A/B/C/D				
Safety	EN 61010-2-201, UL 61010-2-201				
Declaration					
Green Product	RoHS, CRoHS, WEEE				
Warranty					
Warranty Period	5 years				

Substation-level Device Servers



Product Series	NPort S9650I-8-2HV-E-T (-16)	NPort S9650I-8-2HV-MS-C-T (-16)	NPort S9650I-8-2HV-SS-C-T (-16)	NPort S9650I-8B-2HV-IRIG-T (-16B)	NPort S9650I-8F-2HV-E-T (-16F)	NPort S9650I-8F-2HV-MS-C-T (-16F)	NPort S9650I-8F-2HV-SS-C-T (-16F)
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 connector)	4	2	2	2	4	2	2
100BaseFX Ports (multi-mode SC connector)	-	2	-	-	-	2	-
100BaseFX Ports (single-mode SC connector)	-	-	2	-	-	-	2
Magnetic Isolation Protection	1.5 kV (built-in)						
Ethernet Software Features							
Configuration Options	Command Line Interface (CLI) through Serial/Telnet/SSH, Web Console (HTTP/HTTPS), Windows Utility						
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x						
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Android API	Android 3.1.x and later						
Industrial Protocols	Modbus TCP Server (slave), DNP3 TCP Outstation						
Time Management	NTP Server/Client, SNTP, IEEE 1588v2 PTP (hardware-based), IRIG-B						
Redundancy Protocols	RSTP, Turbo Chain, Turbo Ring						
Security	HTTPS/SSL, Local Account Accessibility, TACACS+, RADIUS, SSH						
IRIG-B Interface							
PWM/PPS Output, BNC Connector	-	-	-	1	-	-	-
PWM Input, BNC Connector	-	-	-	1	-	-	-
PWM/PPS Output, DB9 Female	-	-	-	-8B Series: 8 -16B Series: 16	-	-	-
Serial Interface							
Connector	DB9 male		DB9 female		Multi-mode fiber ST connector		
No. of Ports	-8 Series: 8 -16 Series: 16		-8B Series: 8 -16B Series: 16		-8F Series: 8 -16F Series: 16		
Serial Standards	RS-232/422/485						
Baudrate	50 bps to 921.6 kbps (supports nonstandard baudrates)						
Isolation	2 kV						
Surge	4 kV						
RS-485 Data Direction Control	ADDC® (automatic data direction control)						
Power Parameters							
Input Current	0.65 A @ 100 VAC, 0.47A @ 100 VDC						
Input Voltage	110/220 VAC/VDC (100 to 240 VAC, 100 to 250 VDC)						
Physical Characteristics							
Housing	Metal						
Dimensions	457 x 32 x 330 mm (18 x 1.25 x 12.99 in)						
Weight	Product only: 5,150 g (11.35 lb)						
Installation	19-inch rack mounting						
Environmental Limits							
Operating Temp.	-40 to 85°C (-40 to 185°F)						
Standards and Certifications							
EMC	EN 61000-6-2/-6-4						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 6 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs						
Power Substation Safety	IEC 61850-3, IEEE 1613 EN 61010-2-201, UL 61010-2-201						
Declaration							
Green Product	RoHS, CRoHS, WEEE						
Warranty							
Warranty Period	5 years						

Railway Device Servers



Product Series	NPort 5150AI-M12 (-T) (-CT)	NPort 5250AI-M12 (-T) (-CT)	NPort 5450AI-M12 (-T) (-CT)
Ethernet Interface			
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector)	1		
Ethernet Software Features			
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console		
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, IPv4, LLDP, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP, ICMP		
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded		
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X		
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x		
Android API	Android 3.1.x and later		
Serial Interface			
No. of Ports	1	2	4
Serial Standards	RS-232/422/485		
Baudrate	Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k		
Data Bits	5, 6, 7, 8		
Stop Bits	1, 1.5, 2		
Parity	None, Even, Odd, Space, Mark		
Flow Control	RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF		
RS-485 Data Direction Control	ADDC® (automatic data direction control)		
Power Parameters			
Input Current	310 mA @ 12 VDC	360 mA @ 12 VDC	440 mA @ 12 VDC
Input Voltage	12 to 48 VDC		
Power Connector	M12 A-coded 5-pin male connector		
Physical Characteristics			
Dimensions (without ears or antenna)	80 x 216.6 x 52.9 mm (3.15 x 8.53 x 2.08 in)		
Weight	686 g (1.51 lb)		
Environmental Limits			
Operating Temperature	Standard Models: -25 to 55°C (-13 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		
Conformal Coating	NPort 5000AI-M12-CT Series		
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF		
Railway	EN 50121-4		
Safety	UL 60950-1		
Declaration			
Green Product	RoHS, CRoHS, WEEE		
Warranty			
Warranty Period	5 years		

General-purpose Device Servers



Product Series	NPort 5110 (-T)	NPort 5130	NPort 5150	NPort 5110A (-T)	NPort 5130A (-T)	NPort 5150A (-T)	NPort P5150A (-T)	
Ethernet Interface								
10/100BaseT(X) Ports (RJ45 connector)	1							
Magnetic Isolation Protection	1.5 kV (built-in)							
Standards	-	-	-	-	-	-	PoE (IEEE 802.3af)	
Ethernet Software Features								
Configuration Options	Web Console (HTTP), Windows Utility, Telnet Console, Serial Console	Web Console (HTTP), Windows Utility, Telnet Console	Web Console (HTTP), Windows Utility, Telnet Console, Serial Console	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console				
Management	DHCP Client, IPv4, SNMP, SMTP, SNMPv1, Telnet, DNS, HTTP, ARP, BOOTP, UDP, TCP/IP, ICMP			DHCP Client, IPv4, LLDP, SMTP, SNMPv1/v2c, Telnet, DNS, HTTP, HTTPS, ARP, BOOTP, UDP, TCP/IP, ICMP				
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded							
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X							
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x							
Android API	Android 3.1.x and later							
Serial Interface								
Serial Standards	RS-232	RS-422/485	RS-232/422/485	RS-232	RS-422/485	RS-232/422/485		
Baudrate	110 bps to 230.4 kbps	50 bps to 921.6 kbps		Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k				
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	XON/XOFF	RTS/CTS, DTR/DSR, XON/XOFF		XON/XOFF	RTS/CTS, DTR/DSR, XON/XOFF		
Power Parameters								
Input Current	128 mA @ 12 VDC	200 mA @ 12 VDC		82.5 mA @ 12 VDC	89.1 mA @ 12 VDC	92.4 mA @ 12 VDC	DC Jack I/P: 125 mA @ 12 VDC PoE I/P: 180 mA @ 48 VDC	
Input Voltage	12 to 48 VDC						12 to 48 VDC (supplied by power adapter), 48 VDC (supplied by PoE)	
Physical Characteristics								
Dimensions (without ears)	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)	
Weight	340 g (0.75 lb)						300 g (0.66 lb)	
Installation	Desktop, DIN-rail mounting (with optional kit), wall mounting							
Environmental Limits								
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)						Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	
Standards and Certifications								
EMC	EN 55032/24							
EMI	CISPR 32, FCC Part 15B Class A							
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs			IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs			IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	
Safety	UL 60950-1							
Warranty								
Warranty Period	5 years							

General-purpose Device Servers



Product Series	NPort 5210 (-T)	NPort 5230 (-T)	NPort 5232 (-T)	NPort 5232I (-T)	NPort 5210A (-T)	NPort 5230A (-T)	NPort 5250A (-T)
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 connector)	1						
Magnetic Isolation Protection	1.5 kV (built-in)						
Ethernet Software Features							
Configuration Options	Web Console (HTTP), Windows Utility, Telnet Console, Serial Console				Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console		
Management	DHCP Client, IPv4, SNMP, SMTP, SNMPv1, DNS, HTTP, ARP, BOOTP, UDP, TCP/IP, Telnet, ICMP				DHCP Client, IPv4, LLDP, SMTP, SNMPv1/v2c, Telnet, DNS, HTTP, HTTPS, ARP, BOOTP, UDP, TCP/IP, ICMP		
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x						
Android API	Android 3.1.x and later						
Serial Interface							
Connector	8-pin RJ45	Terminal block			DB9 male	5-pin terminal block	DB9 male
No. of Ports	2						
Serial Standards	RS-232	RS-232/422/485	RS-422/485		RS-232	RS-422/485	RS-232/422/485
Baudrate	Supports standard baudrates (unit=bps): 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 2304000				Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k		
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		XON/XOFF		RTS/CTS, DTR/DSR, XON/XOFF	XON/XOFF	RTS/CTS, DTR/DSR, XON/XOFF
RS-485 Data Direction Control	ADDCC® (automatic data direction control)						
Isolation	-	-	-	2 kV	-	-	-
Power Parameters							
Input Current	325 mA @ 12 VDC		280 mA @ 12 VDC, 365 mA @ 12 VDC		119 mA @ 12 VDC		
Input Voltage	12 to 48 VDC						
No. of Power Inputs	1				2		
Power Connector	1 removable 3-contact terminal block(s)				1 removable 3-contact terminal block(s), power input jack		
Physical Characteristics							
Housing	Metal						
Dimensions (without ears)	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 1.38 in)	77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)		
Weight	340 g (0.75 lb)	360 g (0.79 lb)		380 g (0.84 lb)	340 g (0.75 lb)		
Installation	Desktop, DIN-rail mounting (with optional kit), wall mounting						
Environmental Limits							
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)				Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		
Standards and Certifications							
EMC	EN 55032/24						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPS				IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPS		
Safety	UL 60950-1						
Medical	EN 60601-1-2 Class B, EN 55011	-	-	-	-	-	-
Maritime	-	DNV GL			-	-	-
Declaration							
Green Product	RoHS, CrRoHS, WEEE						
Warranty							
Warranty Period	5 years						

General-purpose Device Servers



Product Series	NPort 5410	NPort 5430	NPort 5430I	NPort 5450 (-T)	NPort 5450I (-T)
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 connector)	1				
Magnetic Isolation Protection	1.5 kV (built-in)				
Ethernet Software Features					
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console				
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, IPv4, LLDP, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP, RTnet, ICMP				
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded				
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X				
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x				
Android API	Android 3.1.x and later				
Serial Interface					
Connector	DB9 male	Terminal block		DB9 male	
No. of Ports	4				
Serial Standards	RS-232	RS-422/485		RS-232/422/485	
Baudrate	Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k				
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	XON/XOFF		RTS/CTS, DTR/DSR, XON/XOFF	
Isolation	-	-	2 kV	-	2 kV
RS-485 Data Direction Control	ADDC® (automatic data direction control)				
Power Parameters					
Input Current	350 mA @ 12 VDC	320 mA @ 12 VDC	530 mA @ 12 VDC	350 mA @ 12 VDC	554 mA @ 12 VDC
Input Voltage	12 to 48 VDC				
No. of Power Inputs	2				
Power Connector	1 removable 3-contact terminal block(s), power input jack				
Physical Characteristics					
Housing	Metal				
Dimensions (without ears)	158 x 103 x 33 mm (6.22 x 4.06 x 1.30 in)				
Weight	740 g (1.63 lb)				
Interactive Interface	LCD panel display (standard temp. models only) Push buttons for configuration (standard temp. models only)				
Installation	Desktop, DIN-rail mounting (with optional kit), wall mounting				
Environmental Limits					
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)				
Standards and Certifications					
EMC	EN 55032/24				
EMI	CISPR 32, FCC Part 15B Class A				
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs				
Maritime	DNV GL		DNV GL (standard temp. models only)		
Medical	EN 60601-1-2 Class B, EN 55011	-	-	EN 60601-1-2 Class B, EN 55011	
Safety	UL 60950-1				
Warranty					
Warranty Period	5 years				

General-purpose Device Servers



Product Series	NPort 5610-8	NPort 5610-8-48V	NPort 5630-8	NPort 5610-16	NPort 5610-16-48V	NPort 5630-16
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 connector)	1					
Magnetic Isolation Protection	1.5 kV (built-in)					
Ethernet Software Features						
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console					
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, IPv4, LLDP, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP, ICMP, RTelnet, RFC2217, PPP, SLIP					
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X					
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x					
Android API	Android 3.1.x and later					
Serial Interface						
Connector	8-pin RJ45					
No. of Ports	8			16		
Serial Standards	RS-232	RS-422/485	RS-232	RS-232	RS-422/485	RS-422/485
Baudrate	Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF	None, XON/XOFF	None, RTS/CTS, DTR/DSR, XON/XOFF	None, XON/XOFF	None, RTS/CTS, DTR/DSR, XON/XOFF	None, XON/XOFF
RS-485 Data Direction Control	ADDC® (automatic data direction control)					
Power Parameters						
Input Current	141 mA @ 100 VAC	135 mA @ 48 VDC	152 mA @ 100 VAC	141 mA @ 100 VAC	135 mA @ 48 VDC	152 mA @ 100 VAC
Input Voltage	100 to 240 VAC, 47 to 63 Hz	±48 VDC, 20 to 72 VDC, -20 to -72 VDC	100 to 240 VAC, 47 to 63 Hz		±48 VDC, 20 to 72 VDC, -20 to -72 VDC	100 to 240 VAC, 47 to 63 Hz
Physical Characteristics						
Housing	Metal					
Dimensions (without ears)	440 x 45 x 198 mm (17.32 x 1.77 x 7.80 in)					
Weight	2,290 g (5.05 lb)	3,160 g (6.97 lb)	2,510 g (5.53 lb)	2,490 g (5.49 lb)	3,260 g (7.19 lb)	2,560 g (5.64 lb)
Interactive Interface	LCD panel display (standard temp. models only) Push buttons for configuration (standard temp. models only)					
Installation	19-inch rack mounting					
Environmental Limits						
Operating Temperature	0 to 60°C (32 to 140°F)					
Standards and Certifications						
EMC	EN 55032/24					
EMI	CISPR 32, FCC Part 15B Class A					
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs					
Medical	EN 60601-1-2 Class B, EN 55011					
Safety	UL 60950-1					
Warranty						
Warranty Period	5 years					

General-purpose Device Servers



Product Series	NPort 5650-8 (-T)	NPort 5650-16 (-T)	NPort 5650-8-M-SC	NPort 5650-8-S-SC	NPort 5650-16-M-SC	NPort 5650-16-S-SC	NPort 5650-8-HV-T	NPort 5650-16-HV-T
Ethernet Interface								
10/100BaseT(X) Ports (RJ45 connector)	1							
Fiber Connector	–	–	Multi-mode, SC	Single-mode, SC	Multi-mode, SC	Single-mode, SC	–	–
Magnetic Isolation Protection	1.5 kV (built-in)							
Ethernet Software Features								
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console							
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, IPv4, LLDP, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP, ICMP, RTNet, RFC2217, PPP, SLIP							
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded							
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X							
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x							
Android API	Android 3.1.x and later							
Serial Interface								
Connector	8-pin RJ45							
No. of Ports	8	16	8		16		8	16
Serial Standards	RS-232/422/485							
Baudrate	Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k							
Data Bits	5, 6, 7, 8							
Stop Bits	1, 1.5, 2							
Parity	None, Even, Odd, Space, Mark							
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF							
RS-485 Data Direction Control	ADDC® (automatic data direction control)							
Power Parameters								
Input Current	158 mA @ 100 VAC		174 mA @ 100 VAC	164 mA @ 100 VAC	174 mA @ 100 VAC	164 mA @ 100 VAC	152 mA @ 88 VDC	
Input Voltage	100 to 240 VAC, 47 to 63 Hz						88 to 300 VDC	
Physical Characteristics								
Housing	Metal							
Dimensions (without ears)	440 x 45 x 198 mm (17.32 x 1.77 x 7.80 in)							
Weight	2,310 g (5.09 lb)	2,510 g (5.53 lb)	2,380 g (5.25 lb)	2,440 g (5.38 lb)		2,500 g (5.51 lb)	3,720 g (8.20 lb)	3,820 g (8.42 lb)
Interactive Interface	LCD panel display (standard temp. models only) Push buttons for configuration (standard temp. models only)							
Installation	19-inch rack mounting							
Environmental Limits								
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		0 to 60°C (32 to 140°F)				-40 to 85°C (-40 to 185°F)	
Standards and Certifications								
EMC	EN 55032/24							
EMI	CISPR 32, FCC Part 15B Class A							
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2.5 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 IEC 61000-4-11 DIPS						IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8	
Medical	EN 60601-1-2 Class B, EN 55011							
Safety	UL 60950-1							
Warranty								
Warranty Period	5 years							

General-purpose Device Servers



Product Series	NPort 5610-8-DTL (-T)	NPort 5650-8-DTL (-T)	NPort 5650I-8-DTL (-T)	NPort 5610-8-DT (-T)	NPort 5610-8-DT-J	NPort 5650-8-DT (-T)	NPort 5650-8-DT-J	NPort 5650I-8-DT (-T)	
Ethernet Interface									
10/100BaseT(X) Ports (RJ45 connector)	1			2					
Magnetic Isolation Protection	1.5 kV (built-in)								
Ethernet Software Features									
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console								
Management	DHCP Client, HTTP, HTTPS, IPv4, LLDP, SMTP, SNMPv1/v2c, Telnet, ARP, RTelnet, DNS, BOOTP, UDP, TCP/IP, ICMP								
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded								
Fixed TTY Drivers	SCO UNIX, SCO OpenServer, SCO UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X								
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x								
Android API	Android 3.1.x and later								
Serial Interface									
Connector	DB9 male			8-pin RJ45		DB9 male		8-pin RJ45	
No. of Ports	8								
Serial Standards	RS-232		RS-232/422/485		RS-232		RS-232/422/485		
Baudrate	Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k								
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								
Isolation	-		2 kV		-		-		2 kV
RS-485 Data Direction Control	ADDC® (automatic data direction control)								
Power Parameters									
Input Current	340 mA @ 12 VDC		470 mA @ 12 VDC		740 mA @ 12 VDC		611 mA @ 12 VDC		615 mA @ 12 VDC
No. of Power Inputs	1				2				
Input Voltage	12 to 48 VDC								
Power Connector	Power input jack				1 removable 3-contact terminal block(s), power input jack				
Physical Characteristics									
Housing	Metal								
Dimensions (without ears)	197 x 44 x 125 mm (7.76 x 1.73 x 4.92 in)								
Weight	1,760 g (3.88 lb)		1,770 g (3.90 lb)		1,850 g (4.08 lb)	NPort 5610-8-DT: 1,570 g (3.46 lb) NPort 5610-8-DT-T: 1,320 g (2.91 lb)	1,520 g (3.35 lb)	NPort 5650-8-DT: 1,590 g (3.50 lb) NPort 5650-8-DT-T: 1,340 g (2.94 lb)	1,540 g (3.40 lb)
Interactive Interface	-		-		-		LCD panel display, push buttons for configuration		
Installation	Desktop, DIN-rail mounting (with optional kit), wall mounting (with optional kit)								
Environmental Limits									
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)				Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)		Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Standards and Certifications									
EMC	EN 55032/24				EN 55032/35				
EMI	CISPR 32, FCC Part 15B Class A								
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPS				IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPS				
Safety	UL 60950-1								
Declaration									
Green Product	RoHS, CRoHS, WEEE								
Warranty									
Warranty Period	5 years								

Industrial-grade Device Servers



Product Series	NPort IA5150 (-T)	NPort IA5150I (-T)	NPort IA5150-M-SC (-T)	NPort IA5150-S-SC (-T)	NPort IA5150I-M-SC (-T)	NPort IA5150I-S-SC (-T)	NPort IA5250 (-T)
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 connector)	2	2	-	-	-	-	2
100BaseFX Ports (multi-mode SC connector)	-	-	1	-	1	-	-
100BaseFX Ports (single-mode SC connector)	-	-	-	1	-	1	-
Magnetic Isolation Protection	1.5 kV (built-in)						
Ethernet Software Features							
Configuration Options	Web Console (HTTP), Windows Utility, Telnet Console, Serial Console						
Management	ARP, BOOTP, DHCP Client, IPv4, SMTP, SNMPv1/v2c/v3, DNS, HTTP, TCP/IP, ICMP, RTelnet, Telnet, UDP						
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x						
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						
Android API	Android 3.1.x and later						
Serial Interface							
Connector	DB9 male (RS-232), Terminal Block (RS-422/485)						DB9 male (RS-232/422/485)
No. of Ports	1						2
Serial Standards	RS-232/422/485						
Baudrate	Supports standard baudrates (unit=bps): 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 2304000						
Data Bits	5, 6, 7, 8						
Stop Bits	1, 1.5, 2						
Parity	None, Even, Odd, Space, Mark						
Flow Control	RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF						
Isolation	-	2 kV	-	-	2 kV	2 kV	-
RS-485 Data Direction Control	ADDC® (automatic data direction control)						
Power Parameters							
Input Current	238 mA @ 12 VDC	257 mA @ 12 VDC	315 mA @ 12 VDC	328 mA @ 12 VDC	339 mA @ 12 VDC	333 mA @ 12 VDC	238 mA @ 12 VDC
Input Voltage	12 to 48 VDC						
Physical Characteristics							
Housing	Plastic						
Dimensions	29 x 89.2 x 118.5 mm (1.14 x 3.51 x 4.67 in)						
Weight	360 g (0.79 lb)						380 g (0.84 lb)
Installation	DIN-rail mounting						
Environmental Limits							
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)						
Standards and Certifications							
EMC	EN 55032/24						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs						
Hazardous Locations	ATEX, Class I Division 2, IECEx (for -IEX models)						
Safety	UL 508, UL 60950-1						
Declaration							
Green Product	RoHS, CRoHS, WEEE						
Warranty							
Warranty Period	5 years						

Industrial-grade Device Servers



Product Series	NPort IA5150A (-T)	NPort IA5150AI (-T)	NPort IA5250A (-T)	NPort IA5250AI (-T)	NPort IA5450A (-T)	NPort IA5450AI (-T)
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 connector)	Supports 2 IP addresses Auto MDI/MDI-X connection					
Magnetic Isolation Protection	1.5 kV (built-in)					
Ethernet Software Features						
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console					
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, RTelnet, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP					
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x					
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					
Android API	Android 3.1.x and later					
Serial Interface						
Connector	DB9 male (RS-232), Terminal Block (RS-422/485)		DB9 male (RS-232/422/485)			
No. of Ports	1		2		4	
Serial Standards	RS-232/422/485					
Baudrate	Supports standard baudrates (unit=bps): 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF					
Isolation	-	2 kV	-	2 kV	-	2 kV
RS-485 Data Direction Control	ADDCC® (automatic data direction control)					
Power Parameters						
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
Input Voltage	12 to 48 VDC					
Physical Characteristics						
Housing	Metal					
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)	
Weight	475 g (1.05 lb)		485 g (1.07 lb)		560 g (1.23 lb)	
Installation	DIN-rail mounting, wall mounting (with optional kit)					
Environmental Limits						
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)					
Standards and Certifications						
EMC	EN 55032/24					
EMI	CISPR 32, FCC Part 15B Class A					
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs					
Hazardous Locations	ATEX, Class I Division 2, IECEx (for -IEX models)				ATEX, Class I Division 2, IECEx	
Safety	UL 508					
Declaration						
Green Product	RoHS, CRoHS, WEEE					
Warranty						
Warranty Period	5 years					

Wireless Device Servers



Product Series	NPort W2150A (-T)	NPort W2250A (-T)
Ethernet Interface		
10/100BaseT(X) Ports (RJ45 connector)	1	
Magnetic Isolation Protection	1.5 kV (built-in)	
Ethernet Software Features		
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility	
Management	DHCP Option 82, HTTP, IPv4, SMTP, SNMPv1/v2c/v3, Syslog, Telnet, Web Console	
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded	
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x	
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	
Android API	Android 3.1.x and later	
Security	HTTPS/SSL, Local Account Accessibility, RADIUS, SSH	
WLAN Interface		
WLAN Standards	802.11a/b/g/n	
Modulation Type	DSSS OFDM	
Transmission Distance	Up to 100 meters (in open areas)	
Transmission Rate	802.11a/g: 54 Mbps 802.11b: 11 Mbps 802.11n: 6.5 to 150 Mbps	
Wireless Security	WEP encryption (64-bit and 128-bit) WPA/WPA2-Enterprise (IEEE 802.1X/RADIUS, TKIP, AES) WPA/WPA2-Personal	
WLAN Modes	Ad-hoc Mode, Infrastructure mode	
Serial Interface		
No. of Ports	1	2
Serial Standards	RS-232/422/485	
Baudrate	50 bps to 921.6 kbps (supports nonstandard baudrates)	
Data Bits	5, 6, 7, 8	
Stop Bits	1, 1.5, 2	
Parity	None, Even, Odd, Space, Mark	
Flow Control	None, RTS/CTS, XON/XOFF	
RS-485 Data Direction Control	ADDC® (automatic data direction control)	
Surge	1 kV	
Physical Characteristics		
Housing	Metal	
Installation	Desktop, DIN-rail mounting (with optional kit), wall mounting	
Dimensions (without ears or antenna)	77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)	
Weight	547 g (1.21 lb)	557 g (1.23 lb)
Environmental Limits		
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	
Power Parameters		
Input Current	179 mA @ 12 VDC	200 mA @ 12 VDC
Input Voltage	12 to 48 VDC	
Standards and Certifications		
EMC	EN 55032/24	
EMI	CISPR 32, FCC Part 15B Class A	
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	
Radio Frequency	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	
Warranty		
Warranty Period	5 years	

Embedded Device Servers



Product Series	MiiNePort E2 (-H, -ST)	MiiNePort E3 (-H, -ST)	MiiNePort W1 (-H, -ST)
Embedded System			
CPU	32-bit Arm Core		
Memory			
Flash	2 MB		16 MB
SDRAM	4 MB		64 MB
Form Factor			
Type	Drop-in modules	Pin-header modules	Drop-in modules
Input/Output Interface			
Configurable DIO Channels (by software)	4		8
Ethernet Interface			
10/100BaseT(X) Port	4-pin pin header, auto MDI/MDI-X connection	RJ45 connector, auto MDI/MDI-X connection	Auto MDI/MDI-X connection
Ethernet Software Features			
Configuration Options	Web Console (HTTP), Windows Utility		Web Console (HTTP/HTTPS), Windows Utility, Telnet Console, Serial Console
Management	ARP, BOOTP, Device Search Utility (DSU), DHCP Client, IPv4, SMTP, SNMPv1, TCP/IP, Telnet, TFTP, UDP, ICMP		ARP, Device Search Utility (DSU), DHCP Client, DNS, HTTP, IPv4, SMTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, Web Console, ICMP
Windows Real COM Drivers	Windows 95/98/ME/NT/2000/XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2/2016/2019, Windows Embedded CE 5.0/6.0, Windows XP Embedded		
Linux Real TTY Drivers	Kernel version: 2.4.x, 2.6.x, 3.x, 4.x, and 5.x		
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		
Android API	Android 3.1.x and later		
Serial Interface			
No. of Ports	1		
Serial Standards	TTL		
Baudrate	MiiNePort E2 Series: 50 bps to 230.4 kbps MiiNePort E2-H Series: 50 bps to 921.6 kbps	MiiNePort E3 Series: 50 bps to 230.4 kbps MiiNePort E3-H Series: 50 bps to 921.6 kbps	50 bps to 921.6 kbps (supports nonstandard baudrates)
Data Bits	5, 6, 7, 8		7, 8
Stop Bits	1, 1.5, 2		1, 2
Parity	None, Even, Odd, Space, Mark		None, Even, Odd
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF		None, RTS/CTS, XON/XOFF
WLAN Interface			
Spread Spectrum	–	–	DSSS, OFDM
Transmission Rate	–	–	802.11b: 11 Mbps 802.11g: 54 Mbps
WLAN Modes	–	–	Ad-hoc mode, Infrastructure mode
Power Parameters			
Input Current	157 mA @ 3.3 VDC		400 mA @ 3.3 VDC
Input Voltage	3.3 to 5 VDC		
Starter Kit	✓	✓	✓
Programmable	✓	–	–
Physical Characteristics			
Dimensions	MiiNePort E2/E2-H Series: 29 x 17 x 12.6 mm (1.14 x 0.67 x 0.50 in)	MiiNePort E3/E3-H Series: 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	MiiNePort E2/E2-H Series: 5 g (0.01 lb) MiiNePort E2-ST/E2-H-ST: 77 g (0.17 lb)	MiiNePort E3/E3-H Series: 12 g (0.03 lb) MiiNePort E3-ST/E3-H-ST: 89 g (0.20 lb)	15.35 g (0.03 lb)
Environmental Limits			
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)		MiiNePort W1/W1-ST: 0 to 55°C (32 to 131°F) MiiNePort W1-T: -40 to 75°C (-40 to 167°F)
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class B		CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 8 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11
Radio Frequency	–	–	EN 300 328, EN 301 489
Safety	–	–	EN 60950-1, UL 60950-1
Declaration			
Green Product	RoHS, CRoHS, WEEE		
Warranty			
Warranty Period	5 years		



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Chassis Media Converters

Our TRC series of rackmount chassis media converters provide up to 19 slots and a variety of media converter modules to choose from to fulfill your different media conversion requirements in high-density applications.



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Serial-to-fiber Media Converters

Moxa's industrial-grade serial-to-fiber optic converters convert RS-232/422/485 to optical fiber, providing users with an easy and reliable way to communicate with their serial devices.

Serial Converters

Moxa's serial media converters enable devices with different serial interfaces to communicate effortlessly. Serial-to-serial converters help convert between RS-232 and RS-422/485; serial-to-fiber converters convert all three of these interfaces to optical fiber.



Serial Converters
Product Pages



Serial-to-serial Converters

Moxa's serial-to-serial media converters convert between RS-232, RS-422, and RS-485, avoiding compatibility issues that are often encountered when communicating between different serial interfaces.



CAN-to-fiber, PROFIBUS-to-fiber Converters

Moxa's fieldbus-to-fiber converters convert fieldbus to fiber with ease, and also feature easy configuration and effortless troubleshooting. Our industrial-grade ICF converters convert PROFIBUS to fiber, even in harsh environments.

Chassis Media Converters



Product Series	TRC-2190	TRC-190	TCF-142-RM
Ethernet Interface			
10/100BaseT(X) Ports (RJ45 connector)	2	–	–
Power Parameters			
Input Voltage	TRC-2190-AC: 100 to 240 VAC TRC-2190-DC-48V: 36 to 53 VDC	TRC-190-AC: 100 to 240 VAC TRC-190-DC-48V: 36 to 53 VDC	–
No. of Power Inputs	2	2	–
Power Consumption	TRC-2190-AC: 1.5 A @ 100 to 240 VAC TRC-2190-DC-48V: 3.2 A @ 48 VDC	TRC-190-AC: 1.5 A @ 100 to 240 VAC TRC-190-DC-48V: 3.2 A @ 48 VDC	150 mA @ 12 VDC
Serial Interface			
No. of Ports	–	–	2
Serial Standards	–	–	RS-232/422/485
Baudrate	–	–	50 bps to 921.6 kbps (supports nonstandard baudrates)
Optical Fiber	–	–	TCF-142-M-SC-RM: 100BaseFX ports (multi-mode SC connector) TCF-142-M-ST-RM: 100BaseFX ports (multi-mode ST connector) TCF-142-S-SC-RM: 100BaseFX ports (single-mode SC connector) TCF-142-S-ST-RM: 100BaseFX ports (single-mode ST connector)
Serial Signals			
RS-232	–	–	TxD, RxD, GND
RS-422	–	–	Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w	–	–	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	–	–	Data+, Data-, GND
Physical Characteristics			
Dimensions	440 x 260 x 77 mm (17.32 x 10.24 x 3.03 in)	440 x 260 x 88 mm (17.32 x 10.24 x 3.46 in)	86.8 x 136.5 x 21 mm (3.42 x 5.37 x 0.83 in)
Environmental Limits			
Operating Temperature	-20 to 55°C (-4 to 131°F)	0 to 60°C (32 to 140°F)	0 to 60°C (32 to 140°F)
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 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
Safety	EN 60950-1, IEC 60950-1		EN 60950-1, IEC 60950-1

Serial-to-fiber Media Converters



Product Series	TCF-90	TCF-142	ICF-1150
Serial Interface			
No. of Serial Ports	2	2	2
Serial Standards	RS-232	RS-232/422/485 (7-pin terminal block)	RS-232/422/485
Baudrate	300 bps to 115.2 kbps	50 bps to 921.6 kbps (supports nonstandard baudrates)	
Isolation	–	–	2 kV (I models)
Optical Fiber	100BaseFX ports Multi-mode or Single-mode ST connector	100BaseFX ports Multi-mode or Single-mode SC or ST connector	100BaseFX ports Multi-mode or Single-mode SC or ST connector
Fiber Cable Requirements	Multi-mode: 50/125 μ m, 800 MHz or 62.5/125 μ m, 500 MHz Single-mode: G.652		
Typical Distance	Multi-mode: 5 km, Single-mode: 40 km		
Wavelength (typical)	Multi-mode: 850 nm, Single-mode: 1310 nm		
Wavelength (TX range)	Multi-mode: 840 to 860 nm, Single-mode: 1290 to 1330 nm		
Wavelength (RX range)	Multi-mode: 800 to 900 nm, Single-mode: 1100 to 1650 nm		
Optical Power (TX range)	Multi-mode/Single-mode: 0 to -5 dBm		Multi-mode/Single-mode: 0 to -8 dBm
Optical Power (RX range)	Multi-mode: 0 to -20 dBm, Single-mode: 0 to -25 dBm		Multi-mode/Single-mode: 0 to -25 dBm
Optical Power (link budget)	Multi-mode: 15 dB, Single-mode: 20 dB		
Optical Power (dispersion penalty)	Multi-mode/Single-mode: 1 dB		
Serial Signals			
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	TxD, RxD, GND	TxD, RxD, GND
RS-422	–	Tx+, Tx-, Rx+, Rx-, GND	Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w	–	Tx+, Tx-, Rx+, Rx-, GND	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	–	Data+, Data-, GND	Data+, Data-, GND
Power Parameters			
Input Current	20 mA @ 12 VDC	140 mA @ 12 VDC	ICF-1150 Series: 264 mA @ 12 VDC ICF-1150I Series: 300 mA @ 12 VDC
Input Voltage	5 to 12 VDC	12 to 48 VDC	12 to 48 VDC
No. of Power Inputs	1	1	1
Physical Characteristics			
Housing	Plastic	Metal	Metal
Dimensions	42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in)	with ears: 90 x 100 x 22 mm (3.54 x 3.94 x 0.87 in) without ears: 67 x 100 x 22 mm (2.64 x 3.94 x 0.87 in)	30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)
Installation	Desktop	Wall mounting	DIN-rail mounting
Environmental Limits			
Operating Temperature	0 to 60°C (32 to 140°F)	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature (package included)	-20 to 75°C (-4 to 167°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)		
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 4 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
Hazardous Locations	–	–	Standard models: UL/cUL Class I Division 2 Groups A/B/C/D -IEX models: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2, IECEx
Safety	EN 60950-1, IEC 60950-1		

Serial-to-serial Converters



Product Series	TCC-80/80I	TCC-100/100I	TCC-120/120I
Serial Interface			
No. of Serial Ports	2	2	2
Serial Standards	RS-232/422/485	RS-232/422/485	RS-422/485
Baudrate	300 bps to 115.2 kbps	50 bps to 921.6 kbps (supports nonstandard baudrates)	
Isolation	2 kV (I models)	2 kV (I models)	2 kV (I models)
Serial Signals			
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	—
RS-422	Tx+, Tx-, Rx+, Rx-, GND	Tx+, Tx-, Rx+, Rx-, GND	Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND	Tx+, Tx-, Rx+, Rx-, GND	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND	Data+, Data-, GND	Data+, Data-, GND
Power Parameters			
Input Current	TCC-80/80-DB9: 10 mA @ 5 VDC TCC-80/80I-DB9: 20 mA @ 5 VDC	TCC-100/100-T: 85 mA @ 12 VDC TCC-100I/100I-T: 150 mA @ 12 VDC	TCC-120/120-T: 65 mA @ 12 VDC TCC-120I/120I-T: 180 mA @ 12 VDC
Input Voltage	5 to 12 VDC	12 to 48 VDC	12 to 48 VDC
No. of Power Inputs	1	1	1
Physical Characteristics			
Housing	Plastic top cover, metal bottom plate	Metal	Metal
Dimensions	TCC-80/80I: 42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in) TCC-80-DB9/80I-DB9: 42 x 91 x 23.6 mm (1.65 x 3.58 x 0.93 in)	67 x 100.4 x 22 mm (2.64 x 3.95 x 0.87 in)	67 x 100.4 x 22 mm (2.64 x 3.95 x 0.87 in)
Installation	Desktop	DIN-rail mounting (with optional kit), wall mounting	DIN-rail mounting (with optional kit), wall mounting
Environmental Limits			
Operating Temperature	0 to 60°C (32 to 140°F)	Standard Models: -20 to 60°C (-4 to 140°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)	Standard Models: -20 to 60°C (-4 to 140°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature (package included)	-20 to 75°C (-4 to 167°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)		
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Safety	EN 60950-1, IEC 60950-1		

CAN-to-fiber, PROFIBUS-to-fiber Converters



Product Series	ICF-1170I	ICF-1180I	ICF-1280I
Serial Interface			
Optical Fiber	100BaseFX ports Multi-mode ST connector	100BaseFX ports Multi-mode or Single-mode ST connector	100BaseFX ports Multi-mode or Single-mode SC or ST connector
Fiber Cable Requirements	50/125 μ m, 800 MHz 62.5/125 μ m, 500 MHz	–	–
Typical Distance	5 km	Multi-mode: 4 km, Single-mode: 45 km	Multi-mode: 4 km, Single-mode: 45 km
Wavelength (typical)	850 nm	Multi-mode: 820 nm, Single-mode: 1310 nm	Multi-mode: 820 nm, Single-mode: 1310 nm
Wavelength (TX range)	840 to 860 nm	–	–
Wavelength (RX range)	800 to 900 nm	–	–
Optical Power (TX range)	0 to -5 dBm	Multi-mode: -14 dBm, Single-mode: -7 dBm	Multi-mode: -14 dBm, Single-mode: -7 dBm
Optical Power (RX range)	0 to -20 dBm	Multi-mode: -28 dBm, Single-mode: -29 dBm	Multi-mode: -28 dBm, Single-mode: -29 dBm
Optical Power (link budget)	15 dB	Multi-mode: 14 dBm, Single-mode: 21 dBm	Multi-mode: 14 dBm, Single-mode: 21 dBm
Optical Power (dispersion penalty)	1 dB	–	–
CAN Interface			
No. of Ports	1	–	–
Isolation	2 kV (built-in)	–	–
Signals	CAN_L, CAN_H, CAN Signal GND	–	–
PROFIBUS Interface			
Industrial Protocols	–	PROFIBUS DP	PROFIBUS DP
No. of Ports	–	1	1
Baudrate	–	9600 bps to 12 Mbps	9600 bps to 12 Mbps
Isolation	–	2 kV (built-in)	2 kV (built-in)
Power Parameters			
Input Current	221 mA @ 12 VDC	221 mA @ 12 VDC	315 mA @ 12 VDC
Input Voltage	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC
No. of Power Inputs	2	2	2
Physical Characteristics			
Housing	Metal	Metal	Metal
Dimensions	30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)	30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)	39 x 115 x 70 mm (1.54 x 4.53 x 2.76 in)
Installation	DIN-rail mounting	DIN-rail mounting (with optional kit), wall mounting	DIN-rail mounting
Environmental Limits			
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)		
Ambient Relative Humidity	5 to 95% (non-condensing)		
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF
Hazardous Locations	–	ATEX, Class I Division 2, IECEx	ATEX, Class I Division 2, IECEx
Safety	EN 60950-1, IEC 60950-1		



Find an MGate

Device B \ Device A	Modbus RTU/ASCII Slave	Modbus RTU/ASCII Master	PROFIBUS Slave	PROFIBUS Master	J1939	DNP3 Serial Outstation	DNP3 Serial Master	DF1	IEC 60870-5-101 Slave	IEC 60870-5-101 Master
Modbus RTU/ASCII Slave	-	MB3000 ¹	-	4101/5111	5118	-	-	-	-	-
Modbus RTU/ASCII Master	MB3000 ¹	-	-	4101/5111	5118	-	-	-	-	-
PROFIBUS Slave	-	-	-	-	-	-	-	-	-	-
PROFIBUS Master	4101/5111	4101/5111	-	-	-	-	-	-	-	-
J1939	5118	5118	-	-	-	-	-	-	-	-
DNP3 Serial Outstation	-	-	-	-	-	-	-	-	-	-
DNP3 Serial Master	-	-	-	-	-	-	-	-	-	-
DF1	-	-	-	-	-	-	-	-	-	-
IEC 60870-5-101 Slave	-	-	-	-	-	-	-	-	-	-
IEC 60870-5-101 Master	-	-	-	-	-	-	-	-	-	-
Modbus TCP Server	5105	MB3000/W5x08 ² 5109	5101	5111	5118	-	5109	-	-	5114
Modbus TCP Client	MB3000/W5x08 ² 5109	5105/5109	5101	5111	5118	5109	5109	-	5114	-
Ethernet/IP Adapter	5105	5105	-	-	5118	-	-	EIP3000	-	-
Ethernet/IP Scanner	5105	5105	-	5111	5118	-	-	EIP3000	-	-
PROFINET Controller	5103	5103	5102	5111	5118	-	-	-	-	-
DNP3 TCP Outstation	-	5109	-	-	-	-	W5x08 ² /5109	-	-	-
DNP3 TCP Client	5109	5109	-	-	-	W5x08 ² /5109	-	-	-	-
IEC 60870-5-104 Server	-	5114	-	-	-	-	-	-	-	5114
IEC 60870-5-104 Client	5114	-	-	-	-	-	-	-	5114	-
MQTT Broker	5105	-	-	-	-	-	-	-	-	-

1. Applies only to the MB3270/3660.

2. W5x08 = W5108/W5208 (supports IEEE 802.11a/b/g/n).

Protocol Gateways

Our patented fieldbus-to-Ethernet MGate gateways not only connect your serial devices to an Ethernet network, but also allow for multiple connections and can convert between various protocols, such as Modbus TCP and EtherNet/IP.



Protocol Gateways
Product Pages

Modbus TCP Server	Modbus TCP Client	Ethernet/IP Adapter	Ethernet/IP Scanner	PROFINET Controller	DNP3 TCP Outstation	DNP3 TCP Client	IEC 60870-5-104 Server	IEC 60870-5-104 Client	MQTT Broker
5105	MB3000/W5x08 ² 5109	5105	5105	5103	-	5109	-	5114	5105
MB3000/W5x08 ² 5109	5105/5109	5105	5105	5103	5109	5109	5114	-	-
5101	5101	-	-	5102	-	-	-	-	-
5111	5111	-	5111	5111	-	-	-	-	-
5118	5118	5118	5118	5118	-	-	-	-	-
-	5109	-	-	-	-	W5x08 ² /5109	-	-	-
5109	5109	-	-	-	W5x08 ² /5109	-	-	-	-
-	-	EIP3000	EIP3000	-	-	-	-	-	-
-	5114	-	-	-	-	-	-	5114	-
5114	-	-	-	-	-	-	5114	-	-
-	-	5105	5105	5103	-	5109	-	5114	5105
-	5109	5105	5105	5103	5109	5109	5114	-	-
5105	5105	-	-	-	-	-	-	-	5105
5105	5105	-	-	5103	-	-	-	-	-
5103	5103	-	5103	-	-	-	-	-	-
-	5109	-	-	-	-	-	-	-	-
5109	5109	-	-	-	-	-	-	-	-
-	5114	-	-	-	-	-	-	-	-
5114	-	-	-	-	-	-	-	-	-
5105	-	5105	-	-	-	-	-	-	-

Industrial Ethernet Gateways



Product Series	MGate MB3180/MB3280/MB3480	MGate MB3170/MB3270	MGate MB3660	MGate W5108/W5208
Ethernet Interface				
10/100BaseT(X) Ports (RJ45 connector)	1 (auto MDI/MDI-X connection)	2 (1 IP, Ethernet cascade, auto MDI/MDI-X connection)	2 (2 IP, Ethernet cascade, auto MDI/MDI-X connection)	1 (auto MDI/MDI-X connection)
Magnetic Isolation Protection	1.5 kV (built-in)	1.5 kV (built-in)	1.5 kV (built-in)	1.5 kV (built-in)
Ethernet Software Features				
Industrial Protocols	Modbus TCP Client (master), Modbus TCP Server (slave)			DNP3 TCP Master, DNP3 TCP Outstation (slave), Modbus TCP Client (master), Modbus TCP Server (slave)
Management	ARP, DHCP Client, DNS, HTTP, HTTPS (MGate MB3180 excluded), SMTP (MGate MB3180 excluded), SNMP Trap (MGate MB3180 excluded), SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, NTP Client (MGate MB3180 excluded)	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, NTP Client	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, NTP Client, RADIUS	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, SSH, UDP, NTP Client
Serial Interface				
No. of Ports	MGate MB3180: 1 MGate MB3280: 2 MGate MB3480: 4	MGate MB3170 Series: 1 MGate MB3270 Series: 2	MGate MB3660-8 Series: 8 MGate MB3660-16 Series: 16	MGate W5108 Series: 1 MGate W5208 Series: 2
Connector	DB9 male	MGate MB3170/MB3170I: DB9 male for RS-232 and terminal block for RS-422/485 MGate MB3270/MB3270I: 2 x DB9 male	MGate MB3660-8/16: DB9 male MGate MB3660-8/16-J: RJ45	DB9 male
Serial Standards	RS-232/422/485 (software selectable)			
Baudrate	50 bps to 921.6 kbps			
Flow Control	DTR/DSR, RTS Toggle (RS-232 only), RTS/CTS	DTR/DSR, RTS Toggle (RS-232 only), RTS/CTS	DTR/DSR, RTS Toggle (RS-232 only), RTS/CTS	RTS Toggle (RS-232 only), RTS/CTS, XON/XOFF
RS-485 Data Direction Control	ADDC® (automatic data direction control)			
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms			
Terminator for RS-485	MGate MB3180: None MGate MB3280/MB3480: 120 ohms	120 ohms	120 ohms	120 ohms
Isolation	-	2 kV (I models)	2 kV (I models)	2 kV (built-in)
Serial Software Features				
Industrial Protocols	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave			Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave, DNP3 Serial Master, DNP3 Serial Outstation (slave)
WLAN Interface				
WLAN Standards	-	-	-	802.11a/b/g/n
Power Parameters				
Input Voltage	12 to 48 VDC	12 to 48 VDC	All models: Redundant dual inputs AC models: 100 to 240 VAC (47 to 63 Hz) DC models: 20 to 60 VDC (1.5 kV isolation)	9 to 60 VDC
Relays				
Contact Current Rating	-	Resistive load: 1 A @ 30 VDC	Resistive load: 2 A @ 30 VDC	Resistive load: 2 A @ 30 VDC
Environmental Limits				
Operating Temperature	0 to 60°C (32 to 140°F)	Standard Models: 0 to 60°C (-32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	0 to 60°C (32 to 140°F)	Standard Models: 0 to 60°C (-32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Standards and Certifications				
Safety	EN 60950-1, UL 60950-1			EN 60950-1, UL 508
EMC	EN 55032/24			
EMI	CISPR 32, FCC Part 15B Class A			CISPR 32, FCC Part 15B Class B
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV (MB3180/MB3280) IEC 61000-4-5 Surge: Power: 1 kV; Signal: 2 kV (MB3480) IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 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: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF	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; Signal: 10 V/m IEC 61000-4-8 PFMF
Hazardous Locations	-	ATEX, Class I Division 2, IECEx	-	ATEX, Class I Division 2, IECEx
Radio Frequency	-	-	-	EN 300 328, EN 301 489-1/17, EN 301 893
Maritime	-	DNV GL	-	-
Warranty				
Warranty Period	5 years			

Industrial Ethernet Gateways



Product Series	MGate 4101-MB-PBS	MGate 5101-PBM-MN	MGate 5102-PBM-PN	MGate 5103	MGate 5111
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 connector)	–	1 (auto MDI/MDI-X connection)	2 (auto MDI/MDI-X connection)	2 (auto MDI/MDI-X connection)	2 (auto MDI/MDI-X connection)
Magnetic Isolation Protection	–	1.5 kV (built-in)	1.5 kV (built-in)	1.5 kV (built-in)	1.5 kV (built-in)
Ethernet Software Features					
Industrial Protocols	–	Modbus TCP Client (master), Modbus TCP Server (slave)	PROFINET IO Device	EtherNet/IP Adapter, Modbus TCP Client (master), Modbus TCP Server (slave), PROFINET IO Device	
Management	–	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, SSH, UDP, NTP Client			
PROFIBUS Interface					
Industrial Protocols	PROFIBUS DP	PROFIBUS DP	PROFIBUS DP	–	PROFIBUS DP
No. of Ports	1	1	1	–	1
Connector	DB9 female	DB9 female	DB9 female	–	DB9 female
Baudrate	9600 bps to 12 Mbps	9600 bps to 12 Mbps	9600 bps to 12 Mbps	–	9600 bps to 12 Mbps
Isolation	2 kV (built-in)	2 kV (built-in)	2 kV (built-in)	–	2 kV (built-in)
Signal	PROFIBUS D+, PROFIBUS D-, RTS, Signal Common, 5V	PROFIBUS D+, PROFIBUS D-, RTS, Signal Common, 5V	PROFIBUS D+, PROFIBUS D-, RTS, Signal Common, 5V	–	PROFIBUS D+, PROFIBUS D-, RTS, Signal Common, 5V
Serial Interface					
No. of Ports	1	–	–	1	1
Connector	DB9 male	–	–	DB9 male	DB9 male
Serial Standards	RS-232/422/485	–	–	RS-232/422/485	RS-232/422/485
Baudrate	50 bps to 921.6 kbps	–	–	50 bps to 921.6 kbps	50 bps to 921.6 kbps
RS-485 Data Direction Control	ADDC® (automatic data direction control)	–	–	ADDC® (automatic data direction control)	ADDC® (automatic data direction control)
Isolation	2 kV (1 models)	–	–	2 kV (built-in)	2 kV (built-in)
Serial Software Features					
Industrial Protocols	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave, PROFIBUS DP-V0 Slave	PROFIBUS DP-V1 Master	PROFIBUS DP-V1 Master	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave, PROFIBUS DP-V0 Slave
Power Parameters					
Input Voltage	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC
Environmental Limits					
Operating Temperature	Standard Models: 0 to 60°C (-32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)				
Standards and Certifications					
Safety	EN 60950-1, UL 60950-1, EN 62368-1, UL 62368-1	EN 60950-1, UL 60950-1	EN 60950-1, UL 508	EN 60950-1, UL 508	EN 60950-1, UL 61010-2-201
EMC	EN 55032/35	EN 55032/24	EN 55032/24	EN 55032/24	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A	CISPR 32, FCC Part 15B Class A	CISPR 32, FCC Part 15B Class B	CISPR 32, FCC Part 15B Class B	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz; Signal: 10 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz; Signal: 10 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz; Signal: 10 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz; Signal: 10 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz; Signal: 10 V/m IEC 61000-4-8 PFMF
Hazardous Locations	ATEX, Class I Division 2, IECEx				
Warranty					
Warranty Period	5 years				

Industrial Ethernet Gateways



Product Series	MGate EIP3170/EIP3270	MGate 5105-MB-EIP	MGate 5109	MGate 5114	MGate 5118
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 connector)	2 (auto MDI/MDI-X connection)				
Magnetic Isolation Protection	1.5 kV (built-in)				
Ethernet Software Features					
Industrial Protocols	Ethernet/IP (PCCC)	Modbus TCP Client (master), Modbus TCP Server (slave), EtherNet/IP Scanner, EtherNet/IP Adapter, MQTT	Modbus TCP Client (master), Modbus TCP Server (slave), DNP3 TCP Master, DNP3 TCP Outstation	Modbus TCP Client (master), Modbus TCP Server (slave), IEC 60870-5-104 Client, IEC 60870-5-104 Server	EtherNet/IP Adapter, EtherNet/IP Scanner, Modbus TCP Client (master), Modbus TCP Server (slave), PROFINET IO Device
Management	ARP, DHCP Client, SNMPv1, TCP/IP, Telnet, UDP	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, SSH, UDP, NTP Client			
Serial Interface					
No. of Ports	MGate EIP3170 Series: 1 MGate EIP3270 Series: 2	1	1	1	1
Connector	MGate EIP3170 Series: DB9 male for RS-232, Terminal block for RS-422 MGate EIP3270 Series: 2 x DB9 male	DB9 male	DB9 male	DB9 male	DB9 male
Serial Standards	RS-232/422	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485
Baudrate	1200 bps to 921.6 kbps	50 bps to 921.6 kbps	50 bps to 921.6 kbps	50 bps to 921.6 kbps	50 bps to 921.6 kbps
Flow Control	RTS/CTS, DTR/DSR (RS-232 only)	RTS Toggle (RS-232 only), RTS/CTS	RTS Toggle (RS-232 only), RTS/CTS	RTS Toggle (RS-232 only), RTS/CTS	RTS Toggle (RS-232 only), RTS/CTS
RS-485 Data Direction Control	-	ADDC® (automatic data direction control)	ADDC® (automatic data direction control)	ADDC® (automatic data direction control)	ADDC® (automatic data direction control)
Pull High/Low Resistor for RS-485	-	1 kilo-ohm, 150 kilo-ohms	1 kilo-ohm, 150 kilo-ohms	1 kilo-ohm, 150 kilo-ohms	1 kilo-ohm, 150 kilo-ohms
Terminator for RS-485	-	120 ohms	120 ohms	120 ohms	120 ohms
Isolation	2 kV (1 models)	2 kV (built-in)	2 kV (built-in)	2 kV (built-in)	2 kV (built-in)
Serial Software Features					
Industrial Protocols	DF1	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave, DNP3 Serial Master, DNP3 Serial Outstation	Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave, IEC 60870-5-101 Master, IEC 60870-5-101 Slave	J1939, Modbus RTU/ASCII Master, Modbus RTU/ASCII Slave
Power Parameters					
Input Voltage	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC	12 to 48 VDC
Relays					
Contact Current Rating	Resistive load: 1 A @ 30 VDC	Resistive load: 2 A @ 30 VDC	Resistive load: 2 A @ 30 VDC	Resistive load: 2 A @ 30 VDC	Resistive load: 2 A @ 30 VDC
Environmental Limits					
Operating Temperature	Standard Models: 0 to 60°C (-32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)				
Standards and Certifications					
Safety	EN 60950-1, UL 508	EN 60950-1, UL 508	EN 60950-1, UL 508	EN 60950-1, UL 508	EN 60950-1, UL 61010-2-201
EMC	EN 55032/24	EN 55032/24	EN 55032/24	EN 55032/24	EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A	CISPR 32, FCC Part 15B Class B	CISPR 32, FCC Part 15B Class B	CISPR 32, FCC Part 15B Class B	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 4 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF			
Hazardous Locations	ATEX, Class I Division 2, IECEx	ATEX, Class I Division 2, IECEx	ATEX, Class I Division 2, IECEx	ATEX, Class I Division 2, IECEx	ATEX, Class I Division 2, IECEx
Maritime	MGate EIP3170/EIP3170-T/ EIP3170I/EIP3170I-T: DNV GL	-	-	-	-
Warranty					
Warranty Period	5 years				



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USB-to-serial Converters

Moxa's UPort USB-to-serial converters provide computers with high-performance, industrial-grade connections for up to 16 serial devices over a single USB port. A wide range of converters are available with features that include Hi-Speed USB 2.0 with data rates up to 480 Mbps, advanced UARTs for high-end serial performance, COM port mapping, fixed-base COM functionality, and more.

USB-to-serial Converters/USB Hubs

Moxa's UPort series of USB-to-serial converters and USB hubs provide true Hi-Speed USB 2.0 speeds up to 480 Mbps, 15 kV of ESD protection, and have a metal housing to endure harsh environments, making them ideal for use in ATMs, kiosks, POS stations, and data-acquisition applications.



USB-to-serial Converters/
USB Hubs Product Pages



Industrial-grade USB Hubs

The UPort Series USB hubs are industrial-grade, and designed with the ruggedness and reliability needed for industrial applications. Each port has ESD Level 4 protection and can provide true Hi-Speed USB 2.0 data rates up to 480 Mbps—even for heavy-load applications. The UPort Series includes models with dual power inputs, DIN-rail mounting options, and wide temperature models that can operate reliably even in harsh conditions.

USB-to-serial Converters



Product Series	UPort 1110	UPort 1130	UPort 1130L	UPort 1150	UPort 1150L	UPort 1250	UPort 1250L	UPort 1410	UPort 1450	UPort 1450L
USB Interface										
Speed	12 Mbps				12 Mbps, 480 Mbps					
USB Connector	USB Type A				USB Type B					
USB Standards	USB 1.0/1.1 compliant, USB 2.0 compatible				USB 1.1/2.0 compliant					
Serial Interface										
Serial Standards	RS-232	RS-422/485		RS-232/422/485			RS-232	RS-232/422/485		
No. of Ports	1			2			4			
Connector	DB9 male									
Baudrate	50 bps to 921.6 kbps									
Data Bits	5, 6, 7, 8									
Stop Bits	1, 1.5, 2									
Parity	None, Even, Odd, Space, Mark									
Flow Control	None, RTS/CTS, XON/XOFF									
Isolation	-	-	2 kV	-	2 kV	-	2 kV	-	-	2 kV
Power Parameters										
Input Voltage	5 VDC					12 to 48 VDC	5 VDC or 12 to 48 VDC ¹		12 to 48 VDC	
Input Current	30 mA @ 5 VDC		65 mA @ 5 VDC	77 mA @ 5 VDC	260 mA @ 5 VDC	360 mA @ 5 VDC	200 mA @ 12 VDC	260 mA @ 12 VDC		360 mA @ 12 VDC
Physical Characteristics										
Housing	ABS + Polycarbonate				Metal					
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)		
Weight (packaged)	200 g (0.44 lb)			320 g (0.71 lb)	370 g (0.82 lb)	680 g (1.5 lb)	1,345 g (2.97 lb)			
Weight (product only)	65 g (0.14 lb)			75 g (0.17 lb)	180 g (0.4 lb)		720 g (1.59 lb)			
Environmental Limits										
Operating Temperature	0 to 55°C (32 to 131°F)									
Storage Temperature (package included)	-20 to 70°C (-4 to 158°F)				-20 to 75°C (-4 to 167°F)					
Ambient Relative Humidity	5 to 95% (non-condensing)									
Standards and Certifications										
EMC	EN 55032/24									
EMI	CISPR 32, FCC Part 15B Class 1									
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF					IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF				
Safety	-				UL 60950-1					
Declaration										
Green Product	RoHS, CRoHS, WEEE									

1. UPort 1410/1450 Series: 5 V for USB port power, 12 V for external power adapter.

USB-to-serial Converters

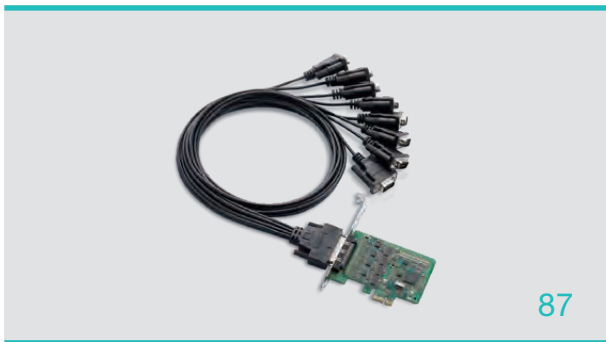


Product Series	UPort 1610-8	UPort 1650-8	UPort 1610-16	UPort 1650-16	UPort 2210	UPort 2410
USB Interface						
Speed	12 Mbps, 480 Mbps					
USB Connector	USB Type B					
USB Standards	USB 1.1/2.0 compliant					
Serial Interface						
Serial Standards	RS-232	RS-232/422/485	RS-232	RS-232/422/485	RS-232	
No. of Ports	8		16		2	4
Connector	DB9 male					
Baudrate	50 bps to 921.6 kbps					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS, XON/XOFF					
Power Parameters						
Input Voltage	12 to 48 VDC		100 to 240 VAC		5 VDC	
Input Current	580 mA @ 12 VDC		220 mA @ 100 VAC		140 mA @ 5 VDC	240 mA @ 5 VDC
Physical Characteristics						
Housing	Metal			Polycarbonate (PC)		
Dimensions	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)
Weight (packaged)	1,435 g (3.16 lb)		3,485 g (7.68 lb)		325 g (0.72 lb)	455 g (1.00 lb)
Weight (product only)	835 g (1.84 lb)		2,475 g (5.46 lb)		120 g (0.26 lb)	210 g (0.46 lb)
Environmental Limits						
Operating Temperature	0 to 55°C (32 to 131°F)					
Storage Temperature (package included)	-20 to 75°C (-4 to 167°F)					
Ambient Relative Humidity	5 to 95% (non-condensing)					
Standards and Certifications						
EMC	EN 55032/24					
EMI	CISPR 32, FCC Part 15B Class 1			CISPR 32, FCC Part 15B Class B		
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m IEC 61000-4-8 PFMF			IEC 61000-4-2 ESD: Contact: 8 kV; Air: 4 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF		
Safety	UL 60950-1					
Vibration	-	-	-	-	IEC 60068-2-6	
Freefall	-	-	-	-	IEC 60068-2-32	
Declaration						
Green Product	RoHS, CRoHS, WEEE					

USB Hubs



Product Series	UPort 404	UPort 404-T	UPort 407	UPort 407-T	UPort 204	UPort 207
USB Interface						
Speed	12 Mbps, 480 Mbps					
USB Connector	USB Type B					
USB Standards	USB 1.1/2.0 compliant					
No. of USB Ports	4	4	7	7	4	7
Power Parameters						
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
Physical Characteristics						
Housing	Aluminum			Polycarbonate (PC)		
Dimensions	80 x 35 x 130 mm (3.15 x 1.38 x 5.12 in)		100 x 35 x 192 mm (3.94 x 1.38 x 7.56 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)
Weight (packaged)	855 g (1.88 lb)		965 g (2.13 lb)		805 g (1.77 lb)	890 g (1.96 lb)
Weight (product only)	850 g (1.87 lb)		950 g (2.1 lb)		800 g (1.76 lb)	875 g (1.93 lb)
Installation	DIN-rail mounting (optional), wall mounting				-	
Environmental Limits						
Operating Temperature	0 to 60°C (32 to 140°F)	-40 to 85°C (-40 to 185°F)	0 to 60°C (32 to 140°F)	-40 to 85°C (-40 to 185°F)	0 to 60°C (32 to 140°F)	
Storage Temperature (package included)	-20 to 75°C (-4 to 167°F)	-40 to 85°C (-40 to 185°F)	-20 to 75°C (-4 to 167°F)	-40 to 85°C (-40 to 185°F)	-20 to 75°C (-4 to 167°F)	
Standards and Certifications						
EMC	EN 55032/24					
EMI	CISPR 32, FCC Part 15B Class A					
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 0 V/m IEC 61000-4-8 PFMF					
Environmental Testing	IEC 60068-2-1			IEC 60068-2-1, IEC 60068-2-3		
Safety	UL 508			-		
Freefall	IEC 60068-2-34					
Declaration						
Green Product	RoHS, CRoHS, WEEE					



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PCI Express (PCIe) Serial Boards

Our PCI Express board is designed for POS and ATM applications, and is a top choice of industrial automation engineers and system integrators. It supports many different operating systems, including Windows, Linux, and even UNIX.



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Universal PCI Serial Boards

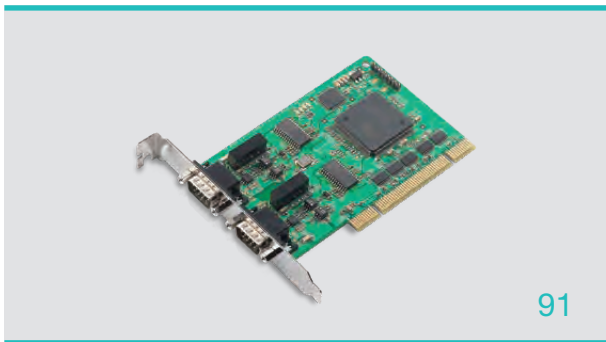
Our Universal PCI serial boards are designed for POS and ATM applications and for use by industrial automation system manufacturers and system integrators.

Multiport Serial Boards

With over thirty years of experience in multiport serial board technology and development, Moxa is able to offer one of the most comprehensive selections of industrial-grade multiport serial cards on the market. We offer serial boards for a variety of slot types including PCI Express (PCIe) to PC/104.



Multiport Serial Boards
Product Pages



CAN Interface Boards/Modules

Moxa's CANbus serial boards are a result of more than 30 years of fieldbus interface board experience. These serial boards are rugged, high-quality CAN interface modules with features that include ESD surge protection and long-term driver support.

PCI Express (PCIe) Serial Boards



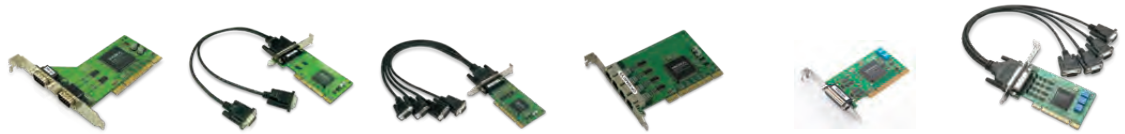
Product Series	CP-102E	CP-102EL	CP-104EL-A	CP-114EL	CP-116E-A
Serial Interface					
Comm. Controller	MU860 (16C550C compatible)		16C550C compatible		
Bus	PCI Express 1.0				
Connector	DB9 male	DB25 female	DB44 female		VHDCI 68
Max. No. of Boards per PC	8	8	8	8	4
No. of Ports	2	2	4	4	16
Serial Standards	RS-232			RS-232/422/485	
Baudrate	50 bps to 921.6 kbps (supports nonstandard baudrates)				
Data Bits	5, 6, 7, 8				
Stop Bits	1, 1.5, 2				
Parity	None, Even, Odd, Space, Mark				
Flow Control	None, RTS/CTS, XON/XOFF				
Isolation	-	-	-	2 kV (I models)	-
Serial Software Features					
Windows Drivers	DOS, 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				
Linux Drivers	Linux kernel 2.4.x, Linux kernel 2.6.x, Linux kernel 3.x				
UNIX Drivers	QNX 6, SCO OpenServer 5, SCO OpenServer 6, UnixWare 7, Solaris 10, FreeBSD, UnixWare 2.1				
Physical Characteristics					
Dimensions	85.04 x 100 mm (3.35 x 3.94 in)	67.21 x 100 mm (2.65 x 3.94 in)	67.21 x 103 mm (2.65 x 4.06 in)	CP-114EL Series: 67.21 x 103 mm (2.65 x 4.06 in) CP-114EL-I Series: 67.21 x 135 mm (2.65 x 5.31 in)	97.9 x 88.9 mm (3.85 x 3.50 in)
Environmental Limits					
Operating Temperature	0 to 55°C (32 to 131°F)				
Storage Temperature (package included)	-20 to 85°C (-4 to 185°F)				
Ambient Relative Humidity	5 to 95% (non-condensing)				
Standards and Certifications					
EMC	EN 55032/24				
EMI	CISPR 32, FCC Part 15B Class A	CISPR 32, FCC Part 15B Class B			
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF				IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Declaration					
Green Product	RoHS, CRoHS, WEEE				
MTBF					
Time	4,947,552 hrs		3,601,447 hrs	CP-114EL Series: 2,347,197 hrs CP-114EL-I Series: 603,671 hrs	310,993 hrs
Warranty					
Warranty Period	5 years				

PCI Express (PCIe) Serial Boards



Product Series	CP-118E-A-I	CP-138E-A-I	CP-118EL-A	CP-132EL	CP-134EL-A-I	CP-168EL-A
Serial Interface						
Comm. Controller	16C550C compatible					
Bus	PCI Express 1.0					
Connector	DB78 female		VHDCI 68	DB25 female	DB44 female	VHDCI 68
Max. No. of Boards per PC	8					
No. of Ports	8			2	4	8
Serial Standards	RS-232/422/485	RS-422/485	RS-232/422/485	RS-422/485		RS-232
Baudrate	50 bps to 921.6 kbps (supports nonstandard baudrates)					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS, XON/XOFF	None, XON/XOFF	None, RTS/CTS, XON/XOFF	None, XON/XOFF		None, RTS/CTS, XON/XOFF
Isolation	2 kV	2 kV	–	2 kV (1 models)	2 kV	–
Serial Software Features						
Windows Drivers	DOS, 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					
Linux Drivers	Linux kernel 2.4.x, Linux kernel 2.6.x, Linux kernel 3.x					
UNIX Drivers	QNX 6, SCO OpenServer 5, SCO OpenServer 6, UnixWare 7, Solaris 10, FreeBSD, UnixWare 2.1					
Physical Characteristics						
Dimensions	107 x 136.9 mm (4.21 x 5.39 in)		68.9 x 88 mm (2.71 x 3.46 in)	CP-132EL-DB9M: 67.21 x 101.97 mm (2.65 x 4.01 in) CP-132EL-I-DB9M: 67.21 x 103.97 mm (2.65 x 4.09 in)	67.21 x 103 mm (2.65 x 4.06 in)	64.42 x 102 mm (2.54 x 4.02 in)
Environmental Limits						
Operating Temperature	0 to 55°C (32 to 131°F)					
Storage Temperature (package included)	-20 to 85°C (-4 to 185°F)					
Ambient Relative Humidity	5 to 95% (non-condensing)					
Standards and Certifications						
EMC	EN 55032/24					
EMI	CISPR 32, FCC Part 15B Class B					
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF		IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF		IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Declaration						
Green Product	RoHS, CRoHS, WEEE					
MTBF						
Time	390,883 hrs	221,331 hrs	1,359,482 hrs	CP-132EL-DB9M: 4,147,133 hrs CP-132EL-I-DB9M: 1,681,099 hrs	433,077 hrs	2,351,336 hrs
Warranty						
Warranty Period	5 years					

Universal PCI Serial Boards



Product Series	CP-102U	CP-102UL	CP-104UL	CP-104JU	CP-112UL	CP-114UL
Serial Interface						
Comm. Controller	MU860 (16C550C compatible)					
Bus	32-bit Universal PCI					
Connector	DB9 male	DB25 female	DB44 female	RJ45	DB25 female	DB44 female
Max. No. of Boards per PC	8					
No. of Ports	2		4		2	4
Serial Standards	RS-232			RS-232/422/485		
Baudrate	50 bps to 921.6 kbps					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2				–	1, 1.5, 2
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS, XON/XOFF					
Isolation	–				2 kV (I models)	
Serial Software Features						
Windows Drivers	DOS, 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					
Linux Drivers	Linux kernel 2.4.x, Linux kernel 2.6.x, Linux kernel 3.x					
UNIX Drivers	QNX 6, SCO OpenServer 5, SCO OpenServer 6, UnixWare 7, Solaris 10, FreeBSD, UnixWare 2.1					
Physical Characteristics						
Dimensions	80 x 120 mm (3.15 x 4.72 in)	64.5 x 120 mm (2.54 x 4.72 in)	64.4 x 120 mm (2.54 x 4.72 in)	83 x 120 mm (3.27 x 4.72 in)	64.4 x 120 mm (2.54 x 4.72 in)	CP-114UL Series: 64.4 x 120 mm (2.54 x 4.72 in) CP-114UL-I Series: 64.4 x 130 mm (2.54 x 5.12 in)
Environmental Limits						
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)					
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)					
Ambient Relative Humidity	5 to 95% (non-condensing)					
Standards and Certifications						
EMC	EN 55032/24					
EMI	CISPR 32, FCC Part 15B Class B				–	CISPR 32, FCC Part 15B Class B
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m	IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m	All models: IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m CP-114UL-I Series: IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8
Declaration						
Green Product	RoHS, CRoHS, WEEE					
MTBF						
Time	574,050 hrs	576,401 hrs	558,961 hrs	571,627 hrs	219,971 hrs	114,223 hrs
Warranty						
Warranty Period	5 years					

Universal PCI Serial Boards



Product Series	CP-118U	CP-138U	CP-132UL	CP-134U	CP-168U	POS-104UL
Serial Interface						
Comm. Controller	MU860 (16C550C compatible)					
Bus	32-bit Universal PCI					
Connector	CP-118U Series: DB62 female CP-118U-I Series: DB78 female	CP-138U Series: DB62 female CP-138U-I Series: DB78 female	DB25 female	DB44 female	DB62 female	DB44 female
Max. No. of Boards per PC	8					
No. of Ports	8		2	4	8	4
Serial Standards	RS-232/422/485	RS-422/485		2 x RS-232/422/485 2 x RS-422/485	RS-232	
Baudrate	50 bps to 921.6 kbps					
Data Bits	5, 6, 7, 8					
Stop Bits	1, 1.5, 2					
Parity	None, Even, Odd, Space, Mark					
Flow Control	None, RTS/CTS, XON/XOFF	None, XON/XOFF		None, RTS/CTS, XON/XOFF		
Isolation	2 kV (I models)				–	2 kV (I models)
Serial Software Features						
Windows Drivers	DOS, 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					
Linux Drivers	Linux kernel 2.4.x, Linux kernel 2.6.x, Linux kernel 3.x					
UNIX Drivers	QNX 6, SCO OpenServer 5, SCO OpenServer 6, UnixWare 7, Solaris 10, FreeBSD, UnixWare 2.1					
Physical Characteristics						
Dimensions	82 x 135 mm (3.23 x 5.31 in)	82 x 135 mm (3.23 x 5.31 in)	64.4 x 120 mm (2.54 x 4.72 in)	CP-134U Series: 82.5 x 120 mm (3.24 x 4.72 in) CP-134U-I Series: 115 x 120 mm (4.53 x 4.72 in)	82 x 120 mm (3.23 x 4.72 in)	64.4 x 120 mm (2.54 x 4.72 in)
Environmental Limits						
Operating Temperature	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)					
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)					
Ambient Relative Humidity	5 to 95% (non-condensing)					
Standards and Certifications						
EMC	EN 55032/24					EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class B					EN 61000-6-4, FCC Part 15B Class B
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m			IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV		IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF
Declaration						
Green Product	RoHS, CRoHS, WEEE					
MTBF						
Time	1,073,385 hrs	1,147,210 hrs	1,647,832 hrs	480,209 hrs	280,854 hrs	2,124,022 hrs
Warranty						
Warranty Period	5 years					

CAN Interface Boards/Modules



Product Series	CP-602U-I	CP-602E-I	CB-602I
CAN Interface			
CAN Specification	CAN 2.0 A/B		
Max. No. of Boards per PC	4		
Electrical Isolation	2 kV		
Baudrate	10/20/50/125/250/500/800/1000 kbps, user-defined		
Connector	DB9 male		20-pin box header
No. of Ports	2		
Serial Software Features			
Windows Drivers	Windows 2000, Windows XP/2003/Vista/2008 (x86 and x64), Windows 7		
Library	Visual Basic, C/C++		
Physical Characteristics			
Dimensions	120 x 80 mm (4.72 x 3.15 in)	120 x 80 mm (4.72 x 3.15 in)	90 x 96 mm (3.54 x 3.78 in)
Environmental Limits			
Operating Temperature	CP-602U-I w/o cable: 0 to 55°C (32 to 131°F) CP-602U-I-T w/o cable: -40 to 85°C (-40 to 185°F)	Standard Models: 0 to 55°C (32 to 131°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)	
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)		
Ambient Relative Humidity	5 to 95% (non-condensing)		
Standards and Certifications			
EMC	EN 55032/24		
EMI	CISPR 32, FCC Part 15B Class B		
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Declaration			
Green Product	RoHS, CRoHS, WEEE		
MTBF			
Time	1,989,990 hrs	4,645,502 hrs	248,563 hrs
Warranty			
Warranty Period	5 years		



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Advanced Controllers and I/Os

Moxa's advanced controllers and I/O products make it easier to realize complex IIoT applications such as energy management, factory machine management, transportation management, and remote asset management through expandable communication and high-performance data acquisition and control capabilities.



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Rugged Controllers and I/Os

Rail, wind power, and offshore applications demand system reliability and stability, even in harsh environments. Our rugged controllers and I/O products are designed to perform in extreme conditions while providing versatile data acquisition and control capabilities.

Controllers and I/Os

Moxa provides a wide range of controllers and I/O products for industrial automation applications. Our devices are built with push technology to facilitate faster I/O response times while still ensuring accurate data collection. Moxa's Click&Go Plus simplifies configuration of control logic rules and provides support for multiple OT/IT protocols, making it easier for you to realize your IIoT application. Our products have been successfully deployed in factories, energy and transportation applications, and city infrastructure.



Controllers and I/Os
Product Pages



Universal Controllers and I/Os

Our universal controllers and I/O products use Click&Go control logic, and includes our patented active monitoring technology and support for a versatile set of OT/IT protocols to help you easily configure, deploy, and realize IIoT applications such as energy monitoring, facility monitoring, and machine OEM applications.

Advanced Controllers and I/Os



Product Series	ioThinX 4533-LX	ioThinX 4533-LX-T
Computer		
CPU	NXP i.MX7D 1 GHz	
OS	Linux kernel 4.4 CIP, PREEMPT_RT, Debian 9	
Clock	Real-time clock with capacitor backup	
DRAM	512 MB DDR3	
Storage Preinstalled	8 GB eMMC (6 GB reserved for the user)	
Storage Slot	microSD slot x 1	
Expansion Slots	Up to 64	
Control Logic		
Language	C/C++, Python	
Ethernet Interface		
10/100BaseT(X) Ports (RJ45 connector)	2, 2 MACs	
Serial Interface		
Serial Standards	RS-232/422/485 (software selectable)	
Environmental Limits		
Operating Temperature	-20 to 60°C (-4 to 140°F)	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)	
Ambient Relative Humidity	5 to 95% (non-condensing)	
Altitude	Up to 4000 meters ¹	
Standards and Certifications		
Safety	UL 61010-2-201	
EMC	EN 55032/24	
EMI	CISPR 32, FCC Part 15B Class A	
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF	
Shock	IEC 60068-2-27	
Vibration	IEC 60068-2-6	
Declaration		
Green Product	RoHS, CRoHS, WEEE	

1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Advanced Controllers and I/Os



Product Series	ioThinX 4510	ioThinX 4510-T
Input/Output Interface		
Expansion Slots	Up to 32 ¹	
Ethernet Interface		
10/100BaseT(X) Ports (RJ45 connector)	2, 1 MAC address (Ethernet bypass)	
Ethernet Software Features		
Industrial Protocols	Modbus TCP Server (slave), RESTful API, SNMPv1/v2c/v3, SNMPv1/v2c/v3 Trap, SNMPv2c/v3 Inform, MQTT	
Serial Interface		
Serial Standards	RS-232/422/485	
No. of Ports	1 x RS-232/422 or 2 x RS-485 (2-wire)	
Serial Software Features		
Industrial Protocols	Modbus RTU Master	
Environmental Limits		
Operating Temperature	-20 to 60°C (-4 to 140°F)	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)	
Ambient Relative Humidity	5 to 95% (non-condensing)	
Altitude	Up to 4000 meters ²	
Standards and Certifications		
Safety	UL 61010-2-201	
EMC	EN 55032/24	
EMI	CISPR 32, FCC Part 15B Class A	
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF	
Shock	IEC 60068-2-27	
Vibration	IEC 60068-2-6	
Declaration		
Green Product	RoHS, CRoHS, WEEE	

1. Compatible with the ioThinX 4500 Series (45MR) Modules only.
2. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Advanced Controllers and I/Os



	45MR-1600 (-T)	45MR-1601 (-T)	45MR-2600 (-T)	45MR-2601 (-T)	45MR-2606 (-T)	45MR-2404 (-T)	45MR-3800 (-T)	45MR-3810 (-T)	45MR-4420 (-T)	45MR-6600 (-T)	45MR-6810 (-T)	45MR-7210 (-T)	45MR-7820 (-T)
Input/Output Interface													
Digital Input Channels	16	16	-	-	8	-	-	-	-	-	-	-	-
Digital Output Channels	-	-	16	16	8	-	-	-	-	-	-	-	-
Relay Channels	-	-	-	-	-	4	-	-	-	-	-	-	-
Analog Input Channels	-	-	-	-	-	-	8	8	-	-	-	-	-
Analog Output Channels	-	-	-	-	-	-	-	-	4	-	-	-	-
RTD Channels	-	-	-	-	-	-	-	-	-	6	-	-	-
Thermocouple Channels	-	-	-	-	-	-	-	-	-	-	8	-	-
Field Potential Output Channels	-	-	-	-	-	-	-	-	-	-	-	-	8
System Power Input Channels	-	-	-	-	-	-	-	-	-	-	-	1	-
Field Power Input Channels	-	-	-	-	-	-	-	-	-	-	-	1	-
Digital Inputs													
Sensor Type	Dry contact, wet contact (NPN or PNP)		-		-		Dry contact, wet contact (NPN or PNP)		-				
Digital Outputs													
I/O Type	-	-	Sink	Source	Source	-	-	-	-	-	-	-	-
Relays													
Type	-	-	-	-	-	Form A (N.O.) power relay	-	-	-	-	-	-	-
Analog Inputs													
Input Range	-	-	-	-	-	-	0 to 20 mA, 4 to 20 mA, 4 to 20 mA (burnout detection)	0 to 10 VDC or -10 to 10 VDC	-	-	-	-	-
Analog Outputs													
Output Range	-	-	-	-	-	-	-	-	0 to 10 VDC 0 to 20 mA 4 to 20 mA	-	-	-	-
System Power Parameters													
Input Voltage	-	-	-	-	-	-	-	-	-	-	-	12 to 48 VDC	-
Field Power Parameters													
Input Voltage	-	-	-	-	-	-	-	-	-	-	-	12/24 VDC	-
Output Voltage	-	-	-	-	-	-	-	-	-	-	-	-	0, 12/24 VDC
Environmental Limits													
Operating Temperature	Standard Models: -20 to 60°C (-4 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)												
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)												
Ambient Relative Humidity	5 to 95% (non-condensing) ¹												
Altitude	Up to 4000 meters ²												
Standards and Certifications													
Safety	UL 61010-2-201												
EMC	EN 55032/24												
EMI	CISPR 32, FCC Part 15B Class A												
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF												
Shock	IEC 60068-2-27												
Vibration	IEC 60068-2-6												

1. The relays of the 45MR-2404 Series may malfunction when operating in high condensation environments below 0°C.
2. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Rugged Controllers and I/Os



Product Series	ioPAC 8600
Computer	
CPU	32-bit Cortex-A8 1 GHz CPU
OS	Real-time Linux (PREEMPT_RT)
Clock	Real-time clock with capacitor backup
Memory	
eMMC	4 GB (1.7 GB reserved for the user)
SDRAM	512 MB DDR3L
SPI-NVRAM	128 KB
microSD Slot	Up to 32 GB (SD 2.0 compatible) ¹
Control Logic	
Language	C/C++, IEC 61131-3
Ethernet Interface	
10/100BaseT(X) Ports (M12 D-coded 4-pin female connector)	M12 version: 2, 1 MAC address (Ethernet bypass) or 2 MAC addresses, jumper selectable
10/100BaseT(X) Ports (RJ45 connector)	RJ45 version: 2, 1 MAC address (Ethernet bypass) or 2 MAC addresses, jumper selectable
Ethernet Software Features	
Industrial Protocols	Modbus TCP Client (master), Modbus TCP Server (slave), Moxa AOPC (active tag), SNMPv1/v2c Trap, SNMPv1/v2c/v3
Serial Interface	
Serial Standards	RS-232/422/485 ²
Serial Software Features	
Industrial Protocols	Modbus RTU/ASCII
Physical Characteristics	
Slots	ioPAC 8600-BM005: 5 ioPAC 8600-BM009: 9 ioPAC 8600-BM012: 12
Environmental Limits	
Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Standards and Certifications	
EMC	EN 55032/24, EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 5.1 GHz to 6 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Railway	EN 50121-4, EN 50155 ³
Safety	UL 508
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6

1. For units operating in extreme temperatures, industrial-grade and wide-temperature range microSD cards are required.

2. Only applies to the 85M-5401 module.

3. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.

Rugged Controllers and I/Os

86M Series I/O Modules



	Digital Input		Digital Output		Relay	Analog Output	Communication	
	86M-1620D-T	86M-1832D-T	86M-2821D-T	86M-2830D-T	86M-2604D-T	86M-4420D-T	86M-5212U-T	86M-5250-T
Input/Output Interface								
Analog Output Channels	-	-	-	-	-	4	-	-
Digital Input Channels	16	8	-	-	-	-	-	-
Digital Output Channels	-	-	8	8	-	-	-	-
Relay Channels	-	-	-	-	6	-	-	-
2-wire Ethernet Ports	-	-	-	-	-	-	2	-
CAN Ports	-	-	-	-	-	-	-	2
Module Properties								
Input/Output Mode	24 to 110 VDC	24 VDC ch-to-ch isolation	24 to 110 VDC	24 VDC ch-to-ch isolation	-	0 to 10 VDC 0 to 20 mA -10 to 10 V 4 to 20 mA	-	-
I/O Type	Sink	Sink/Source	Source	Sink	Form A (N.O.) power relay	-	-	-
Sensor Type	Wet contact (PNP)	Dry contact, wet contact (NPN or PNP)	-	-	-	-	-	-
Connector	Spring-type Euroblock terminal						M12 D-coded 2-pin female connector	DB9 male
Ethernet/CAN Interface								
Standards	-	-	-	-	-	-	BroadR-Reach® for 10 Mbps and 100 Mbps IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX	CAN 2.0A, CAN 2.0B, CANopen DS301, V4.02

85M Series I/O Modules



	Digital Input	Digital Output	Analog Input				RTD	TC	Communication	
	85M-1602-T	85M-2600-T	85M-3800-T	85M-3801-T	85M-3810-T	85M-3811-T	85M-6600-T	85M-6810-T	85M-5401-T	
Input/Output Interface										
Analog Input Channels	-	-	8	8	8	8	-	-	-	
Digital Input Channels	16	-	-	-	-	-	-	-	-	
Digital Output Channels	-	16	-	-	-	-	-	-	-	
RTD Channels	-	-	-	-	-	-	6	-	-	
Thermocouple Channels	-	-	-	-	-	-	-	8	-	
Serial Ports	-	-	-	-	-	-	-	-	4	
Module Properties										
Input/Output Mode	24 VDC	24 VDC	4 to 20 mA (with burnout detection)			0 to 10 V		-	-	-
I/O Type	Sink/Source	Sink	-	-	-	-	-	-	-	
Sensor Type	Dry contact, wet contact (NPN or PNP)	-	-	-	-	-	-	-	-	
Sampling Rate	-	-	All channels: 100 samples/sec Per channel: 12.5 samples/sec	All channels: 40k samples/sec Per channel: 5k samples/sec	All channels: 100 samples/sec Per channel: 12.5 samples/sec	All channels: 40k samples/sec Per channel: 5k samples/sec	All channels: 12 samples/sec Per channel: 2 samples/sec	All channels: 12 samples/sec Per channel: 1.5 samples/sec	-	
Serial Ports	-	-	-	-	-	-	-	-	RS-232/422/485	
Connector	Spring-type Euroblock terminal								DB44 male	

Rugged Controllers and I/Os



Product Series	ioLogik E1510-M12-T	ioLogik E1512-M12-T
Input/Output Interface		
Analog Input Channels	–	–
Digital Input Channels	12	4
Configurable DIO Channels (by software)	–	4
RTD Channels	–	–
Ethernet Interface		
10/100BaseT(X) Ports	1	
Connector	M12 D-coded 4-pin female connector	
Ethernet Software Features		
Industrial Protocols	Modbus TCP Server (slave), Moxa AOPC (active tag), MXIO Library	
Serial Software Features		
Industrial Protocols	–	
Environmental Limits		
Operating Temperature	-40 to 85°C (-40 to 185°F)	
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)	
Ambient Relative Humidity	5 to 95% (non-condensing)	
Altitude	2000 meters ¹	
Standards and Certifications		
EMC	EN 61000-6-2/-6-4	
EMI	CISPR 32, FCC Part 15B Class A	
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF	
Environmental Testing	–	
Railway	EN 50121-4, EN 50155 ²	
Safety	UL 508	
Shock	IEC 60068-2-27	
Vibration	IEC 60068-2-6	

1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

2. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.

Universal Controllers and I/Os



	ioLogik 2512 (-T)	ioLogik 2512-HSPA (-T)	ioLogik 2512-WL1 (-T)	ioLogik 2542 (-T)	ioLogik 2542-HSPA (-T)	ioLogik 2542-WL1 (-T)
Control Logic						
Language	Click&Go Plus					
Input/Output Interface						
Analog Input Channels	–	–	–	4	4	4
Digital Input Channels	8	8	8	–	–	–
Configurable DIO Channels (by software)	8	8	8	12	12	12
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 connector)	4, 1 MAC address (Ethernet bypass)					
Ethernet Software Features						
Industrial Protocols	CGI commands, Modbus TCP Client (master), Modbus TCP Server (slave), Moxa AOPC (active tag), MXIO Library, RESTful API, SNMPv1/v2c/v3, SNMPv1/v2c Trap					
Serial Interface						
No. of Ports	2					
Serial Standards	RS-232/422/485					
Serial Software Features						
Industrial Protocols	Modbus RTU Client (master)					
Cellular Interface						
Band Options	–	UMTS/HSPA+ 800/850/900/1900/2100 MHz Universal quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz	–	–	UMTS/HSPA+ 800/850/900/1900/2100 MHz Universal quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz	–
WLAN Interface						
WLAN Standards	–	–	802.11b/g, 802.11i wireless security	–	–	802.11b/g, 802.11i wireless security
Environmental Limits						
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -30 to 70°C (-22 to 158°F)	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -30 to 70°C (-22 to 158°F)		
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)					
Ambient Relative Humidity	5 to 95% (non-condensing)					
Altitude	2000 meters ¹					
Standards and Certifications						
EMC	EN 61000-6-2/-6-4					
EMI	CISPR 32, FCC Part 15B Class A					
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8					
	IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-5 Surge: Power: 1 kV	IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-5 Surge: Power: 2 kV	IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-5 Surge: Power: 1 kV	IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-5 Surge: Power: 2 kV		
Vibration	IEC 60068-2-6					
Shock	IEC 60068-2-27					
Freefall	IEC 60068-2-32					
Hazardous Locations	ATEX, Class I Division 2					
Safety	UL 508					
Radio	–	EN 301 489-1/17	EN 301 489-1/17, NCC	–	EN 301 489-1/17	EN 301 489-1/17, NCC
Radio Frequency	–	EN 301 908, EN 301 489-24, EN 301 511	–	–	EN 301 908, EN 301 489-24, EN 301 511	–
WLAN Standards	–	–	EN 300328, EN 301893	–	–	EN 300328, EN 301893

1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Universal Controllers and I/Os



	ioLogik E2210 (-T)	ioLogik E2212 (-T)	ioLogik E2214 (-T)	ioLogik E2240 (-T)	ioLogik E2242 (-T)	ioLogik E2260 (-T)	ioLogik E2262 (-T)
Control Logic							
Language	Click&Go						
Input/Output Interface							
Analog Input Channels	-	-	-	8	4	-	-
Analog Output Channels	-	-	-	2	-	-	-
Configurable DIO Channels (by software)	-	4	-	-	12	-	-
Digital Input Channels	12	8	6	-	-	-	-
Digital Output Channels	8	8	-	-	-	4	4
Relay Channels	-	-	6	-	-	-	-
RTD Channels	-	-	-	-	-	6	-
Thermocouple Channels	-	-	-	-	-	-	8
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 connector)	1						
Ethernet Software Features							
Industrial Protocols	CGI commands, Modbus TCP Server (slave), Moxa AOPC (active tag), MXIO Library, SNMPv1 Trap, SNMPv1/v2c/v3						
Serial Interface							
No. of Ports	1						
Serial Standards	RS-485						
Environmental Limits							
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)						
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)						
Ambient Relative Humidity	5 to 95% (non-condensing)						
Altitude	2000 meters ¹						
Standards and Certifications							
Freefall	IEC 60068-2-32						
EMC	EN 61000-6-2/-6-4						
Safety	UL 508						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF						
Shock	IEC 60068-2-27						
Vibration	IEC 60068-2-6						
Declaration							
Green Product	RoHS, CRoHS, WEEE						

1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Universal Controllers and I/Os



	ioLogik E1210 (-T)	ioLogik E1211 (-T)	ioLogik E1212 (-T)	ioLogik E1213 (-T)	ioLogik E1214 (-T)	ioLogik E1240 (-T)	ioLogik E1241 (-T)	ioLogik E1242 (-T)	ioLogik E1260 (-T)	ioLogik E1262 (-T)	
Input/Output Interface											
Analog Input Channels	-	-	-	-	-	8	-	4	-	-	
Analog Output Channels	-	-	-	-	-	-	4	-	-	-	
Configurable DIO Channels (by jumper)	-	-	8	4	-	-	-	4	-	-	
Digital Input Channels	16	-	8	8	6	-	-	4	-	-	
Digital Output Channels	-	16	-	4	-	-	-	-	-	-	
Relay Channels	-	-	-	-	6	-	-	-	-	-	
RTD Channels	-	-	-	-	-	-	-	-	6	-	
Thermocouple Channels	-	-	-	-	-	-	-	-	-	8	
Digital Outputs											
I/O Type	-	Sink	Sink	Source	-	-	-	Sink	-	-	
Ethernet Interface											
10/100BaseT(X) Ports (RJ45 connector)	2, 1 MAC address (Ethernet bypass)										
Ethernet Software Features											
Industrial Protocols	EtherNet/IP Adapter (slave), Modbus TCP Server (slave), Moxa AOPC (active tag), MXIO Library, RESTful API, SNMP v1/v2c, SNMP v1 Trap										
Environmental Limits											
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)										
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)										
Ambient Relative Humidity	5 to 95% (non-condensing)										
Altitude	4000 meters ¹										
Standards and Certifications											
EMC	EN 55032/24, EN 61000-6-2/-6-4										
EMI	CISPR 32, FCC Part 15B Class A										
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF										
Hazardous Locations	ATEX, Class I Division 2			-				ATEX, Class I Division 2			
Safety	UL 508										
Shock	IEC 60068-2-27										
Vibration	IEC 60068-2-6										
Declaration											
Green Product	RoHS, CRoHS, WEEE										

1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Universal Controllers and I/Os



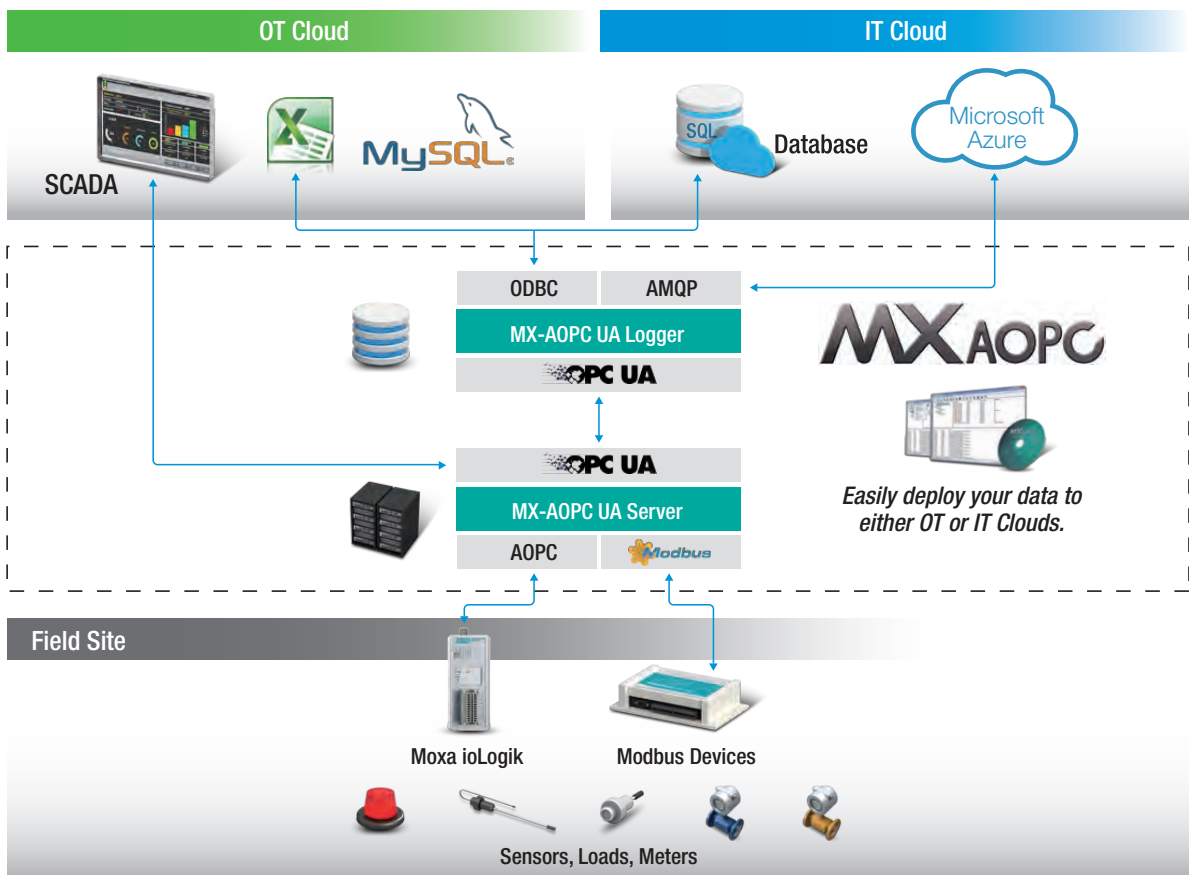
	ioLogik R1210 (-T)	ioLogik R1212 (-T)	ioLogik R1214 (-T)	ioLogik R1240 (-T)	ioLogik R1241 (-T)
Input/Output Interface					
Analog Input Channels	–	–	–	8	–
Analog Output Channels	–	–	–	–	4
Configurable DIO Channels (by software)	–	8	–	–	–
Digital Input Channels	16	8	6	–	–
Relay Channels	–	–	6	–	–
Digital Outputs					
I/O Type	–	Sink	–	–	–
Serial Interface					
No. of Ports	2				
Serial Standards	RS-485				
Serial Software Features					
Industrial Protocols	Modbus RTU Server (slave)				
Environmental Limits					
Operating Temperature	Standard Models: -10 to 75°C (14 to 167°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)				
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)				
Ambient Relative Humidity	5 to 95% (non-condensing)				
Altitude	2000 meters ¹				
Standards and Certifications					
Safety	UL 508				
EMC	EN 55032/24				
EMI	CISPR 32, FCC Part 15B Class A				
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF				
Shock	IEC 60068-2-27				
Vibration	IEC 60068-2-6				
Declaration					
Green Product	RoHS, CRoHS, WEEE				

1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.



Create a Secure Data Connection Between OT and IT Systems

Traditionally, it has been difficult for OT and IT engineers to write agent programs to poll the thousands of registers used for shop-floor data. The difficulty stems from the fact that shop-floor data is handled using fieldbus protocols, but the data needs to be written to an IT database. The difficulties are compounded considerably when it comes time to scale up a facility, particularly since the additional load created can put a tremendous strain on systems that rely on legacy data acquisition methods. MX-AOPC UA Suite can be used to collect data from shop-floor registers via a Modbus protocol. The data can then be provided to an OPC UA client, such as a SCADA system, or MX-AOPC UA Logger can be used to write the data to an IT database, all without the need for additional programming effort. As an added benefit, MX-AOPC UA Suite provides security policy options for encryption and certificate exchange to ensure the security of data connections and transmissions.



OPC UA Software

Moxa's OPC UA software works with our ioLogik remote I/O products to maximize the efficiency of data collection from remote devices. By leveraging the power of our patented active monitoring technology, the OPC UA software delivers faster response times and bandwidth savings.



OPC UA Software
Product Pages

Efficient Data Acquisition Through Push-type Transmission (report by interval or exception method)

Our patented MX-AOPC UA Server offers both polling and non-polling architectures alongside the standard OPC UA protocol, giving users the alternative of using push-based communication from Moxa's devices. With push technology, I/O status is updated to MX-AOPC UA Server only when there is an I/O status change, a pre-configured interval is reached, or when a request is issued by a user. This application of push technology cuts metadata overhead, resulting in faster I/O response times and more accurate data collection than traditional pull-based architectures.



Automatic Data Supplement From SD Cards Following Network Failures

One of the benefits of using RTUs is that data can be collected over a network from a central site. In an ideal operation, following a network failure, RTUs should be able to transmit data logs that were collected while the network was offline. Moxa's MX-AOPC UA Logger makes this not only possible, but easy. MX-AOPC UA Logger provides a standard OPC interface that interacts with MX-AOPC UA Server for real-time data collection. After each network connection, MX-AOPC UA Logger will compare historical data stored on the SD cards located in individual devices with the real-time data it has already stored locally, and then supplement any missing data by requesting that the RTU retransmit the lost data.



OPC UA Software supports the following devices:

Product Series	Page Number
ioPAC 8600 Series	98
ioLogik E1500 Series	100
ioLogik 2500 Series	101
ioLogik E2200 Series	102
ioLogik E1200 Series	103



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Arm-based Computers

Our Arm-based computing family offers wireless-ready, compact, and fanless industrial computers built for space-critical automation applications. These computers are specially designed for long-term operation and come with both a 5-year hardware warranty and 10-year support for Moxa Industrial Linux, making them an ideal choice for remote-monitoring and data-acquisition applications.



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x86 Computers

Our industrial-grade, fanless x86 computers have passed rigorous tests and strictly adhere to industrial standards to ensure they can provide long-lasting, reliable operation even in harsh environments, making them perfect for heavy industry, power substation and utilities, transportation, oil and gas, and maritime applications.

Industrial Computing

Moxa offers an extensive range of industrial-grade, fanless computers and displays for tough environments. These products are built to operate reliably in extreme conditions, such as continuous exposure to high or low temperatures, humidity, vibration, and power surges. Our products have been successfully deployed in automation systems for heavy industries, substations, solar energy management, water/wastewater management, transportation, oil and gas, and marine vessels.



Industrial Computing
Product Pages



Panel Computers and Displays

Our industrial-grade panel computers and displays are built to withstand the elements, and feature a ruggedized design that makes them ideal for HMI applications in outdoor, hazardous, and maritime environments. Certifications include Class 1 Division 2, ATEX Zone 2, IECEx Zone 2, DNV GL, and CCS.

Arm-based Computers



Product Series	UC-2101-LX	UC-2102-LX	UC-2104-LX	UC-2111-LX	UC-2112-LX UC-2112-T-LX	UC-2114-T-LX	UC-2116-T-LX
Computer							
CPU	Armv7 Cortex-A8 (600 MHz)				Armv7 Cortex-A8 (1 GHz)		
DRAM	256 MB DDR3			512 MB DDR3			
Storage Preinstalled	8 GB eMMC flash						
Storage Slot	-			microSD x 1			
Computer Interface							
Ethernet Ports	Auto-sensing 10/100 Mbps port (RJ45) x 1	Auto-sensing 10/100 Mbps ports (RJ45) x 2	Auto-sensing 10/100 Mbps port (RJ45) x 1	Auto-sensing 10/100 Mbps ports (RJ45) x 2	Auto-sensing 10/100 Mbps port (RJ45) x 1, Auto-sensing 10/100/1000 Mbps port (RJ45) x 1		
Serial Ports	RS-232/422/485 port x 1, software-selectable (DB9 male)	-		RS-232/422/485 ports x 2, software-selectable (DB9 male)			
Expansion Slot	-		miniPCIe (for Wi-Fi/LTE)	-			
CAN Interface							
No. of Ports	-					CAN ports x 2, CAN 2.0A and CAN 2.0B compliant	
GPS Interface							
Number of Channel	-	-	-	-	-	-	72 channels
Receiver Type	-	-	-	-	-	-	GPS/QZSS L1 C/A, Glonass L10F
Navigator Update Rate	-	-	-	-	-	-	Up to 18 Hz
Position Accuracy	-	-	-	-	-	-	GPS: 2.5 m CEP
Environmental Limits							
Operating Temperature	-10 to 60°C (14 to 140°F)		-10 to 70°C (14 to 158°F)	-10 to 60°C (14 to 140°F)	UC-2112-LX: -10 to 60°C (14 to 140°F) UC-2112-T-LX: -40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	
Standards and Certifications							
Hazardous Locations	-	-	-	-	ATEX, Class I Division 2, IECEx		
Cellular Interface							
Standard	-	-	-	-	-	LTE Cat M1 and NB-IoT compliant	
LTE Bands	-	-	-	-	-	1*, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26*, 28 (*roaming band)	
Carrier Approval	-	-	-	-	-	Verizon, AT&T	
Power Parameters							
Input Voltage	9 to 48 VDC						
Power Connector	3-pin terminal block						
Power Consumption (max.)	4 W					5.8 W	

Arm-based Computers



Product Series	UC-3101-T-LX	UC-3111-T-LX	UC-3121-T-LX	UC-5101-LX UC-5101-T-LX	UC-5102-LX UC-5102-T-LX	UC-5111-LX UC-5111-T-LX	UC-5112-LX UC-5112-T-LX
Computer							
CPU	Armv7 Cortex-A8 1 GHz						
DRAM	US models ¹ : 1 GB DDR3 All other models: 512 MB DDR3			512 MB DDR3			
Storage Preinstalled	US models ¹ : 8 GB eMMC flash All other models: 4 GB eMMC flash			8 GB eMMC flash			
Storage Slot	–	SD x 1	US models ¹ : SD x 1	SD x 1			
Computer Interface							
Ethernet Ports	Auto-sensing 10/100 Mbps ports (RJ45) x 2						
Serial Ports	RS-232/422/485 port x 1, software- selectable (DB9 male)	RS-232/422/485 ports x 2, software- selectable (DB9 male)	RS-232/422/485 port x 1, software- selectable (DB9 male)	RS-232/422/485 ports x 4, software selectable (RJ45)			
Digital Input	–	–	–	DIs x 4			
Digital Output	–	–	–	DOs x 4			
Expansion Slot	–	–	–	–	miniPCIe x 1 (for Wi-Fi/LTE)	–	miniPCIe x 1 (for Wi-Fi/LTE)
USB 2.0	1 (type-A connector)						
CAN Interface							
No. of Ports	–	–	CAN port x 1, CAN 2.0A and CAN 2.0B compliant	–	–	CAN ports x 2, CAN 2.0A and CAN 2.0B compliant	
Environmental Limits							
Operating Temperature	US models ¹ : -40 to 70°C (-40 to 158°F) All other models: -30 to 70°C (-22 to 158°F)			Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: Product only: -40 to 85°C (-40 to 185°F) With LTE accessory: -40 to 70°C (-40 to 158°F) With Wi-Fi accessory: -10 to 70°C (14 to 158°F)			
Standards and Certifications							
Hazardous Locations	ATEX, Class I Division 2, IECEx			–	–	–	–
WLAN Interface							
WLAN Standards	US models ¹ : Bluetooth 4.2 compliance All other models: 802.11a/b/g/n			–			
Cellular Interface							
Standard	LTE Cat 1			–	–	–	–
Carrier Approval	US models ¹ : Verizon, AT&T			–	–	–	–
LTE Bands	US models ¹ : Band 2 (1900 MHz) / Band 4 (1700 MHz) / Band 5 (850 MHz) / Band 12 (700 MHz) / Band 13 (700 MHz) / Band 14 (700 MHz) / Band 66 (1700 MHz) / Band 71 (600 MHz) EU Model: Band 1 (2100 MHz) / Band 3 (1800 MHz) / Band 8 (900 MHz) / Band 20 (800 MHz) / Band 28 (700 MHz) AU/NZ Model: 3 (1800 MHz) / Band 5 (850 MHz) / Band 8 (900 MHz) / Band 28 (700 MHz)			–	–	–	–
UMTS Bands	US models ¹ : Band 2 (1900 MHz) / Band 4 (1700 MHz) / Band 5 (850 MHz) AU/NZ Models: Band 1 (2100 MHz) / Band 5 (850 MHz) / Band 8 (900 MHz)			–	–	–	–
GSM Bands	EU Models: 900 MHz / 1800 MHz			–	–	–	–
Power Parameters							
Input Voltage	9 to 36 VDC			9 to 48 VDC			
Power Connector	3-pin terminal block						
Power Consumption (max.)	6 W	9 W		6 W			

1. Available in Q2, 2020.

Arm-based Computers



Product Series	UC-8112-LX	UC-8112A-ME-T-LX	UC-8112A-ME-T-LX-US	UC-8112A-ME-T-LX-EU	UC-8112A-ME-T-LX-AP	UC-8210-T-LX UC-8210-T-LX-S	UC-8220-T-LX	UC-8220-T-LX-US-S	UC-8220-T-LX-EU-S	UC-8220-T-LX-AP-S
Computer										
CPU	Armv7 Cortex-A8 (1 GHz)					Armv7 Cortex-A7 (dual core, 1 GHz)				
DRAM	512 MB DDR3	1 GB DDR3				2 GB DDR3L				
Storage Preinstalled	8 GB eMMC flash									
Storage Slot	SD x 1					microSD x 1				
Computer Interface										
Ethernet Ports	Auto-sensing 10/100 Mbps ports (RJ45) x 2					Auto-sensing 10/100/1000 Mbps ports (RJ45) x 2				
Serial Ports	RS-232/422/485 ports x 2, software-selectable (5-pin terminal block)					RS-232/422/485 ports x 2, software-selectable (DB9 male)				
Digital Input	-					DIs x 4				
Digital Output	-					DOs x 4				
Expansion Slot	miniPCIe slot x 1 (for Wi-Fi/LTE)	-				miniPCIe slots x 2 (for Wi-Fi/LTE)	miniPCIe slots x 1 (for Wi-Fi)			
GPS	-	GPS x 1				-	GPS x 1			
USB 2.0	1 (type-A connector)									
TPM	-					TPM v2.0 (-S model only)	-	TPM v2.0		
CAN Interface										
No. of Ports	-					CAN 2.0 A/B x 1 (DB9 male)				
Environmental Limits										
Operating Temperature	-10 to 60°C (14 to 140°F)	Without LTE Module: -40 to 85°C (-40 to 185°F) With LTE Module: -40 to 70°C (-40 to 158°F)				-40 to 85°C (-40 to 185°F)	With LTE Module: -40 to 70°C (-40 to 158°F)			
Standards and Certifications										
Hazardous Locations	-	ATEX, Class I Division 2, IECEx								
Cellular Interface										
Standard	-	-	LTE Cat 4 compliant			-	-	LTE Cat 4 compliant		
Carrier Approval	-	-	Verizon, AT&T	-	-	-	-	Verizon, AT&T	-	-
LTE Bands	-	-	2, 4, 5, 13, 17	1, 3, 5, 7, 8, 20	1, 3, 5, 7, 8, 28	-	-	2, 4, 5, 13, 17	1, 3, 5, 7, 8, 20	1, 3, 5, 7, 8, 28
UMTS Bands	-	-	850/1900 MHz	850/900/1900/2100 MHz	850/900/1900/2100 MHz	-	-	700/850/1700/1900 MHz	800/850/900/1800/2100/2600 MHz	700/850/900/1800/2100/2600 MHz
Power Parameters										
Input Voltage	12 to 24 VDC	12 to 36 VDC				12 to 48 VDC				
Power Connector	3-pin terminal block					4-pin terminal block				
Power Consumption	5.4 W	6 W	8 W			12 W				

Arm-based Computers



Product Series	UC-8410A-LX UC-8410A-T-LX	UC-8540-LX UC-8540-T-LX	UC-8580-LX UC-8580-T-LX	UC-8580-Q-LX UC-8580-T-Q-LX	DA-662A-8-LX DA-662A-I-8-LX	DA-662A-16-LX DA-662A-I-16-LX
Computer						
CPU	Armv7 Cortex-A7 (dual core, 1 GHz)				MoxaMacro (500 MHz)	
System Memory Preinstalled	1 GB DDR3L				128 MB	
Storage Preinstalled	8 GB eMMC flash		4 GB eMMC flash		NOR flash, 32 MB	
Storage Slot	mSATA slot x 1, SD slot x 1	mSATA slot x 1			CFast slot x1	
Computer Interface						
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45) x 3	Auto-sensing 10/100/1000 Mbps ports (M12 X-coded) x 2			Auto-sensing 10/100 Mbps ports (RJ45) x 4	
Serial Ports	RS-232/422/485 ports x 8, software-selectable (RJ45)	RS-232/422/485 port x 1, software-selectable (DB9 male)	RS-232/422/485 ports x 2, software-selectable (terminal block)		RS-232/422/485 ports x 8, software-selectable (8-pin RJ45)	RS-232/422/485 ports x 16, software-selectable (8-pin RJ45)
Digital Input	DIs x 4	–	DIs x 3		–	
Digital Output	DOs x 4	–	DOs x 3		–	
Power Ignition Control	–	✓	✓	✓	–	
Expansion Slot	miniPCIe (for Wi-Fi/LTE)	miniPCIe x 2 (for Wi-Fi/LTE)	miniPCIe x 4 (for Wi-Fi/LTE)		–	
USB 2.0	2 (type-A connectors)	–	–	–	2 (type-A connectors)	
USB 3.0	–	1 (type-A connector)			–	
GPS Interface						
Heading Accuracy	–	0.3 degrees			–	
Industrial Protocols	–	NMEA 0183, version 4.0 (v2.3 or v4.1 configurable), UBX, RTCM			–	
Receiver Types	–	72-channel u-blox M8 engine			–	
Time Pulse	–	0.25 Hz to 10 MHz			–	
Velocity Accuracy	–	0.05 ms			–	
Environmental Limits						
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)	Standard Models: -25 to 55°C (-13 to 131°F) Wide Temp. Models: -40 to 70°C (-40 to 158°F)			-10 to 60°C (14 to 140°F)	
Standards and Certifications						
Railway	–	EN 50121-4, EN 50155 ¹			–	
Railway Fire Protection	–	EN 45545-2			–	
Power Parameters						
Input Voltage	12 to 48 VDC	24 to 110 VDC			100 to 240 VAC	
Power Connector	3-pin terminal block (for DC models)	M12 A-coded 4-pin (male)			AC power connector	
Power Consumption (max.)	19 W	40 W			20 W	

1. This product is suitable for rolling stock railway applications, as defined by the EN 50155 standard. For a more detailed description, please visit our website.

x86 Computers



Product Series	DA-681A	DA-682A-DPP	DA-681C	DA-682C	DA-720
Computer					
CPU	Intel® Celeron® 1047UE	<ul style="list-style-type: none"> Intel® Celeron® 1047UE Intel® Core™ i3-3217UE Intel® Core™ i7-3517UE 	<ul style="list-style-type: none"> Intel® Celeron® 3965U, 2C/2T, 2.2 GHz Intel® Core™ i3-7100U, 2C/4T, 2.4 GHz 	<ul style="list-style-type: none"> Intel® Core™ i7-7600U, 2C/4T, 2.8 GHz Intel® Core™ i5-7300U, 2C/4T, 2.6 GHz Intel® Core™ i3-7100U, 2C/4T, 2.4 GHz Intel® Celeron® 3965U, 2C/2T, 2.2 GHz 	<ul style="list-style-type: none"> Intel® Core™ i5-6300U Intel® Core™ i7-6600U
System Memory Slot	SODIMM DDR3/DDR3L slot x 1 (max. 16 GB)		SODIMM DDR4 slots x 2 (max. 32 GB)		
Supported OS	<ul style="list-style-type: none"> Linux Debian 8 Windows Embedded Standard 7 (WS7E) 32-bit/64-bit 	<ul style="list-style-type: none"> Linux Debian 7 Windows Embedded Standard 7 (WS7E) 32-bit/64-bit 	<ul style="list-style-type: none"> Windows 10 Embedded IoT Ent 2019 LTSC 64-bit Linux Debian 9 Note: OS available by CTOS	<ul style="list-style-type: none"> Linux Debian 8 Windows 10 IoT Enterprise 2016 LTSB 	
Storage Slot	2.5-inch HDD/SSD slot x 1 mSATA x 1	2.5-inch HDD/SSD slots x 2 CompactFlash slot x 1	2.5-inch HDD/SSD slots x 1	2.5-inch HDD/SSD slots x 2	2.5-inch HDD/SSD slot x 1 mSATA slot x 1
Computer Interface					
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45) x 6				Auto-sensing 10/100/1000 Mbps ports (RJ45) x 14
Serial Ports	RS-232/422/485 ports x 2, software-selectable (DB9 male) RS-485 ports x 10, software-selectable (terminal block)	–	RS-232/422/485 ports x 2, software-selectable (DB9 male) and RS-485 ports x 10 (terminal block)	RS-232/422/485 ports x 2, software-selectable (terminal block)	
USB 2.0	USB 2.0 hosts x 4, type-A connectors		USB 2.0 hosts x 2, type-A connectors		
USB 3.0	–		USB 3.0 hosts x 3, type-A connectors	USB 3.0 hosts x 2, type-A connectors	
Expansion Slots	–	Proprietary ¹ PCI slots x 2	–	Proprietary ¹ PCI slots x 2	Proprietary ¹ PCIe slots x 3
Video Output	VGA x 1		HDMI x 2		DVI-D x 1 VGA x 1
Power Parameters					
Input Voltage	100 to 240 VDC, 100 to 240 VAC				100 to 240 VAC, 110 to 240 VDC
Physical Characteristics					
Dimensions (without ears)	440 x 315 x 45 mm (17.32 x 12.40 x 1.77 in)	440 x 315 x 90 mm (17.32 x 12.40 x 3.54 in)	483 x 316 x 44 mm (19 x 12.44 x 1.73 in)	483 x 282 x 88 mm (19.32 x 11.08 x 3.46 in)	440 x 301 x 90 mm (17.32 x 12.20 x 3.54 in)
Installation	19-inch rack mounting				
Environmental Limits					
Operating Temperature	Standard Models: -25 to 55°C (-13 to 131°F) Wide Temp. Models: -40 to 70°C (-40 to 158°F)	-25 to 60°C (-13 to 140°F)	-40 to 70°C (-40 to 158°F)		-25 to 55°C (-13 to 131°F)
Standards and Certifications					
Power Substation	IEC 61850-3, IEC 60255				

1. Nonstandard PCIe slot.

x86 Computers



Product Series	DA-820C	MC-1100	MC-1200	V2201	V2406C
Computer					
CPU	<ul style="list-style-type: none"> Intel® Core™ i3-7102E Intel® Core™ i5-7442EQ Intel® Core™ i7-7820EQ Intel® Xeon® E3-1505L v6 Intel® Xeon® E3-1505M v6 	<ul style="list-style-type: none"> Intel Atom® E3826 Intel Atom® E3845 	<ul style="list-style-type: none"> Intel® Celeron® 3965U, 2C/2T, 2.2 GHz Intel® Core™ i5-7300U, 2C/4T, 2.6GHz Intel® Core™ i7-7600U, 2C/4T, 2.8GHz 	<ul style="list-style-type: none"> Intel Atom® E3815 Intel Atom® E3826 Intel Atom® E3845 	<ul style="list-style-type: none"> Intel® Celeron® 3965U processor (2M Cache, 2.2 GHz) Intel® Core™ i3-7100U processor (3M Cache, 2.4 GHz) Intel® Core™ i5-7300U processor (3M Cache, 2.6 GHz) Intel® Core™ i7-7600U processor (4M Cache, 2.8 GHz)
System Memory Slot	SODIMM DDR4 slots x 2 (max. 64 GB)	SODIMM DDR3/DDR3L slot x 1 (max. 8 GB)	SODIMM DDR4 slots x 2 (max. 32 GB)	SODIMM DDR3/DDR3L slot x 1 (max. 8 GB)	SODIMM DDR4 slots x 2 (max. 32 GB)
Supported OS	<ul style="list-style-type: none"> Linux Debian 9 Windows 10 Embedded IoT Ent 2019 LTSC 64-bit 	<ul style="list-style-type: none"> Linux Debian 8 Windows Embedded Standard 7 (WS7E) 64-bit Windows 10 IoT Enterprise 2016 LTSC 	<ul style="list-style-type: none"> Linux Debian 9 Windows 10 Enterprise 2019 LTSC 64-bit Note: OS available by CTOS	<ul style="list-style-type: none"> Windows Embedded Standard 7 (WS7E) 32-bit/64-bit Windows 10 IoT Enterprise 2016 LTSC 	<ul style="list-style-type: none"> Linux Debian 9 Windows 10 Embedded IoT Ent 2019 LTSC 64-bit
Storage Slot	2.5-inch HDD/SSD slots x 4 mSATA x 1	All Models: CFast x 1 MC-1111/1121 Series: SD x 1	SATA 3.0 x 1 mSATA slots x 1	mSATA x 1 SD x 1	2.5-inch HDD/SSD slots x 2 mSATA slot x 1
Computer Interface					
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45) x 4	MC-1111/1112 Series: Auto-sensing 10/100/1000 Mbps ports (RJ45) x 2 MC-1121/1122 Series: Auto-sensing 10/100/1000 Mbps ports (RJ45) x 4	Auto-sensing 10/100/1000 Mbps ports (RJ45) x 2	Auto-sensing 10/100/1000 Mbps ports (RJ45) x 2	Auto-sensing 10/100/1000 Mbps ports (M12 X-coded) x 2
Serial Ports	RS-232/422/485 ports x 2, software-selectable (DB9 male)	MC-1121/1112 Series: RS-232/422/485 ports x 2, software-selectable (DB9 male) MC-1122 Series: RS-232/422/485 ports x 4, software-selectable (DB9 male)	RS-232/422/485 ports x 2, software-selectable (terminal block)	RS-232/422/485 ports x 2, software-selectable (DB9 male)	RS-232/422/485 ports x 4, software-selectable (DB9 male)
USB 2.0	USB 2.0 hosts x 3, type-A connectors	USB 2.0 hosts x 2, type-A connectors	–	USB 2.0 hosts x 2, type-A connectors	–
USB 3.0	USB 3.0 hosts x 3, type-A connectors	–	USB 3.0 hosts x 3, type-A connectors	USB 3.0 hosts x 1, type-A connector	USB 3.0 hosts x 4, type-A connectors
Digital Input	DIs x 6	MC-1121/1122 Series: DIs x 4	–	DIs x 4	DIs x 6
Digital Output	DOs x 2	MC-1121/1122 Series: DOs x 4	–	DOs x 4	DOs x 2
Expansion Slots	PCIe x1 slots x 2 PCIe x4 slot x 1 PCIe x16 slot x 1 PCI slot x 1	Full-size miniPCIe slot x 1 (PCIe and USB signals) with single-SIM support	miniPCIe x 3 (mSATA x 1, wireless module x 2)	Full-size miniPCIe slots x 2 (PCIe and USB signals x 1, USB x 1) with single-SIM support	miniPCIe x 2 (wireless module)
TPM	TPM v2.0	MC-1122-E4-TPM-T: TPM v1.2	TPM v2.0	–	–
Video Output	HDMI x 2 VGA x 1	All models: VGA x 1 MC-1111/1121 Series: VGA x 1, DisplayPort x 1	HDMI x 1	HDMI x 1	VGA x 1, HDMI x 1
Power Parameters					
Input Voltage	100 to 240 VDC, 100 to 240 VAC	12 to 36 VDC	9 to 36 VDC	9 to 36 VDC	24 to 110 VDC
Physical Characteristics					
Dimensions	281.4 x 440 x 132.8 mm (11.08 x 17.32 x 5.23 in)	MC-1111/1112 Series: 132 x 122 x 68 mm (5.2 x 4.81 x 2.68 in) MC-1121/1122 Series: 132 x 122 x 87 mm (5.2 x 4.81 x 3.43 in)	134 x 60.4 x 120 mm (5.28 x 2.38 x 4.72 in)	150 x 48.8 x 120.2 mm (5.91 x 1.92 x 4.73 in)	250 x 75 x 150 mm (9.84 x 2.95 x 5.91 in)
Installation	19-inch rack mounting	DIN-rail mounting, wall mounting (with optional kit)	DIN-rail mounting, wall mounting (with optional kit)	DIN-rail mounting, wall mounting (with optional kit)	Wall mounting (standard)
Environmental Limits					
Operating Temperature	Standard Models: -25 to 55°C (-13 to 131°F) Wide Temp. Models: -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 60°C CPU Full speed)	E1/E2 Models: -40 to 85°C (-40 to 185°F) E4 Models: -40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)
Standards and Certifications					
Hazardous Locations	–	ATEX Zone 2, Class I Division 2, IECEx Zone 2	–	–	–
Maritime	–	DNV GL, IEC 60945	–	–	–

x86 Computers



Product Series	MC-7200-MP-T	MC-7200-DC-CP-T	MC-7410	MC-7420
Computer				
CPU	<ul style="list-style-type: none"> Intel® Celeron® 1047UE Intel® Core™ i3-3120ME Intel® Core™ i7-3555LE 	<ul style="list-style-type: none"> Intel® Celeron® 1047UE Intel® Core™ i3-3120ME Intel® Core™ i7-3555LE 	<ul style="list-style-type: none"> Intel® Celeron® G3902E Intel® Core™ i5-6442EQ 	
System Memory Slot	SODIMM DDR3/DDR3L slots x 2 (max. 16 GB)		SODIMM DDR4 slots x 2 (max. 32 GB)	
Supported OS	<ul style="list-style-type: none"> Windows Embedded Standard 7 (WS7P) 64-bit Windows 10 IoT Enterprise 2016 LTSB 	<ul style="list-style-type: none"> Windows Embedded Standard 7 (WS7E) 32-bit/64-bit Windows 10 IoT Enterprise 2016 LTSB 	<ul style="list-style-type: none"> Linux Debian 9 Windows 10 IoT Enterprise 2016 LTSB 	
Storage Slot	2.5-inch HDD/SSD slots x 2	2.5-inch HDD/SSD slots x 2	2.5-inch HDD/SSD slots x 2 (for removable storage tray)	
Computer Interface				
Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45) x 4		Auto-sensing 10/100/1000 Mbps ports (RJ45) x 5	
Serial Ports	RS-232 ports x 2 (DB9 male) RS-232/422/485 ports x 2, software-selectable (DB9 male)		RS-232 ports x 2 (DB9 male) RS-232/422/485 ports x 2, software-selectable (DB9 male)	RS-232 ports x 2 (DB9 male) RS-232/422/485 ports x 2, software-selectable (DB9 male) NMEA 0183 terminals x 4
USB 2.0	USB 2.0 hosts x 6, type-A connectors		USB 2.0 hosts x 5, type-A connectors	
USB 3.0	USB 3.0 hosts x 2, type-A connectors	–	USB 3.0 hosts x 4, type-A connectors	
Digital Input	DIs x 8	–	–	DIs x 4
Digital Output	DOs x 8	–	–	DOs x 4
Expansion Slots	PCIe x16 slot x 1 PCI slots x 2	–	Full-size miniPCIe slot x 1 (PCIe and USB signals)	
TPM	–	–	–	–
Video Output	DVI-D x 2 VGA x 1		DisplayPort x 1 DVI-I x 1 DVI-D x 1	
Power Parameters				
Input Voltage	DC: 24 VDC AC: 100 to 240 VAC	24 VDC	DC: 24 VDC AC: 100 to 240 VAC	
Physical Characteristics				
Dimensions	300 x 340 x 160 mm (11.81 x 13.39 x 6.3 in)	250 x 250 x 70 mm (9.84 x 9.84 x 2.76 in)	240 x 209 x 125 mm (9.45 x 8.23 x 4.92 in)	240 x 209 x 160 mm (9.45 x 8.23 x 6.3 in)
Dimensions (with ears)	320 x 340 x 160 mm (12.6 x 13.39 x 6.3 in)	287 x 250 x 70 mm (11.3 x 9.84 x 2.76 in)	–	–
Installation	Wall mounting			
Environmental Limits				
Operating Temperature	-40 to 70°C (-40 to 158°F)		-25 to 55°C (-13 to 131°F)	
Standards and Certifications				
Hazardous Locations	–	–	–	–
Maritime	CCS, DNV GL, IEC 60945	CCS, DNV GL, IEC 60945	DNV GL, IEC 60945	

Panel Computers and Displays



Product Series	MD-215	MD-219	MD-224	MD-226
Display				
Aspect Ratio	4:3	5:4	16:9	16:10
Panel Size	15-inch (viewable image)	19-inch (viewable image)	24-inch (viewable image)	26-inch (viewable image)
Pixels	1024 x 768	1280 x 1024	1920 x 1080	1920 x 1200
Viewing Angles	160° (left and right); 140° (top and bottom)	178° (left and right); 178° (top and bottom)		176° (left and right); 176° (top and bottom)
Light Intensity (brightness)	1000 nits	300 or 1000 nits		300 nits
Computer Interface				
Serial Ports	RS-232 port (DB9 male) x 1 RS-232/422/485 port x 1, software-selectable (terminal block)			
Video Input	DVI-D x 1, 29-pin (female) VGA x 1, 15-pin, D-sub (female)			
Touch Function				
Touch Type	Capacitive (optional)			–
Touch Support Points	4 points			–
Power Parameters				
Input Voltage	100 to 240 VAC, 12/24 VDC	100 to 240 VAC, 24 VDC		
Physical Characteristics				
IP Rating	IP66 (front) IP20 (rear)	IP54 (front) IP20 (rear)		
Dimensions	365 x 315 x 77.2 mm (14.02 x 12.04 x 3.04 in)	429 x 387 x 75 mm (16.89 x 15.24 x 2.95 in)	595 x 393 x 75 mm (23.43 x 15.47 x 2.95 in)	621 x 444 x 90 mm (24.45 x 17.48 x 3.57 in)
Weight	6,100 g (13.45 lb)	7,800 g (17.20 lb)	9,570 g (21.10 lb)	12,650 g (27.89 lb)
Environmental Limits				
Operating Temperature	-40 to 70°C (-40 to 158°F)		-15 to 55°C (5 to 131°F)	
Storage Temperature (package included)	-40 to 70°C (-40 to 158°F)		-20 to 60°C (-4 to 140°F)	
Ambient Relative Humidity	5 to 95% (non-condensing)			
Standards and Certifications				
Hazardous Locations	–	Class I Division 2		–
Maritime	DNV GL, IEC 60945		ABS, CCS, DNV GL, IEC 60945	
Warranty				
Warranty Period	LCD: 1 year System: 3 years			

Panel Computers and Displays



Product Series	MPC-2070	MPC-2120	MPC-2101	MPC-2121
Computer				
CPU	Intel Atom® E3826	<ul style="list-style-type: none"> Intel Atom® E3826 Intel Atom® E3845 	Intel Atom® E3845	
Graphics Controller	Intel® HD Graphics			
System Memory Preinstalled	4 (8 GB max.) GB DDR3L			
Preinstalled OS	Optional support			
Supported OS	<ul style="list-style-type: none"> Windows 7 Professional for Embedded Systems Windows Embedded Standard 7 (64-bit) Windows 10 Professional (64-bit) Windows 10 IoT Enterprise 2016 LTSC Entry (64-bit) 		<ul style="list-style-type: none"> Windows 7 Professional for Embedded Systems Windows Embedded Standard 7 (64-bit) Windows 10 Professional (64-bit) Windows 10 IoT Enterprise 2016 LTSC Entry (64-bit) Debian 9 	
Storage Slot	CFast x 1, SD x 1			
Computer Interface				
Ethernet Ports	RJ45 x 2		M12 x 2	
Serial Ports	RS-232/422/485 (DB9) x 2		RS-232/422/485 (M12) x 1	
USB 2.0	USB 2.0 x 2		USB 2.0 (M12) x 1	
Digital Input	DIs (TB) x 4		DIs (M12) x 4	
Digital output	DOs (TB) x 4		DOs (M12) x 2	
Display				
Aspect Ratio	16:9		4:3	
Light Intensity (brightness)	350 or 1000 nits		500 or 1000 nits	
Panel Size	7 inches	12 inches	10 inches	12 inches
Pixels	800 x 480		1024 x 768	
Viewing Angles	160° (left and right); 160° (top and bottom)	160° (left and right); 140° (top and bottom)	176° (left and right); 176° (top and bottom)	160° (left and right); 140° (top and bottom)
Touch Function				
Touch Type	Capacitive			
Glove Support	✓			
Power Parameters				
Input Voltage	12/24 VDC		24 to 110 VDC	
Physical Characteristics				
IP Rating	IP66 (front) IP20 (rear)		IP66	
Dimensions	200 x 140 x 45 mm (7.9 x 5.5 x 1.8 in)	306 x 245 x 64 mm (12 x 9.6 x 2.5 in)	256.9 x 214.4 x 58.9 mm (10.11 x 8.44 x 2.32 in)	297 x 248 x 59 mm (11.69 x 9.76 x 2.32 in)
Weight	1,400 g (3.09 lb)	2,640 g (5.82 lb)	2,080 g (4.59 lb)	2,850 g (6.28 lb)
Environmental Limits				
Operating Temperature	-40 to 70°C (-40 to 158°F)			
Storage Temperature (package included)	-40 to 70°C (-40 to 158°F)			
Ambient Relative Humidity	5 to 95% (non-condensing)			
Standards and Certifications				
Hazardous Locations	ATEX, Class I Division 2, IECEx		-	
Maritime	DNV GL		-	
Railway	-		EN 50155:2017	
Warranty				
Warranty Period	LCD: 1 year System: 3 years			

Panel Computers and Displays



Product Series	MPC-2150	MPC-2190	MPC-2240	MPC-2260	EXPC-1519
Computer					
CPU	Intel® Core™ i7-3517UE/Intel® Celeron® 1047UE				Intel® Core™ i7-3555LE/Intel® Celeron® 1047UE
System Memory	4 GB preinstalled (max. 16 GB)				4 GB DDR3/DDR3L (max. 16 GB)
Preinstalled OS	Optional support				
Supported OS	<ul style="list-style-type: none"> Windows 7 Professional for Embedded Systems Windows Embedded Standard 7 (64-bit) Windows 10 Professional (64-bit) Windows 10 Embedded IoT Enterprise 2016 LTSB 				
Storage Slot	2.5-inch HDD/SSD slot x 1, CFast x 1	2.5-inch HDD/SSD slot x 1	2.5-inch HDD/SSD slots x 2		2.5-inch HDD/SSD slot x 1, CFast x 1
Computer Interface					
Ethernet Ports	RJ45 x 2				RJ45 x 2, Fiber ST x 2
Serial Ports	RS-232/422/485 (DB9) x 2				RS-232/422/485 x 2
USB 2.0	USB 2.0 x 4				USB 2.0, up to 4
Audio Input/Output	Line in x 1, Line out x 1				–
PS/2	Keyboard PS/2 x 1, mouse PS/2 x 1				–
Video Output	DVI-D x 1, VGA x 1				VGA x 1
Display					
Aspect Ratio	4:3	5:4	16:9	16:10	5:4
Light Intensity (brightness)	1000 nits	300 nits			1000 nits
Panel Size	15 inches	19 inches	24 inches	26 inches	19 inches
Pixels	1024 x 768	1280 x 1024	1920 x 1080	1920 x 1200	1280 x 1024
Viewing Angles	160° (left and right); 140° (top and bottom)	178° (left and right); 178° (top and bottom)		176° (left and right); 176° (top and bottom)	170° (left and right); 160° (top and bottom)
Touch Function					
Touch Type	Capacitive (optional)			–	Capacitive
Glove Support	✓	–	–	–	✓
Touch Support Points	4 points			–	4 points
Power Parameters					
Input Voltage	100 to 240 VAC, 12/24 VDC	100 to 240 VAC, 24 VDC			
Physical Characteristics					
IP Rating	IP66 (front) IP20 (rear)	IP54 (front) IP20 (rear)		IP66	
Dimensions	356 x 315 x 77.2 mm (14.02 x 12.40 x 3.04 in)	429 x 387 x 74.5 mm (16.89 x 15.24 x 2.93 in)	595 x 393 x 75 mm (23.44 x 15.48 x 2.95 in)	621 x 444 x 90 mm (24.45 x 17.48 x 3.57 in)	483 x 408 x 99.5 mm (19.02 x 16.06 x 3.92 in)
Weight	6,800 g (14.99 lb)	8,658 g (19.09 lb)	12,400 g (27.34 lb)	16,600 g (36.60 lb)	12,700 g (28.00 lb)
Environmental Limits					
Operating Temperature	-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 (package included)	-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)				
Standards and Certifications					
Hazardous Locations	ATEX Zone, Class I Division 2, IECEx Zone 2	–			ATEX Zone 2, Class I Division 2, IECEx Zone 2
Maritime	DNV GL	ABS, CCS, DNV GL			–
Warranty					
Warranty Period	LCD: 1 year System: 3 years				

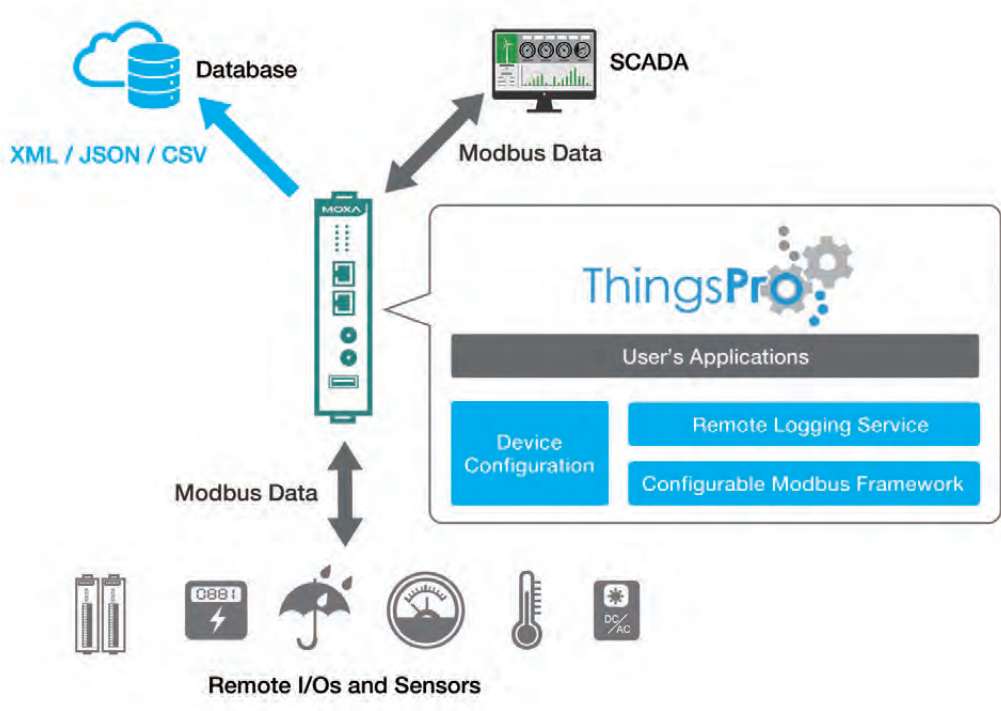


ThingsPro® Gateway

◆ A Ready-to-run Data Acquisition Tool to Speed Up Your IIoT Development

For users who develop their own data acquisition and asset management software programs, ThingsPro Gateway provides the ability to transfer field data directly to remote databases without any additional programming on the gateway. This way, users can focus on developing applications without having to worry about how to get and transfer their data to back-end databases or cloud platforms such as Alibaba Cloud, Azure IoT Hub, AWS IoT, or Sparkplug via MQTT over TLS.

◆ System Architecture



System Software

To accelerate project development and speed up your time to market, Moxa provides programmers with a variety of user-friendly software tools, making it easy to develop customized data acquisition and wireless/cellular communication applications.



System Software
Product Pages

◆ Key Features

- **Ready-to-run Fieldbus-to-tag Framework**
Easy-to-use UI for data acquisition via Modbus RTU or Modbus TCP Master
- **Network and System Configuration**
Web UI to configure LTE, Wi-Fi, DHCP, DNS, OpenVPN, SSH, port forwarding, GPS, and system date/time settings, and Ethernet and Serial ports
- **MQTT Communication Protocol**
Supports generic MQTT communication and MQTT-based services: Alibaba Cloud, AWS IoT, Microsoft Azure IoT Hub, and Sparkplug
- **Enhanced Cloud Connectivity**
Store and Forward to prevent data loss and Tag Selector to send only selected tags to the cloud, in order to save Internet transmission fees, are some of the capabilities that can be enabled in Alibaba Cloud, AWS IoT, Microsoft Azure IoT Hub, or Sparkplug.

◆ Eligible Devices

ThingsPro Gateway v2.6¹ supports the following devices by default:

Series	Model Name	Product Version	Firmware Version	Page Number
MC-1100 Series	MC-1121-E2-T, MC-1121-E4-T	1.0.2	2.0	114
UC-2100 Series	UC-2101-LX, UC-2102-LX, UC-2104-LX	1.0.0	1.4	109
	UC-2111-LX, UC-2112-LX, UC-2112-T-LX	1.0.0	1.4	109
UC-2100-W Series	UC-2114-T-LX, UC-2116-T-LX	1.0.0	1.5	109
UC-3100 Series	UC-3101-T-US-LX, UC-3101-T-EU-LX, UC-3101-T-AU-LX	1.0.0	1.1	110
	UC-3111-T-US-LX, UC-3111-T-EU-LX, UC-3111-T-AU-LX	1.0.0	1.1	110
	UC-3121-T-US-LX, UC-3121-T-EU-LX, UC-3121-T-AU-LX	1.0.0	1.1	110
UC-5100 Series	UC-5101-LX, UC-5101-T-LX, UC-5102-LX, UC-5102-T-LX	1.0.0	1.2	110
	UC-5111-LX, UC-5111-T-LX, UC-5112-LX, UC-5112-T-LX	1.0.0	1.2	110
UC-8100 Series	UC-8112-LX, UC-8112-ME-T-LX	3.0.0	3.0	111
	UC-8112-ME-T-LX1	4.0.0	3.0	111
UC-8100A-ME-T Series	UC-8112A-ME-T-LX	1.0.0	1.3	111
	UC-8112A-ME-T-LX-US, UC-8112A-ME-T-LX-EU, UC-8112A-ME-T-LX-AP	1.0.0	1.3	111
UC-8200 Series	UC-8210-T-LX, UC-8210-T-LX-S	1.0.0	1.1	111
	UC-8220-T-LX	1.0.0	1.1	111
	UC-8220-T-LX-US-S, UC-8220-T-LX-EU-S, UC-8220-T-LX-AP-S	1.0.0	1.1	111

1. Available in Q3, 2020.



Wireless Antennas and Cables

Moxa offers a wide variety of cellular and WLAN antennas and cables that are easy to install and simplify the process of establishing wireless networks.



Backup Configurators

These automatic backup configurators are designed to perform configuration backup and restoration for Moxa's managed Ethernet switches and wireless AP/Bridge/Client devices.



Fiber Optic Adapters and Bypass Units

Our fiber optic adapters are optional accessories that provide more fiber optic connection options for Moxa's industrial Ethernet switches. In addition, Moxa's fiber bypass units add bypass relay functionality to any network node.



PoE Injectors and Splitters

Moxa's PoE injectors combine power and data over a single Ethernet cable and provide non-PoE power source equipment (PSE) the ability to supply power to powered devices (PD). In addition, Moxa PoE splitters give non-PoE powered devices (PD) the ability to pair PoE Power Sourcing Equipment (PSE).

Accessories

Moxa provides a wide range of accessories that include wireless antennas, backup configurators, fiber optic adapters and fiber bypass units, PoE injectors and splitters, power supplies and adapters, SFP modules, and mounting kits. All of these accessories play an important role to complement Moxa's industrial solutions and help guarantee reliable performance.



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Power Supplies and Adapters

In order to ensure that space and power source input/output requirements for industrial control systems are met, Moxa offers a wide variety of power supplies and adapters.



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SFP Modules

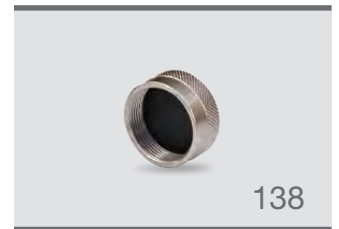
These small form-factor pluggable transceiver (SFP) Ethernet fiber modules support Fast Ethernet, Gigabit Ethernet, or 10 Gigabit Ethernet. They are designed to facilitate coverage across a wide range of communication distances.



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Mounting Kits

Moxa's versatile mounting kits include options for desktop, wall, DIN-rail, VESA, and rack mounting, and have been designed to simplify installation of products in a variety of industrial environments and ensure that they can be installed in most locations.



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Caps, Cables, and Connectors

Our caps and connectors include a selection of pin and code types with high IP ratings to ensure suitability for industrial environments. Our cables come in a variety of lengths with multiple pin options to ensure compatibility for a wide range of applications.



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Other Accessories

These accessories include surge arresters, HDD/SSD kits, data line surge protectors, Wi-Fi modules, and adapters.

Wireless Antennas and Cables

Cellular Antennas



Product Series	ANT-CQB-AHSM-00-3m	ANT-CQB-AHSM-03-3m	ANT-CQB-AHSM-05-3m	ANT-CQB-ASM-01	ANT-LTE-ANF-04
Antenna Characteristics					
Frequency	850/900/1800/1900 MHz	850/900/1800/1900 MHz	850/900/1800/1900 MHz	850/900/1800/1900 MHz	700/800/900/1700/1800/1900/2100/2600 MHz
Antenna Type	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Typical Antenna Gain	0 dBi	3 dBi	5 dBi	1 dBi (max.)	3 dBi @ 698 to 969 MHz 4 dBi @ 1710 to 2700 MHz
Connector	SMA (male)	SMA (male)	SMA (male)	SMA (male)	N-type (female)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Linear, Vertical	Linear	Linear, Vertical	Linear	Vertical
HPBW/Horizontal	360°	360°	360°	360°	360°
HPBW/Vertical	-	-	-	-	-
V.S.W.R.	< 2	< 2	< 2	< 3.5	< 2.5
Physical Characteristics					
Weight	58 g (0.13 lb)	60 g (0.13 lb)	62 g (0.14 lb)	10 g (0.02 lb)	360 g (0.79 lb)
Length (including base)	85 mm (3.35 in)	250 mm (9.84 in)	370 mm (14.57 in)	83 mm (3.27 in)	124 mm (4.88 in)
Installation	Magnetic mount	Magnetic mount	Magnetic mount	Straight mount	L bracket
Cable Length	3 m (9.8 ft)	3 m (9.8 ft)	3 m (9.8 ft)	-	-
Environmental Limits					
Operating Temperature	-30 to 75°C (-22 to 167°F)	-30 to 75°C (-22 to 167°F)	-30 to 75°C (-22 to 167°F)	-30 to 75°C (-22 to 167°F)	-30 to 70°C (-22 to 158°F)



Product Series	ANT-LTE-ASM-02	ANT-LTEUS-ASM-01	ANT-WCDMA-AHSM-04-2.5m	ANT-WCDMA-ANF-00	ANT-WCDMA-ASM-1.5
Antenna Characteristics					
Frequency	800/900/1800/2100/2600 MHz	700/850/900/1700/1900/2600 MHz	850/900/1800/1900/2100 MHz	850/900/1800/1900/2100 MHz	850/900/1800/1900/2100 MHz
Antenna Type	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional
Typical Antenna Gain	2 dBi	1 dBi @ 698 to 960 MHz 2 dBi @ 1710 to 1990 MHz 2 dBi @ 2300 to 2400 MHz 2 dBi @ 2500 to 2700 MHz	4 dBi	0 dBi	1.5 dBi
Connector	SMA (male)	SMA (male)	SMA (male)	N-type (female)	SMA (male)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Linear, Vertical	Linear, Vertical	Linear, Vertical	Vertical	Linear, Vertical
HPBW/Horizontal	360°	360°	360°	360°	360°
HPBW/Vertical	-	-	-	40°	-
V.S.W.R.	< 3	< 3	< 2	1:1.5 (max.)	< 2
Physical Characteristics					
Weight	26 g (0.06 lb)	26 g (0.06 lb)	60 g (0.13 lb)	430 g (0.95 lb)	10 g (0.02 lb)
Length (including base)	161 mm (6.34 in)	205 mm (8.07 in)	110 mm (4.33 in)	420 mm (16.54 in)	104 mm (4.09 in)
Installation	Straight mount	Straight mount	Straight mount	Pole mount	Straight mount
Cable Length	-	-	2.5 m	-	-
Environmental Limits					
Operating Temperature	-20 to 65°C (-4 to 149°F)	-30 to 75°C (-22 to 167°F)	-30 to 75°C (-22 to 167°F)	-40 to 80°C (-40 to 176°F)	-30 to 75°C (-22 to 167°F)



Product Series	ANT-LTE-OSM-03-3m BK	ANT-LTE-ASM-04 BK	ANT-LTE-ASM-05 BK	ANT-LTE-OSM-06-3m BK MIMO
Antenna Characteristics				
Frequency	704 to 960 MHz/1710 to 2690 MHz	704 to 960/1710 to 2690 MHz	704 to 960/1710 to 2690 MHz	704 to 960/1710 to 2690 MHz
Antenna Type	Dipole	Omni-directional	Omni-directional	-
Typical Antenna Gain	1.9 dBi @ 704 to 787 MHz 3.2 dBi @ 824 to 960 MHz -1.6 dBi @ 1710 to 2690 MHz	3.9 dBi @ 704 to 787 MHz 3.7 dBi @ 824 to 960 MHz 4.6 dBi @ 1710 to 1990 MHz 2.7 dBi @ 2110 to 2690 MHz	5.5 dBi @ 704 to 787 MHz 2 dBi @ 824 to 960 MHz 4.9 dBi @ 1710 to 1990 MHz 5.2 dBi @ 2110 to 2690 MHz	6.1 dBi @ 704 to 960 MHz 5.4 dBi @ 1710 to 2690 MHz, with a 3 m RG-58 cable 4.9 dBi @ 704 to 960 MHz 4.4 dBi @ 1710 to 2690 MHz, with a 3 m RG-58 cable
Connector	SMA (male)	SMA (male)	SMA (male)	SMA (male)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Linear, Vertical	Linear, Vertical	Linear, Vertical	Linear, Vertical
HPBW/Horizontal	360°	360°	360°	360°
HPBW/Vertical	-	-	-	-
V.S.W.R.	< 2	< 2	< 3.7 @ 704 to 824 MHz 5.7 @ 960 MHz < 2.6 @ 1710 to 2690 MHz	< 2.4
Physical Characteristics				
Length including base	65 Ø x 15.8 H mm	9.4 Ø x 27 W x 87.5/105 H mm	9.4 Ø x 182 L x 30 W x 16.3 H mm	85 Ø x 41.5 H mm
Installation	Straight mount	Straight mount	Straight mount	Straight mount
Cable Length	3 m (9.8 ft)	-	-	3 m (9.8 ft)
Environmental Limits				
Operating Temperature	-40 to 85°C (-40 to 185°F)	-40 to 85°C (-40 to 185°F)	-40 to 85°C (-40 to 185°F)	-40 to 85°C (-40 to 185°F)

WLAN Antennas

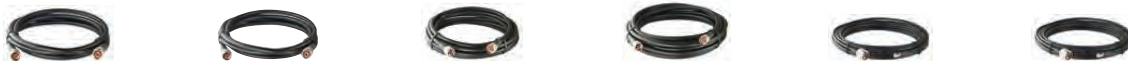


Product Series	ANT-WDB-ANF-0407	ANT-WDB-ANF-0609	ANT-WDB-ANM-0306	ANT-WDB-ANM-0407	ANT-WDB-ANM-0502	ANT-WDB-ANM-0609	ANT-WDB-ARM-02	ANT-WDB-ARM-0202	ANT-WDB-PNF-1518
Antenna Characteristics									
Frequency	2.4 to 2.5 GHz or 5.1 to 5.9 GHz	2.4 to 2.5 GHz or 5.1 to 5.9 GHz	2.4 to 2.5, 4.9 to 5.825 GHz	2.4 to 2.5, 5.1 to 5.9 GHz	2.4 to 2.5, 5.1 to 5.9 GHz	2.4 to 2.5, 5.1 to 5.9 GHz	2.4 to 2.5, 5.2 to 5.8 GHz	2.4 to 2.5, 4.9 to 5.825 GHz	2.4 to 2.5, 5.1 to 5.9 GHz
Antenna Type	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Directional, Panel
Typical Antenna Gain	4/7 dBi	6/9 dBi	3.5/6 dBi	4/7 dBi	5/2 dBi	6/9 dBi	2/2 dBi	2/2 dBi	15/18 dBi
Connector	N-type (female)	N-type (female)	N-type (male)	N-type (male)	N-type (male)	N-type (male)	RF-SMA (male)	RF-SMA (male)	N-type (female)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Linear	Linear	Linear	Linear	Linear	Linear	Vertical	Linear	Linear
HPBW/Horizontal	360°	360°	360°	360°	360°	360°	360°	360°	10/50°
HPBW/Vertical	80°	8/10°	–	8/10°	65°	8/10°	80°	–	10/30°
V.S.W.R (max.)	1:1.5	1:1.5	2:1	1:1.5	2:1	1:1.5	2:1	2:1	1:1.5
Power Handling (max.)	10 W	10 W	1 W	10 W	2 W	10 W	–	1 W	20 W
Physical Characteristics									
Weight	297 g (0.65 lb)	286 g (0.63 lb)	68.9 g (0.15 lb)	115 g (0.25 lb)	72 g (0.16 lb)	238 g (0.52 lb)	10 g (0.02 lb)	9.65 g (0.02 lb)	1,020 g (2.25 lb)
Length (including RF cable)	238 mm (9.37 in)	660 mm (25.98 in)	215 mm (8.46 in)	220 mm (8.66 in)	220 mm (8.66 in)	632 mm (24.88 in)	108 mm (4.25 in)	136 mm (5.35 in)	270 x 205 x 15 mm (10.62 x 8.07 x 0.59 in)
IP Rating	IP65	IP65	IP67	IP67	IP67	IP65	–	–	IP65
Installation	Pole mount	Pole mount	Straight mount	Straight mount	Straight mount	Straight mount	Straight mount	Straight mount	Pole mount
Environmental Limits									
Operating Temperature	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 75°C (-40 to 167°F)	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 75°C (-40 to 167°F)	-40 to 80°C (-40 to 176°F)



Product Series	ANT-WSB5-ANF-12	ANT-WSB5-PNF-18	ANT-WSB-AHRM-05-1.5m	ANT-WSB-ANF-09	ANT-WSB-PNF-12	ANT-WSB-PNF-18	MAT-WDB-CARM-2-0205	MAT-WDB-DARM-2-0203-1m	MAT-WDB-PANF-2-0708
Antenna Characteristics									
Frequency	5.1 to 5.9 GHz	5.1 to 5.9 GHz	2.4 to 2.5 GHz	2.4 to 2.5 GHz	2.4 to 2.5 GHz	2.4 to 2.5 GHz	2.4 to 2.5, 4.9 to 5.9 GHz	2.4 to 2.5, 4.9 to 5.85 GHz	2.4 to 2.5, 4.9 to 5.9 GHz
Antenna Type	Omni-directional	Directional, Panel	Omni-directional, Rubber antenna	Omni-directional	Directional, Panel	Directional, Panel	MIMO 2x2, Omni-directional	MIMO 2x2, Omni-directional	MIMO 2x2, Omni-directional
Typical Antenna Gain	12 dBi	18 dBi	5 dBi	9 dBi	12 dBi	18 dBi	2/5 dBi	2/3 dBi	7/8 dBi
Connector	N-type (female)	N-type (female)	RP-SMA (male)	N-type (female)	N-type (female)	N-type (female)	RP-SMA (male)	RP-SMA (male)	N-type (female)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear, Vertical	Vertical
HPBW/Horizontal	360°	10°	360°	360°	50°	30°	360°	360/114°	90°
HPBW/Vertical	6°	10°	80°	10°	30°	20°	–	75/54°	50°
V.S.W.R (max.)	1:1.3	1:1.5	2:1	1:1.3	1:1.5	1:1.5	2:1	2:1	2:1
Power Handling (max.)	10 W	10 W	–	15 W	10 W	15 W	10 W	2 W	2 W
Physical Characteristics									
Weight	430 g (0.95 lb)	310 g (0.68 lb)	300 g (0.66 lb)	430 g (0.95 lb)	560 g (1.23 lb)	310 g (0.68 lb)	115 g (0.25 lb)	156 g (0.34 lb)	935 g (2.06 lb)
Length including RF cable	420 mm (16.53 in)	270 x 205 x 15 mm (10.63 x 8.07 x 0.59 in)	236 mm (9.29 in)	420 mm (16.54 in)	214 x 94 x 30 mm (8.43 x 3.7 x 1.18 in)	270 x 205 x 15 mm (10.63 x 8.07 x 0.59 in)	37 mm (1.46 in)	194.3 mm (7.65 in)	206 x 177 x 45 mm (8.11 x 6.97 x 1.77 in)
IP Rating	IP65	IP65	–	IP65	IP65	IP65	–	IP55	–
Installation	Pole mount	Pole mount	Magnetic mount	Pole mount	Pole mount	Pole mount	Ceiling mount	Desktop Mount	Pole mount
Cable Length	–	–	1.5 m (4.9 ft)	–	–	–	25 cm (9.8 in)	1 m (3.3 ft)	–
Environmental Limits									
Operating Temperature	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°F)	-40 to 80°C (-40 to 176°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)

Wireless Antennas Cables



Product Series	Cables					
	CRF-N0429N-3M	A-CRF-NMNM-LL4-300	A-CRF-NMNM-LL4-600	A-CRF-NMNM-LL4-900	A-CRF-RMNM-L1-300	A-CRF-RMNM-L1-600
Cable Type	CFD400	LMR-400 Lite	LMR-400 Lite	LMR-400 Lite	LMR-195 Lite	LMR-195 Lite
Connector Type	N-type (male) to N-type (male)	N-type (male) to N-type (male)	N-type (male) to N-type (male)	N-type (male) to N-type (male)	N-type (male) to RP SMA (male)	N-type (male) to RP SMA (male)
Cable Length	3 m (9.8 ft)	3 m (9.8 ft)	6 m (19.6 ft)	9 m (29.5 ft)	3 m (9.8 ft)	6 m (19.6 ft)
Attenuation (dB/100 m)	22.2 @ 2.5 GHz, 35.5 @ 5.8 GHz	22.2 @ 2.5 GHz, 35.5 @ 5.8 GHz	22.2 @ 2.5 GHz, 35.5 @ 5.8 GHz	22.2 @ 2.5 GHz, 35.5 @ 5.8 GHz	62.4 @ 2.5 GHz, 98.1 @ 5.8 GHz	62.4 @ 2.5 GHz, 98.1 @ 5.8 GHz



Product Series	Cables				
	A-CRF-RMNM-L1-900	A-CRF-RFRM-J1-60	CRF-SMA(M)/N(M)-300	A-CRF-RFRM-R4-150	A-CRF-SMSF-R3-100
Cable Type	LMR-195 Lite	JSF-141	CFD200	RG-174	RG-174
Connector Type	N-type (male) to RP SMA (male)	RP-SMA (male) to RP-SMA (female)	SMA (male) to N-type (male)	SMA jack / SMA plug	SMA jack / SMA plug
Cable Length	9 m (29.5 ft)	60 cm (23.62 in)	3 m (9.8 ft)	1.5 m (4.9 ft)	1 m (3.3 ft)
Attenuation (dB/100 m)	62.4 @ 2.5 GHz, 98.1 @ 5.8 GHz	Below 1.0 dB @ 2.4 GHz Below 1.5 dB @ 5 GHz	55.4 @ 2.5 GHz, 86.5 @ 5.8 GHz	153.8 @ 2 GHz, 273.1 @ 5 GHz	153.8 @ 2 GHz, 273.1 @ 5 GHz

Terminating Resistors



Product Series	Terminating Resistors	
	A-TRM-50-NM	A-TRM-50-RM
Description	Termination resistor, 50 ohms, N-type (male)	Termination resistor, 50 ohms, RP-SMA (male)

Surge Arresters



Product Series	Surge Arresters	
	A-SA-NMNF-01	A-SA-NFNF-01
Frequency	0 to 6 GHz	0 to 6 GHz
Connector Type	N-type (female) to N-type (male)	N-type (female) to N-type (female)

Adapters



Product Series	Adapters	
	A-ADP-RJ458P-DB9F-ABC01	A-ADP-QMAM-RF
Description	RJ45-to-DB9 adaptor for the ABC-01	QMA (male) to RP-SMA (female) adaptor for antenna

Backup Configurators



Model Name	ABC-01	ABC-02-USB	ABC-01-M12	ABC-01-P-M12-CT-T	ABC-02-P-USB-M12-CT-T
Connector	RS-232 (RJ45)	USB 2.0 Type A (male)	Serial interface, M12 A-code (female)	Serial interface, M12 A-code (female)	USB Type, M12 A-code (male)
Storage	64 KB	1 GB	64 KB	64 KB	128 MB
Supported Models	EDS-400A/500A Series EDS-P500A Series EDS-G509 Series EDS-600/700/800 Series PT-G7509 Series PT-7528 Series PT-7710 Series PT-7728/7828 Series	EDS-500E Series EDS-G500E Series SDS-3000 Series EDS-P506E Series IKS Series ICS Series PT-G503 Series PT-G7728/7828 Series	TN-5500A Series TN-4500A Series TN-5800A Series TN-5900 Series	TN-5500A Series TN-4500A Series TN-5800A Series TN-5900 Series	TN-G4516 Series TN-G6512 Series

Fiber Optic Adapters and Fiber Bypass Units

Fiber Optic Adapters



Model Name	ADP-SCm-STf-S	ADP-SCm-STf-M
Fiber Type	Single-mode	Multi-mode
Interface	SC male, ST female	SC male, ST female

Optical Fiber Bypass Units



Model Name	OBU-102-SC	OBU-102-ST	OBU-102-LC
Description	2-channel optical fiber bypass units		
Single-mode Fiber SC Female Connectors	4	–	–
Single-mode Fiber ST Female Connectors	–	4	–
Single-mode Fiber LC Female Connectors	–	–	4

PoE Injectors and Splitters



Model	INJ-24	INJ-24A	SPL-24
10/100/1000BaseT(X) Ports, RJ45 Connector	1	1	–
10/100/1000BaseT(X) PoE Ports, RJ45 Connector	1	1	–
10/100BaseT(X) Ports, RJ45 Connector	–	–	1
10/100BaseT(X) PoE Ports (PD), RJ45 Connector	–	–	1
Input Power	24/48 VDC	24/48 VDC	PoE 802.3af
Output Power	30 W for each PoE port (max.)	60 W for each PoE port (max.)	12.95 W @ 24 VDC

Power Supplies and Adapters

24/48 VDC DIN-rail Power Supplies



Model Name	24 VDC DIN-rail Power Supplies				48 VDC DIN-rail Power Supplies		
	HDR-60-24	NDR-120-24	MDR-40-24	MDR-60-24	NDR-120-48	NDR-240-48	
Physical Characteristics and Temperature Limits							
Dimensions	52.5 x 90 x 54.5 mm (2.07 x 3.54 x 2.15 in)	123.75 x 125.20 x 40 mm (4.87 x 4.93 x 1.57 in)	40 x 90 x 100 mm (1.57 x 3.54 x 3.94 inches)		123.75 x 125.20 x 40 mm (4.87 x 4.93 x 1.57 in)	127.81 x 123.75 x 63 mm (5.03 x 4.87 x 2.48 in)	
Weight	230 g (0.5 lb)	500 g (1.10 lb)	260 g (0.57 lb)	280 g (0.62 lb)	500 g (1.10 lb)	900 g (1.98 lb)	
Operating Temperature	-30 to 70°C (-22 to 158°F)		-20 to 70°C (-4 to 158°F)		-20 to 70°C (-4 to 158°F)		
Operating Temperature at Full Load (max.)	45°C (113°F)	45°C (113°F)	60°C (140°F)	55°C (131°F)	45°C (113°F)	50°C (122°F)	
Relative Humidity	20 to 90% (non-condensing)	20 to 95% (non-condensing)	20 to 90% (non-condensing)		20 to 95% (non-condensing)		
Power Requirements							
Output	Wattage	60 W	120 W	40 W	60 W	120 W	240 W
	Voltage	24 VDC				48 VDC	
	Current Range	0 to 2.5 A	0 to 5 A	0 to 1.7 A	0 to 2.5 A	0 to 2.5 A	0 to 5 A
	Ripple & Noise	150 mVp-p	120 mVp-p	150 mVp-p		150 mVp-p	150 mVp-p
	Voltage Adjustment Range	21.6 to 29 V	24 to 28 V	24 to 30 V		48 to 55 V	48 to 55 V
	Setup/Rise Time at Full Load	500 ms, 50 ms at 230 VAC 500 ms, 50 ms at 115 VAC	1200 ms, 60 ms at 230 VAC 2500 ms, 60 ms at 115 VAC	500 ms, 30 ms at 230 VAC 500 ms, 30 ms at 115 VAC		1200 ms, 60 ms at 230 VAC 2500 ms, 60 ms at 115 VAC	1500 ms, 100 ms at 230 VAC 3000 ms, 100 ms at 115 VAC
	Typical Hold-up Time at Full Load	30 ms at 230 VAC, 12 ms at 115 VAC	16 ms at 230 VAC, 10 ms at 115 VAC	50 ms at 230 VAC, 20 ms at 115 VAC		16 ms at 230 VAC, 10 ms at 115 VAC	28 ms at 230 VAC, 22 ms at 115 VAC
Input	Voltage Range	85 to 264 VAC (47 to 63 Hz), 120 to 370 VDC	90 to 264 VAC (47 to 63 Hz), 120 to 370 VDC	85 to 264 VAC (47 to 63 Hz), 120 to 370 VDC		90 to 264 VAC (47 to 63 Hz), 120 to 370 VDC	90 to 264 VAC (47 to 63 Hz), 120 to 370 VDC
	Typical Efficiency	90%	88%	88%		89%	90%
	Typical Current	1.2 A at 115 VAC, 0.8 A at 230 VAC	2.25 A at 115 VAC, 1.3 A at 230 VAC	1.1 A at 115 VAC, 0.7 A at 230 VAC	1.8 A at 115 VAC, 1 A at 230 VAC	2.25 A at 115 VAC, 1.3 A at 230 VAC	2.5 A at 115 VAC, 1.3 A at 230 VAC
	Inrush Current (cold start)	30 A at 115 VAC, 60 A at 230 VAC	20 A at 115 VAC, 35 A at 230 VAC	30 A at 115 VAC, 60 A at 230 VAC	30 A at 115 VAC, 60 A at 230 VAC	20 A at 115 VAC, 35 A at 230 VAC	20 A at 115 VAC, 35 A at 230 VAC
Overload Protection	Rated Output Power	105% to 160%		105% to 150%		105% to 160%	
	Protection Type	Constant current limiting, recovers automatically after fault condition is removed					
Over-voltage Protection	Over-voltage Range	30 to 36 V	29 to 33 V	31.2 to 36 V		56 to 65 V	56 to 65 V
	Protection Type	Shut down operating voltage, must power on to recover					
Reliability							
Safety Standards	UL 508, EN 62368-1, UL 62368-1, IEC 62368-1	UL 508, EN 62368-1, IEC 62368-1	EN 60950-1		UL 508, EN 62368-1, IEC 62368-1		
EMC Standards	EN 55032/24, EN 61000-3-2 Class A, EN 61000-3-3		EN 50082-2, EN 55022 Class B, EN 61000-3-2 Class A, ENV 50204		EN 55032/24, EN 61000-3-2 Class A, EN 61000-3-3		
Warranty	3 years (see www.moxa.com/warranty)						

AC Power Supplies

Locking barrel plugs, 12 VDC 0.5 A, 100-240 VAC (switch mode)



Model Name	PWR-12050-WPUSJP-S1	PWR-12050-WPEU-S1	PWR-12050-WPUK-S1	PWR-12050-WPAU-S1	PWR-12050-WPCN-S1
Input Rating					
Input Power	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
Output Power	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC
Output Plug					
Connector Type	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions	64 x 40.5 x 47.5 mm (2.52 x 1.59 x 1.87 in)	64 x 40.5 x 68.7 mm (2.52 x 1.59 x 2.71 in)	64 x 40.5 x 56.2 mm (2.52 x 1.59 x 2.21 in)	64 x 40.5 x 58.5 mm (2.52 x 1.59 x 2.30 in)	64 x 40.5 x 46.5 mm (2.52 x 1.59 x 1.83 in)
Packaged Dimensions	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)
Weight	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)
Cord Length	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)	1530±100 mm (60.24±3.94 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)
Regulatory Approvals					
Safety	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC	CE/FCC/UL/GS/PSE/RCM/CCC
Compatibility					
Related Products	NPort 5110A, NPort 5130A, NPort 5150A, NPort 5210A, NPort 5230A, NPort 5250A, NPort W2150A/W2250A, NPort P5110A				

DC Power Cord

Locking barrel plug to bare wires



Model Name	Cable Length
CBL-PJ21NOPEN-BK-30	300±20 mm (11.81±0.79 in)

AC Power Supplies

Locking barrel plugs, 12 VDC, 3 A, 100 to 240 VAC (switch mode)



Model Name	PWR-12300-WPUSJP-S1	PWR-12300-WPEU-S1	PWR-12300-WPUK-S1	PWR-12300-WPAU-S1	PWR-12300-WPCN-S1
Input Rating					
Input Power	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input Plug					
Plug Type	US/J	EU	UK	AU	CN
Output Rating					
Output Power	3 A @ 12 VDC	3 A @ 12 VDC	3 A @ 12 VDC	3 A @ 12 VDC	3 A @ 12 VDC
Output Plug					
Connector Type	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions	74 x 43.5 x 52.3 mm (2.91 x 1.71 x 2.06 in)	74 x 43.5 x 73.5 mm (2.91 x 1.71 x 2.89 in)	74 x 43.5 x 61 mm (2.91 x 1.71 x 2.40 in)	74 x 43.5 x 63.3 mm (2.91 x 1.71 x 2.49 in)	74 x 43.5 x 51.3 mm (2.91 x 1.71 x 2.02 in)
Packaged Dimensions	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)
Weight	163 g (0.36 lb)	163 g (0.36 lb)	163 g (0.36 lb)	163 g (0.36 lb)	163 g (0.36 lb)
Cord Length	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)	1530±200 mm (60.24±7.87 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)
Regulatory Approvals					
Safety	FCC/CE/UL/GS/CCC/RCM/ PSE	FCC/CE/UL/GS/CCC/RCM/ PSE	FCC/CE/UL/GS/CCC/RCM/ PSE	FCC/CE/UL/GS/CCC/RCM/ PSE	FCC/CE/UL/GS/CCC/RCM/ PSE
Compatibility					
Related Products	UPort 204, UPort 207, UPort 404, UPort 407				

DC Power Cord

Locking barrel plug to bare wires



Model Name	Cable Length
CBL-PJ21NOPEN-BK-30	300±20 mm (11.81±0.79 in)

AC Power Supplies

Non-locking barrel plugs, 12 VDC, 0.5 A, 100 to 240 VAC (switch mode)



Model Name	PWR-12050-WPUSJP-S2	PWR-12050-WPEU-S2	PWR-12050-WPUK-S2	PWR-12050-WPAU-S2	PWR-12050-WPCN-S2
Input Rating					
Input Power	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
Output Power	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC	0.5 A @ 12 VDC
Output Plug					
Connector Type	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions	64 x 40.5 x 30 mm (2.52 x 1.59 x 1.18 in)	64 x 40.5 x 68.7 mm (2.52 x 1.59 x 2.71 in)	64 x 40.5 x 56.2 mm (2.52 x 1.59 x 2.21 in)	64 x 40.5 x 58.5 mm (2.52 x 1.59 x 2.30 in)	64 x 40.5 x 46.5 mm (2.52 x 1.59 x 1.83 in)
Packaged Dimensions	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)	83 x 50 x 70 mm (3.27 x 1.97 x 2.76 in)
Weight	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)	70 g (0.15 lb)
Cord Length	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)	1830±100 mm (72.05±3.94 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)
Regulatory Approvals					
Safety	CE/FCC/UL/RMC/PSE/ CCC	CE/FCC/UL/RMC/PSE/ CCC	CE/FCC/UL/RMC/PSE/ CCC	CE/FCC/UL/RMC/PSE/ CCC	CE/FCC/UL/RMC/PSE/ CCC
Compatibility					
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



Model Name	Cable Length
CBL-PJTB-10	100±20 mm (3.94±0.79 in)

AC Power Supplies

Non-locking barrel plugs, 12 VDC, 1.25/1.5 A, 100 to 240 VAC



Model Name	PWR-12125-USJP-S1	PWR-12150-EU-S2	PWR-12150-UK-S2	PWR-12150-AU-S2	PWR-12150-CN-S1
Input Rating					
Input Power	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
Output Power	1.25 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC
Output Plug					
Connector Type	L-Type 5.5/2.1/9.5	L-Type 5.5/2.1/9.0	S-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0	L-Type 5.5/2.1/9.0
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions	74 x 43.5 x 52.5 mm (2.91 x 1.71 x 2.07 in)	70 x 45 x 66.5 mm (2.76 x 1.77 x 2.62 in)	70 x 48 x 60 mm (2.76 x 1.89 x 2.36 in)	70 x 55 x 56 mm (2.76 x 2.17 x 2.21 in)	70 x 45 x 54 mm (2.76 x 1.77 x 2.13 in)
Packaged Dimensions	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)	100 x 60 x 90 mm (3.94 x 2.36 x 3.54 in)
Weight	108 g (0.24 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)
Cord Length	1530±100 mm (60.24±3.84 in)	1800±200 mm (70.87±7.87 in)	1800±200 mm (70.87±7.87 in)	1800±200 mm (70.87±7.87 in)	1800±200 mm (70.87±7.87 in)
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)	-20 to 70°C (-4 to 158°F)
Regulatory Approvals					
Safety	CE/FCC/UL/RMC/PSE/GS	CE/GS	CE	RMC	CCC
Compatibility					
Related Products	NPort 5410, NPort 5430, NPort 5430I, NPort 5450, NPort 5450I, MGate MB3480				

DC Power Cord

Non-locking barrel plug to bare wires



Model Name	Cable Length
CBL-PJTB-10	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	PWR-24270-DT-S1
Input Rating			
Input Power	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input Plug			
Plug Type	Desktop	Desktop	Desktop
Output Rating			
Output Power	2 A @ 12 VDC	1.25 A @ 12 VDC	2.7 A @ 24 VDC
Output Plug			
Connector Type	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5	S-Type 5.5/2.1/7.5
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)
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)
Physical Characteristics			
Dimensions	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)	121 x 52 x 33 mm (4.76 x 2.05 x 1.30 in)
Packaged Dimensions	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)	160 x 60 x 60 mm (6.30 x 2.36 x 2.36 in)
Weight	200 g (0.44 lb)	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±3.94 in)	1530±100 mm (60.13±3.94 in)
Environmental Limits			
Operating Temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)	-10 to 70°C (14 to 158°F)	-10 to 70°C (14 to 158°F)
Regulatory Approvals			
Safety	Efficiency Level 5: CE/FCC/UL/PSE/RCM/CCC Efficiency Level 6: CE/FCC/UL/PSE	CE/FCC/UL/PSE/GS	CE/FCC/UL/PSE/GS
Compatibility			
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	MC-1100, V2201, UC-2100, UC-3100, UC-5100, UC-8100, IA-240, IA-260

Note: The PWR-12200-DT-S1 and PWR-12125-DT-S2 do not come with a power cord.



Model Name	PWC-C13US-3B-183	PWC-C-13EU-3B-183 (CEE 7/7 to IEC C13)	PWC-C13UK-3B-183	PWC-C13JP-3B-183	PWC-C13AU-3B-183	PWC-C13CN-3B-183
Region	US	EU	UK	JP	AU	CN
Voltage	125 V	250 V	250 V	125 V	250 V	250 V
Thickness	6.3±0.2 mm (0.25±0.01 in)	6.7±0.2 mm (0.26±0.01 in)	6.7±0.2 mm (0.26±0.01 in)	7.0±0.2 mm (0.28±0.01 in)	6.7±0.2 mm (0.26±0.01 in)	6.7±0.2 mm (0.26±0.01 in)
Current (max.)	10 A	10 A	10 A	7 A	10 A	10 A
Length	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)	1830±30 mm (72.05±1.18 in)
Related Products	CN2500 Series, NPort 6600 Series, NPort 5600 Series, PWR-12200-DT-S1					



Model Name	PWC-C7US-2B-183	PWC-C7EU-2B-183	PWC-C7UK-2B-183	PWC-C7JP-2B-183	PWC-C7AU-2B-183	PWC-C7CN-2B-183
Region	US	EU	UK	JP	AU	CN
Length	1830±200 mm, (72.05±7.87 in)	1830±200 mm, (72.05±7.87 in)	1830±200 mm, (72.05±7.87 in)	1830±200 mm, (72.05±7.87 in)	1830±200 mm, (72.05±7.87 in)	1830±200 mm, (72.05±7.87 in)
Related Products	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2	PWR-12125-DT-S2

Wide Temperature AC Power Supplies

Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC (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
Input Rating					
Input Power	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input Plug					
Plug Type	US/JP	EU	UK	AU	CN
Output Rating					
Output Power	1.5 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC	1.5 A @ 12 VDC
Protection Requirements					
Protection	Over-current protection, over-voltage protection				
Output Plug					
Connector Type	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5	L-Type 5.5/2.1/7.5
Outer Diameter	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)	5.5±0.1 mm (0.22±0.004 in)
Inner Diameter	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)	2.1±0.1 mm (0.08±0.004 in)
Physical Characteristics					
Dimensions	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 3.25 in)	41 x 73.9 x 89.5 mm (1.61 x 2.91 x 3.52 in)	32 x 60 x 88 mm (1.26 x 2.36 x 3.46 in)
Weight	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)	200 g (0.44 lb)
Cord Length	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)	1500±200 mm (59.06±7.87 in)
Environmental Limits					
Operating Temperature	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)
Regulatory Approvals					
Safety	FCC/UL/PSE	TUV/CE/GS	CE	RCM	CCC
Compatibility					
Related Products	NPort 5110-T, NPort 5450-T, NPort 5450I-T, NPort 5110A-T, NPort 5610-8-DTL-T, NPort 5650-8-DTL-T, NPort 5650I-8-DTL-T, NPort 5130A-T, NPort 5150A-T, NPort 5210A-T, NPort 5230A-T, NPort 5250A-T, NPort 6100-T, NPort 6200-T, NPort 6400-T				

SFP Modules

SFP-1G Series Modules



Model		Gigabit Ethernet SFP					
		SFP-SX		SFP-LSX		SFP-LX	
Transceiver Type		Multi-mode			Multi-mode		Single-mode
Fiber Cable Type		OM1	OM2	OM2	OM1	G.652	
Typical Distance		300 m	550 m	1 km	2 km	10 km	
Wavelength	Typical (nm)	850		1310		1310	
	TX Range (nm)	830 to 860		1270 to 1355		1280 to 1355	
	RX Range (nm)	770 to 860		1260 to 1610		1260 to 1610	
Optical Power	TX Range (dBm)	-4 to -9.5		-1 to -9		-3 to -9	
	RX Range (dBm)	0 to -18		-1 to -19		-3 to -21	
	Link Budget (dB)	8.5		10		12	
	Dispersion Penalty (dB)	4.3	3.6	5	5	1	



Model		Gigabit Ethernet SFP				
		SFP-LH	SFP-LHX	SFP-ZX	SFP-EZX	SFP-EZX-120
Transceiver Type		Single-mode	Single-mode	Single-mode	Single-mode	Single-mode
Fiber Cable Type		G.652	G.652	G.652	G.652	G.652
Typical Distance		30 km	40 km	80 km	110 km	120 km
Wavelength	Typical (nm)	1310	1310	1550	1550	1550
	TX Range (nm)	1280 to 1355	1280 to 1340	1530 to 1570	1530 to 1570	1530 to 1570
	RX Range (nm)	1260 to 1610	1260 to 1610	1260 to 1610	1260 to 1610	1100 to 1600
Optical Power	TX Range (dBm)	-3 to -8	+3 to -4	+5 to 0	+5 to 0	+3 to -2
	RX Range (dBm)	-3 to -23	-1 to -24	-1 to -24	-9 to -30	-8 to -33
	Link Budget (dB)	15	20	24	30	31
	Dispersion Penalty (dB)	1	1	1	1	2

SFP-FE Series Modules



Model		Fast Ethernet SFP			
		SFP-M		SFP-S	SFP-L
Transceiver Type		Multi-mode		Single-mode	
Fiber Cable Type		OM1/OM2	62.5/125, 50/125 μ m 800 MHz x km	G.652	G.652
Typical Distance		2 km	4 km	40 km	80 km
Wavelength	Typical (nm)	1310		1310	1550
	TX Range (nm)	1280 to 1340		1280 to 1340	1530 to 1570
	RX Range (nm)	1100 to 1650		1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-8 to -18		0 to -5	0 to -5
	RX Range (dBm)	-3 to -32		-3 to -34	-3 to -34
	Link Budget (dB)	14		29	29
	Dispersion Penalty (dB)	2	3	1	1

SFP-1G WDM-type Series Modules



Model		WDM Gigabit Ethernet SFP					
		SFP-10A	SFP-10B	SFP-20A	SFP-20B	SFP-40A	SFP-40B
Transceiver Type		Single-mode		Single-mode		Single-mode	
Fiber Cable Type		G.652		G.652		G.652	
Typical Distance		10 km		20 km		40 km	
Wavelength	Typical (nm)	TX 1310, RX 1550	TX 1550, RX 1310	TX 1310, RX 1550	TX 1550, RX 1310	TX 1310, RX 1550	TX 1550, RX 1310
	TX Range (nm)	1270 to 1355	1530 to 1570	1270 to 1355	1530 to 1570	1290 to 1330	1530 to 1570
	RX Range (nm)	1480 to 1580	1260 to 1360	1480 to 1580	1260 to 1360	1480 to 1580	1260 to 1360
Optical Power	TX Range (dBm)	-3 to -9		-2 to -8		+2 to -3	
	RX Range (dBm)	-3 to -21		-2 to -23		-1 to -23	
	Link Budget (dB)	12		15		20	
	Dispersion Penalty (dB)	2		3		1	

SFP-1G Copper Module



Model Name	SFP-1GTXRJ45-T
1000BaseT Ports	1
Connector	RJ45

SFP-10G Series Modules



Model		10G Ethernet SFP			
		SFP-SR		SFP-LR	SFP-ER
Transceiver Type		Multi-mode		Single-mode	Single-mode
Fiber Cable Type		OM1	OM3	G.652	G.652
Typical Distance		33 m	300 m	10 km	40 km
Wavelength	Typical (nm)	850		1310	1550
	TX Range (nm)	840 to 860		1260 to 1355	1530 to 1565
	RX Range (nm)	840 to 860		1260 to 1600	1260 to 1600
Optical Power	TX Range (dBm)	-1 to -5		-8.2 to +0.5	-1 to +2
	Rx (dBm) (max.)	+0.5		+0.5	-1
	Link Budget (dB)	8.3		7.4	15
	Dispersion Penalty (dB)	3.9		3.2	3

Mounting Kits

Wall-mounting Kits



Model Name	Wall-mounting Kits								
	WK-30	WK-32	WK-35-01	WK-35-02	WK-44-01	WK-45-01	WK-46	WK-51-01	WK-55
Dimensions	40 x 30 x 1 mm (1.57 x 1.18 x 0.04 in)	30.3 x 140 x 12.3 mm (1.19 x 5.51 x 0.48 in)	35 x 44 x 2.5 mm (1.38 x 1.73 x 0.10 in)	35 x 24 x 1.2 mm (1.38 x 0.94 x 0.05 in)	44 x 57.5 x 1.6 mm (1.73 x 2.26 x 0.06 in)	45 x 57 x 2.5 mm (1.77 x 2.24 x 0.10 in)	51.6 x 66.8 x 1 mm (2.03 x 2.63 x 0.04 in)	51.6 x 67 x 2 mm (2.03 x 2.63 x 0.07 in)	55 x 34 x 2.5 mm (2.16 x 1.34 x 0.10 in)
Related Products	EDS-205A Series, EDS-G205 Series, EDS-G205A-4PoE Series, ICF-1170I Series	EDS-828 Series, EDS-728 Series	NPort 6450, UPort 1410, UPort 1450, UPort 1450I, AWK-1137C Series	NPort 6150/6250 Series, UPort 404, UPort 407	NPort 6600-8 Series, NPort 6600-16 Series, NPort 6600-32 Series, UPort 1600-16 Series	NPort 5600-8 Series, NPort 5600-16 Series, NPort 5650-8-HV-T, NPort 5650-16-HV-T, CN2600-8 Series, CN2600-16 Series, CN2600-8-2AC Series, CN2600-16-2AC Series	EDS-208A Series, EDS-300 Series, EDS-400A Series, EDS-500A Series, EDS-G308 Series, EDS-G509 Series, EDS-P206A-4PoE Series, EDS-P308 Series, EDS-P510 Series, OBU-102 Series, IMC-101G/101 Series, PT-500 Series, VPort 354 Series, VPort 364A Series, VPort 461A Series, NPort S8455I-MM-SC, NPort S8455I-MM-SC-T, NPort S8455I-SS-SC, NPort S8455I-SS-SC-T, NPort S8458-4S-SC-T	AWK-4131A Series, AWK-3131A Series, AWK-1131A Series	AWK-4131A Series



Model Name	UC-3100 Wall-Mounting Kit	WK-60-01	V2400 Isolated Wall-Mounting Kit	MC-1100 Wallmount Kit
Dimensions	17.5 x 22 x 2.5 mm (0.69 x 0.87 x 0.98 in)	60 x 70 x 2 mm (2.36 x 2.76 x 0.08 in)	150 x 39.5 x 13.2 mm (5.91 x 1.56 x 0.52 in)	120 x 45.8 x 5 mm (4.72 x 1.80 x 0.20 in)
Related Products	UC-3100 Series	EDS-528E Series	V2403 Series, V2406A Series, V2416A Series, V2426A Series	MC-1100 Series

DIN-rail / Pole-mounting Kits



Model Name	DIN-rail Mounting Kits								Pole-mounting Kit
	DK-DC50131	DK-TN-5308	DK-M12-305	DK-25-01	DK-35A	UC-3100 DIN-Rail Kit	DK-DC50131-01	MC-1100 DIN-Rail Kit	
Dimensions	50 x 131 x 1 mm (1.97 x 5.16 x 0.04 in)	66 x 174 x 12.8 mm (2.60 x 6.85 x 0.50 in)	60 x 125 x 12.8 mm (2.36 x 4.92 x 0.50 in)	25 x 48.3 mm (0.98 x 1.90 in)	42.5 x 10 x 19.34 mm (1.67 x 0.39 x 0.76 in)	19.37 x 89 x 10 mm (0.76 x 3.5 x 0.39 in)	120 x 50 x 9.8 mm (4.72 x 1.97 x 0.39 in)	90 x 45 x 9.8 mm (3.54 x 1.77 x 0.39 in)	-
Related Products	TN-5500A Series, TN-5800A Series, TN-5900 Series, TN-4500A Series, ioPAC 5500 Series, ioPAC 8000 Series, ioLogik E1500 Series, MxNVR-MO4 Series, NPort S9450I Series	TN-5308 Series	TN-5305 Series	UPort 404 Series, UPort 407 Series	MGate™ 3x80 Series, NPort Express DE-211, NPort Express DE-311, NPort 5100 Series, NPort 5100A Series, NPort 5200 Series, NPort 5200A Series, NPort 5400 Series, NPort 6150/6250/6450, NPort W2x50A, UPort 1150I, UPort 404/407, UPort 1250/1250I, TCF-142 Series, TCC-100/100I, TCC-120/120I	UC-3100 Series	V2403, V2406A, V2416A, V2426A	MC-1100	AWK-4131A Series

Desktop-mounting Kits



Model Name	MPC-MD-2-19-DMTK w/ hinge	MPC-MD-2-19-DMTK w/o hinge	MPC-MD-2-24-26-DMTK w/ hinge	MPC-MD-2-24-26-DMTK w/o hinge
Description	Desktop-mounting kit for 19-inch panels	Desktop-mounting kit for 19-inch panels (no hinge)	Desktop-mounting kit for 24/26-inch panels	Desktop-mounting kit for 24/26-inch panels (no hinge)
Related Products	MPC-2190, MD-219	MPC-2190, MD-219	MPC-2240, MD-224, MPC-2260, MD-226	MPC-2240, MD-224, MPC-2260, MD-226

VESA-mounting Kits



Model Name	MPC-MD-2-15-VESAMTK	MPC-MD-2-19-VESAMTK	MPC-MD-2-24-VESAMTK	MPC-MD-2-26-VESAMTK
Description	VESA kit for 15-inch panels (can be used with 100 x 100 mm or 75 x 75 mm VESA mounts)	VESA kit for 19-inch panels (can be used with 100 x 100 mm or 280 x 150 mm VESA mounts)	VESA kit for 24-inch panels (can be used with 200 x 100 mm or 280 x 150 mm VESA mounts)	VESA kit for 26-inch panels (can be used with 200 x 100 mm or 280 x 150 mm VESA mounts)
Related Products	MPC-2150, MD-215	MPC-2190, MD-219	MPC-2240, MD-224	MPC-2260, MD-226

Clamps and Gaskets



Model Name	MPC-MD-2-15-PMTK	MPC-MD-2-19-PMTK	MPC-MD-2-19-RMTK	MPC-MD-2-24-PMTK	MPC-MD-2-24-RMTK
Description	8 clamps for 15-inch panels	10 clamps for 19-inch panel-mounting kit	Rubber gasket for 19-inch panels	14 clamps for 24-inch panel-mounting kit	Rubber gasket for 24-inch panels
Related Products	MPC-2150, MD-215	MPC-2190, MD-219	MPC-2190, MD-219	MPC-2240, MD-224	MPC-2240, MD-224

Caps, Cables, and Connectors

Caps



Model Name	A-CAP-M12M-M	A-CAP-M12F-M	A-CAP-M12F-M-PP	A-CAP-N-M	A-CAP-M30M-MIP67	A-CAP-WPRJ45-MC
Description	Metal cap to cover M12 (male) connector	Metal cap to cover M12 (female) connector	Metal cap to cover M12 (female) push-pull connector	Metal cap to cover N-type connector	Metal cap to cover M30 connector	Metal cap with chain for RJ45 connector

Cables and Connectors



Model Name	CBL-M12(FF5P)/Open-100 IP67	CBL-M12D(MM4P)/RJ45-100 IP67	CBL-M23(FF6P)/OPEN-BK-100 IP67	CBL-M12DFF4PRJ45-BK-10-IP67	CBL-M12MM8PRJ45-BK-100-IP67	CBL-M12DMM4PM12DMM4P-BK-100-IP67	CBL-M12XMM8PRJ45-Y-200-IP67	CBL-M12XMM8P-Y-100-IP67
Description	A-coded M12-to-5-pin power cable with 5-pin (female) M12 connector, IP67	D-coded M12-to-RJ45 Cat-5C UTP Ethernet cable with 4-pin (male) M12 connector, IP67	M23-to-6-pin power cable with 6-pin (female) M23 connector, IP67	M12-to-RJ45 Cat-5E UTP Ethernet cable with 4-pin (female) D-coded M12 connector, IP67	M12-to-RJ45 Cat-5E UTP Ethernet cable with 8-pin (male) A-coded M12 connector, IP67	M12-to-M12 Cat-5E STP Ethernet cable with 4-pin D-coded M12 connector, IP67	M12-to-RJ45 Cat-5 UTP Ethernet cable with 8-pin (male) X-coded crimp type M12 connector, IP67	M12-to-M12 Cat-5 UTP Ethernet cable with 8-pin (male) X-coded crimp type M12 connector, IP67
Cable Length	1 m (3.3 ft)	1 m (3.3 ft)	1 m (3.3 ft)	10 cm (3.93 in)	1 m (3.3 ft)	1 m (3.3 ft)	2 m (6.6 ft)	1 m (3.3 ft)



Model Name	CBL-M12XMM8P-Y-300-IP67	CBL-M12XMM8PRJ45-BK-100-IP67	CBL-M12XMM8PRJ45-BK-200-IP67	CBL-M12FF4POpen-150 IP67	CBL-M12FF4POpen-300 IP67	CBL-RJ45F9-150	CBL-RJ45M9-150	CBL-F9DPF1x4-BK-100
Description	M12-to-M12 Cat-5 UTP Ethernet cable with 8-pin (male) X-coded crimp type M12 connector, IP67	X-coded M12-to-RJ45 Cat-5E UTP Gigabit Ethernet cable with 8-pin (male) M12 connector, IP67	X-coded M12-to-RJ45 Cat-5E UTP Gigabit Ethernet cable with 8-pin (male) M12 connector, IP67	M12-open power cable with 4-pin A-coded (female) connector, IP67	M12-open power cable with 4-pin A-coded (female) connector, IP67	RJ45-to-DB9 (female) serial cable	RJ45-to-DB9 (male) serial cable	Console cable with 4-pin connector, 1 m
Cable Length	3 m (9.8 ft)	1 m (3.3 ft)	2 m (6.6 ft)	1.5 m (4.9 ft)	3 m (9.8 ft)	1.5 m (4.9 ft)	1.5 m (4.9 ft)	1 m (3.3 ft)



Model Name	Field-installation Connectors							
	A-PLG-WPM30IP67-01	A-PLG-WPRJ	M12A-5P-IP68	M12A-8PMM-IP68	M12A-8PFF-IP68	A-PLG-WPM23-01-IP67	M12D-4P-IP68	M12D-4PMM-IP67
Description	Field-installation for M30 plug	Field-installation RJ-type plug	Field-installation A-coded M12 screw-in 5-pin (female) connector, IP68	Field-installation A-coded M12 screw-in 8-pin (male) connector, IP68	Field-installation A-coded M12 screw-in 8-pin (female) connector, IP68	M23 cable crimp type 6-pin (female) connector, IP67	M12 D-coded screw-in sensor (male) connector, IP68	M12 D-coded, QUICKON type, 4-pin (male) connector, IP67



Model Name	Field-installation Connectors						
	M12X-8PMM-IP67-HTG	M12X-8PMM-IP67	M12A-5PMM-IP68	M12A-4PFF-IP67	M12A-4PMM-IP67	M12A-5PMM-IP68	M12X-8PMM-IP65
Description	X-coded screw-in Gigabit Ethernet connector with M12 8-pin (male) connector, IP67	Field-installation X-coded screw-in Gigabit Ethernet connector with M12 8-pin (male) connector, IP67	D-coded screw-in USB connector, M12 5-pin (male) connector, IP68	M12 cable A-coded 4-pin (female) connector, IP67	M12 cable A-coded 4-pin (male) connector, IP67	M12 D-coded circular threaded USB 5-pin (male) connector, IP68	M12 cable X-coded 8-pin (male) connector, IP65

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-F40M25x4-50	CBL-F40M9x4-50	CBL-M25M9x2-50	CBL-F20M25x2-50	CBL-F20M9x2-50	
CP-118U/138U Series	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-
CP-118U-I/138U-I Series	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-
CP-168U Series	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-
CP-104UL Series	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
CP-104JU Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-134U Series	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-
CP-114UL Series	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
CP-104EL-A Series	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
CP-114EL Series	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
CP-112UL Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-132UL Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-102U Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-102UL Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-102E Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-102EL Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-132EL Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-116E-A	-	-	-	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-118E-A-I Series	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-
CP-138E-A-I Series	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-
CP-118EL-A	-	-	-	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-134EL-A-I Series	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-
CP-168EL-A	-	-	-	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
POS-104UL Series	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-
CA-108 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-
CB-108 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-
CA-114 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-
CB-114 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-
CA-134I Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-
CB-134I Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-
CA-104 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-
CA-132/132I Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-

8-port RS-232 Connection Boxes



Model Name	OPT8-M9	OPT8-RJ45	OPT8A/S	OPT8B
Pin Assignment	<p>1 DCD 2 RxD 3 TxD 4 DTR 5 GND DSR 6 RTS 7 CTS 8</p>	<p>1 DSR 2 RTS 3 GND 4 TxD 5 RxD 6 DCD 7 CTS 8 DTR</p>	<p>1 DCD 2 GND 3 DTR 4 RTS 5 CTS 6 TxD 7 RxD 8 DSR</p>	<p>1 TxD 2 RxD 3 RTS 4 CTS 5 DSR 6 GND 7 DCD 8 DTR</p>
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 (3.54 x 4.37 x 1.08 in)	152.8 x 32.8 x 32 mm (6.02 x 1.29 x 1.26 in)	247 x 108 x 35 mm (9.72 x 4.25 x 1.38 in)	
Protection	–	–	25 kV ESD, 2 kV EFT surge protection (OPT8S only)	–
Connection Cable	DB62 (male) to DB62 (female) 1.5 m connection cable for connecting to the serial board	–	DB62 (male) to DB62 (male) 1.5 m connection cable for connecting to the serial board	
Related Products	See the Serial Connection Options Chart for details.			



Model Name	OPT8-M9+	OPT8-RJ45+	OPT8A+/S+	OPT8B+
Pin Assignment	<p>1 DCD 2 RxD 3 TxD 4 DTR 5 GND DSR 6 RTS 7 CTS 8</p>	<p>1 DSR 2 RTS 3 GND 4 TxD 5 RxD 6 DCD 7 CTS 8 DTR</p>	<p>1 DCD 2 GND 3 DTR 4 RTS 5 CTS 6 TxD 7 RxD 8 DSR</p>	<p>1 TxD 2 RxD 3 RTS 4 CTS 5 DSR 6 GND 7 DCD 8 DTR</p>
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 (3.54 x 4.37 x 1.08 in)	152.8 x 32.8 x 32 mm (6.02 x 1.29 x 1.26 in)	247 x 108 x 35 mm (9.72 x 4.25 x 1.38 in)	
Protection	–	–	25 kV ESD, 2 kV EFT surge protection (OPT8S only)	–
Connection Cable	VHDCI 68 to DB62 (female) 1.5 m connection cable for connecting to the serial board	–	VHDCI 68 to DB62 (female) 1.5 m connection cable for connecting to the serial board	
Related Products	See the Serial Connection Options Chart for details.			

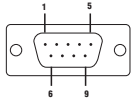
8-port RS-232 Connection Cables



Model Name	CBL-M62M25x8-100 (OPT8C)	CBL-M62M9x8-100 (OPT8D)	CBL-M68M25x8-100 (OPT8C+)	CBL-M68M9x8-100 (OPT8D+)	CBL-M78M25x8-100	CBL-M78M9x8-100
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	1 m (3.3 ft)					
Related Products	See the Serial Connection Options Chart for details.					


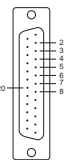
2-port Connection Cables



Model Name	CBL-M25M9x2-50																	
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
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 the Serial Connection Options Chart for details.																	

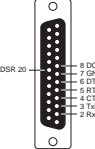
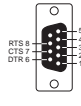
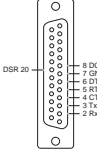
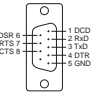
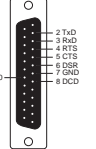
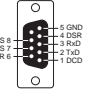
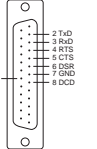
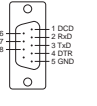
4-port Connection Cables



Model Name	CBL-M44M9x4-50	CBL-M44M25x4-50																																																																																																			
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)																																																																																																	
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8	DCD	TxD-(A)	TxD-(A)	-																																																																																																	
20	DTR	RxD-(A)	RxD-(A)	Data-(A)																																																																																																	
22	-	-	-	-																																																																																																	
Description	DB44 (male) to DB9 (male) x 4	DB44 (male) to DB25 (male) x 4																																																																																																			
Cable Length	50 cm (19.69 in)																																																																																																				
Related Products	See the Serial Connection Options Chart 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																							
Pin Assignment																															
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Model Name	Board-side Connector	Device-side Connector	Cable Length	Related Products																											
CBL-RJ45F25-150	-	DB25 (female) x 1	1.5 m (4.9 ft)	CP-104JU, OPT8-RJ45, NPort 5210, NPort 5600, NPort 6600, CN2510/2600																											
CBL-RJ45F9-150	-	DB9 (female) x 1																													
CBL-RJ45M25-150	-	DB25 (male) x 1																													
CBL-RJ45M9-150	-	DB9 (male) x 1																													
CBL-RJ45SF25-150	8-pin RJ45 x 1																														
CBL-RJ45SF9-150	Shielded																														
CBL-RJ45SM25-150	8-pin RJ45 x 1																														
CBL-RJ45SM9-150	8-pin RJ45 x 1																														
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	1.5 m (4.9 ft)																														
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
Pin Assignment	<p>DSR 20</p> <p>8 DCD 7 GND 6 DTR 5 RTS 4 CTS 3 TXD 2 RXD</p>	<p>DTR 20</p> <p>2 TXD 3 RXD 4 RTS 5 CTS 6 DSR 7 GND 8 DCD</p>	<p>DSR 6</p> <p>RTS 7</p> <p>CTS 8</p> <p>1 DCD 2 RXD 3 TXD 4 DTR 5 GND</p>	<p>RTS 6</p> <p>CTS 7</p> <p>DTR 8</p> <p>5 GND 4 DSR 3 RXD 2 TXD 1 DCD</p>
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	1.5 m (4.9 ft)			
Related Products	C320Turbo Series, A52, A53			

Wiring Kits



Model Name	TB-M9	TB-F9	TB-M25	TB-F25
Type	DB9 (male) DIN-rail wiring terminal	DB9 (female) DIN-rail wiring terminal	DM25 (male) DIN-rail wiring terminal	DB25 (female) DIN-rail wiring terminal
Connector	DB9 (male)	DB9 (female)	DB25 (male)	DB25 (female)
Rating	300 V, 20 A (IEC250V 10A)			
Operating Temperature	-40 to 105°C (-40 to 221°F)			
Suitable Wiring	24-12 AWG (IEC 0.5-2.5 mm2)			
Dimensions	77.5 x 45 x 51 mm (3.05 x 1.77 x 2.01 in)		77.5 x 90 x 51 mm (3.05 x 3.54 x 2.01 in)	



Model Name	Mini DB9F-to-TB	ADP-RJ458P-DB9M	ADP-RJ458P-DB9F	A-ADP-RJ458P-DB9F-ABC01																																																																		
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
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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)																																																																		

Other Accessories

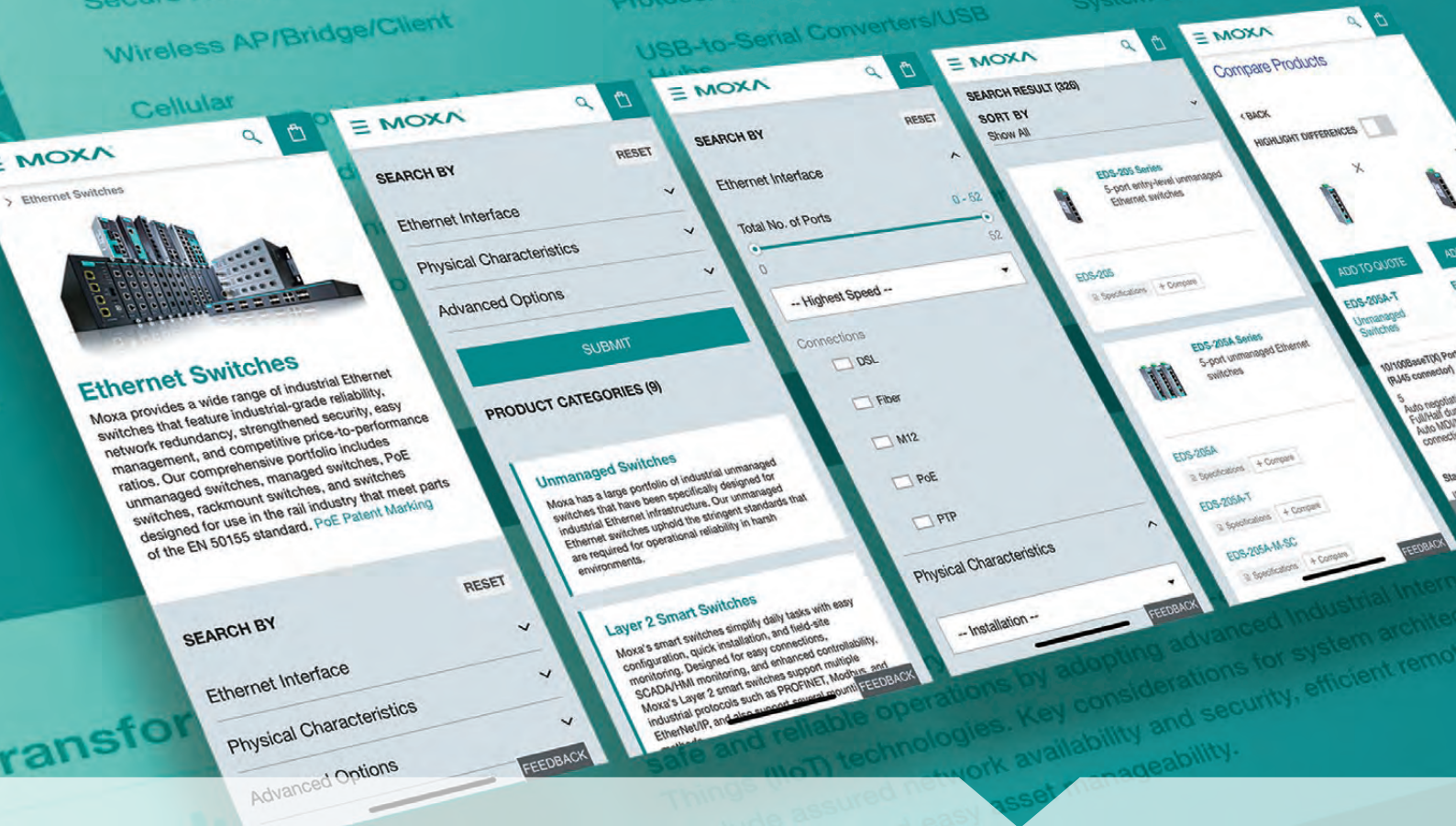
Model Name	Description
ANT-GPS-OSM-05-3M	1572 MHz, active GPS antenna, 26 dBi, for GPS applications, 3 m
DA-681A HDD Kit	HDD/SSD installation package, supports a single HDD/SSD
DA-682A HDD Kit	DA-682A HDD kit
DA-720 HDD Kit	DA-720 HDD/SSD kit
DE-2-SATA	2 x 2.5" SATA III SSD/HDD socket module
FK-75125-02	Storage bracket, 4 large silver screws, 4 soft washers, 4 small bronze screws, 1 SATA power cable, 4 golden spacers (only for the V2406 and V2426)
HDD kit with lock	HDD/SSD kit (lock included)
HDD/SSD kit with heat dissipation vent (lock not included)	HDD/SSD kit with heat dissipation vent (lock not included)
HDD/SSD kit with heat dissipation vent and lock	HDD/SSD kit with heat dissipation vent (lock included)
ISD-1110-T/1130-T Series	Data line surge protectors (up to 4 kV)
ISD-1210-T/1230-T Series	Data line surge protectors (up to 20 kV)
USB Dongle Kit	Internal USB dongle kit installation package
V2616A HDD Kit	V2616A internal storage kit
Wi-Fi-BGN	Wi-Fi module, 2 SMA connectors with cable
Wi-Fi-BGN(252NI)	Wi-Fi module, 2 antennas with cable and connector, 2 black screws, 2 lock washers, 2 nuts, 1 thermal pad

Every effort is made to ensure that the information in this guide is accurate. However, please note that no guarantee or legal contract is implied with the presentation of this information. This guide is intended for informational purposes only, and Moxa reserves the right to update or modify this information at any time.

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Moxa Americas USA

Toll Free: 1-888-MOXA-USA
Tel: +1-714-528-6777
Fax: +1-714-528-6778
usa@moxa.com

Brazil

Tel: +55-11-95261-6545
brazil@moxa.com

Moxa Europe Germany

Tel: +49-89-37003-99-0
Fax: +49-89-37003-99-99
europe@moxa.com

France

Tel: +33-1-30-85-41-80
Fax: +33-1-30-47-35-91
france@moxa.com

UK

Tel: +44-1844-355-601
Fax: +44-1844-353-553
uk@moxa.com

Moxa Asia-Pacific and Taiwan Asia/Japan/Taiwan

Tel: +886-2-8919-1230
Fax: +886-2-8919-1231
asia@moxa.com
japan@moxa.com
taiwan@moxa.com

India

Tel: +91-80-4172-9088
Fax: +91-80-4132-1045
india@moxa.com

Russia

Tel: +7-495-287-0929
Fax: +7-495-269-0929
russia@moxa.com

Korea

Tel: +82-2-6268-4048
Fax: +82-2-6268-4044
korea@moxa.com

Moxa China Shanghai

Tel: +86-21-5258-9955
Fax: +86-21-5258-5505
china@moxa.com

Beijing

Tel: +86-10-5976-6123/24/25/26
Fax: +86-10-5976-6122
china@moxa.com

Shenzhen

Tel: +86-755-8368-4084/94
Fax: +86-755-8368-4148
china@moxa.com