Your Trusted Partner in Automation

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things (IIoT). With 35 years of industry experience, Moxa has connected more than 102 million devices worldwide and has a distribution and service network that reaches customers in more than 85 countries. Moxa delivers lasting business value by empowering industries with reliable networks and sincere service. Information about Moxa's solutions is available at www.moxa.com.

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MOXA®

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2024 Product Selection Guide

2024 Product Selection Guide

· Network Infrastructure · Edge Connectivity · Industrial Computing

MOXA®

Your Trusted Partner in Automation

Providing robust connectivity technologies and superior reliability to futureproof your industrial operations

Moxa is a leader in industrial networking and communications, enabling connectivity and reliability for the automated world of today and tomorrow and enhancing cybersecurity for industrial automation systems. By working together with world-class experts and partners, we transform our customers' unique requirements into practical networking solutions for industrial applications and mission-critical infrastructure.

Enabling Connectivity for Automation Networks

Businesses have realized the additional value and opportunities associated with greater cross-system collaboration and integration by converging networks into a single-system architecture based on open standards and technologies. As a result, networking and communications in the industrial automation world have become increasingly sophisticated, but far more complex. With our distinct technical capabilities, values, and decades of expertise that stand out from the competition, Moxa is uniquely positioned to facilitate the transformation towards converged automation networks.

Through collaboration with industry leaders on global industrial automation projects, our connectivity solutions provide superior value to our customers. By ensuring reliable and secure data connectivity, our solutions help drive advanced technologies, transforming industrial automation to enhance productivity and efficiency in applications such as smart grid, smart rail, intelligent transportation systems, smart manufacturing, oil and gas, and marine.

Providing Crucial Reliability for Critical Environments

Moxa develops reliable connectivity solutions that enable connections and communication between a wide range of automation devices, systems, and processes in challenging environments. Moxa's solutions help customers navigate the challenges of industrial operations in an ever-changing industrial landscape, including extreme weather, cyberthreats, and hazardous environments.

With a "Built to Last" philosophy and over 35 years of experience in data connectivity for industrial automation, Moxa has connected over 102 million devices worldwide and delivered lasting business value by empowering industries with leading-edge connectivity, industrial computing, and communication networks that define a new standard for industrial operations today and tomorrow.

Advancing Industrial Networking and Connectivity

For 35 years and counting, Moxa has been helping major enterprises around the world take on the challenging and complex demands of their industrial data network projects.

Forging Mobility Ahead

En route to smarter, safer transportation

In our pursuit of excellence, we have established dedicated business and R&D teams specializing in rail, marine, and intelligent transportation systems (ITS). Our vision centers on crafting solutions that transcend the ordinary, addressing the distinctive challenges inherent to these demanding and dynamic environments. Embracing the mantra of "Unique Challenges, Tailored Solutions," we are committed to providing resilience in the face of cybersecurity threats, ensuring reliable and secure networks that propel us into the future.

Rail

- Co-developing rail industry standards
- 15+ years of rail experience with dedicated business and R&D teams
- 500+ dedicated rail product solutions
- 1,000+ successful deployments
- Tailored for vital and non-vital applications
- World's first IEC 62443-4-2 certified solution for onboard network security

Marine

- 4 out of the top 5 global marine players use Moxa solutions
- Cyber-resilient networks for navigation based on the IACS UR E26/E27 and IEC 62443 standards
- Comprehensive portfolio to augment marine integrated automation systems (IAS) and integrated bridge systems (IBS)

Intelligent Transportation Systems

- Principal member of ITxPT and active contributor to committees and working groups
- Cyber-resilience networks based on the NIST and IEC 62443 standards
- Complete portfolio of secure high-bandwidth solutions to drive data-intensive ITS applications such as advanced traffic management systems (ATMS) and electronic toll collection (ETC)

Industry Certifications

IRIS Certification · EN 50155 · EN 50121-4 · DNV · ABS · ClassNK · Lloyd's Register · BUREAU VERITAS · NEMA TS2 · E1

Rewiring the Energy World

Facilitating the energy transition, guiding our journey to a net-zero future

Moxa has been instrumental in the energy transformation driven by efficiency, digitalization, and decarbonization. Working closely with global energy leaders and government entities, we actively contribute to forums like CIGRE, IEC WG, UCAIug, and PAC World. Our mission is to help realize an intelligent global power grid for safer and more efficient energy distribution in an increasingly energy-conscious world.

Substation Automation

Moxa offers comprehensive networking and computing solutions to power substation digitalization, secure IED communications, prevent cyberattacks, and optimize grid dispatching. With over 9,000 substation deployments globally, Moxa pioneered the first smart substation integrating IEC 61850 and IEEE 1588.

Energy Storage

Grid reliability is essential in the era of renewable energy, and Moxa recognizes the crucial role of megawatt-level BESS in achieving this. Moxa's expertise lies in designing robust and reliable networks for large-scale BESS operations, ensuring seamless data flow amidst the global shift to renewables.

Renewable Energy

Moxa's industrial IoT solutions enable intelligent generation and distribution of renewable energy from solar and wind sources. They efficiently manage remote power assets, facilitating easy deployment and integration with local SCADA or cloud-based services.

Critical Power

Moxa provides integrated connectivity solutions for managing high-availability facilities to ensure uninterrupted power supply to vital power loads. Our solutions enable devices—including switchgear, meters, circuit breakers, and UPS controllers—to operate seamlessly and optimize energy loads in such fields as data centers, hospitals, and semiconductor fabs.

Electric Vehicle Infrastructure

Moxa sets itself apart with comprehensive, scalable, and efficient product solutions. We ensure our product offering aligns with the latest trends in the electric vehicle sector by prioritizing network reliability, remote management, cybersecurity, and durability.

9,000+
substation deployments globally

15+ GWh
ESS monitored globally

Top 3
cloud service providers' choice for DCI

7 out of top 10
global wind turbine builders' choice

Table of Contents

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 EN 50155 switches designed for use in the rail industry.

Ethernet Switches Product Pages

Unmanaged Switches

Product Series	EDS-G2008-EL	EDS-G2008-ELP	EDS-G2005-EL	EDS-G2005-ELP	EDS-2008-EL	EDS-2008-ELP	EDS-2005-EL	EDS-2005-ELP
Ethernet Interface								
Max. Number of Ports	8	8	5	5	8	8	5	5
10/100/1000BaseT(X) Ports (RJ45 Connector)	8	8	5	5	–	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	–	–	–	–	Up to 8	8	5	5
100BaseFX Ports (Multi-mode SC Connector)	–	–	–	–	Up to 1	–	–	–
100BaseFX Ports (Multi-mode ST Connector)	–	–	–	–	Up to 1	–	–	–
DIP Switch Configuration								
Ethernet Interface	Quality of Service (QoS)[1], Broadcast Storm Protection (BSP)							
Input Voltage								
12/24/48 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							

[1] Enabling the QoS DIP switch will also enable Multicast Filtering which will block LLDP & PROFINET PTCP-Delay traffic by filtering frames with a destination MAC address within the range of 01-80-C2-00-00-02 to 01-80-C2-00-00-0F.

Unmanaged Switches

Product Series	EDS-2018-ML	EDS-2016-ML	EDS-2010-ML	EDS-G205	EDS-208A	EDS-205A	EDS-208	EDS-205
Ethernet Interface								
Max. Number of Ports	18	16	10	5	8	5	8	5
10/100/1000BaseT(X) Ports (RJ45 Connector)	–	–	–	4	–	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	16	Up to 16	8	–	Up to 8	Up to 5	Up to 8	5
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	2	–	2	1	–	–	–	–
100BaseFX Ports (Multi-mode SC Connector)	–	Up to 2	–	–	Up to 2	Up to 1	Up to 1	–
100BaseFX Ports (Multi-mode ST Connector)	–	Up to 2	–	–	Up to 2	Up to 1	Up to 1	–
100BaseFX Ports (Single-mode SC Connector)	–	Up to 2	–	–	Up to 2	Up to 1	–	–
DIP Switch Configuration								
Ethernet Interface	Quality of Service (QoS), Broadcast Storm Protection (BSP), Port break alarm			Broadcast Storm Protection (BSP), Jumbo Frame, IEEE 802.3az energy saving, 100/1000 SFP speed switching, Port break alarm	Broadcast Storm Protection (BSP)	Quality of Service (QoS), Broadcast Storm Protection (BSP)	–	
Alarm Contact Channels								
1 Relay Output With Current Carrying Capacity of 1 A @ 24 VDC	✓	✓	✓	✓	–	–	–	–
Input Voltage								
12/24/48 VDC	✓	✓	✓	✓	✓	✓	✓	✓
Installation Options								
DIN-rail Mounting	✓	✓	✓	✓	✓	✓	✓	✓
Wall Mounting (With Optional Kit)	✓	✓	✓	✓	✓	✓	–	–
Environmental Limits								
-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 61010-2-201, EN 62368-1			UL 508, EN 62368-1		UL 508, UL 61010-2-201, IEC 62368-1	UL 508, UL 60950-1, EN 62368-1	
Hazardous Locations	ATEX, CID2, IECEx			ATEX, CID2		ATEX, CID2, IECEx	–	
Railway	EN 50121-4						–	
Traffic Control	NEMA TS2			–	NEMA TS2		–	
Maritime	ABS, DNV, LR, NK						–	

Unmanaged Switches

Product Series	EDS-G308	EDS-316	EDS-309	EDS-308	EDS-305
Ethernet Interface					
Max. Number of Ports	8	16	9	8	5
10/100/1000BaseT(X) Ports (RJ45 Connector)	Up to 8	–	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	–	Up to 16	6	Up to 8	Up to 5
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	Up to 2	–	–	–	–
100BaseFX Ports (Multi-mode SC Connector)	–	Up to 2	Up to 3	Up to 2	Up to 1
100BaseFX Ports (Multi-mode ST Connector)	–	Up to 2	Up to 3	Up to 2	Up to 1
100BaseFX Ports (Single-mode SC Connector)	–	Up to 2	–	Up to 2	Up to 1
100BaseFX Ports (Single-mode SC Connector, 80 km)	–	Up to 2	–	Up to 2	Up to 1
DIP Switch Configuration					
Ethernet Interface	Broadcast Storm Protection (BSP), Jumbo Frame, IEEE 802.3az energy saving, 100/1000 SFP speed switching, Port break alarm	Port break alarm			
Alarm Contact Channels					
1 Relay Output With Current Carrying Capacity of 1 A @ 24 VDC	✓	✓	✓	✓	✓
Input Voltage					
24 VDC	–	–	–	–	✓
12/24/48 VDC	✓	✓	✓	✓	–
Installation Options					
DIN-rail Mounting	✓	✓	✓	✓	✓
Wall Mounting (With Optional Kit)	✓	✓	✓	✓	✓
Environmental Limits					
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, EN 62368-1	UL 508, UL 60950-1, CSA C22.2 No. 60950, EN 62368-1			UL 508, UL 60950-1, CSA C22.2 No. 60950-1
Hazardous Locations	ATEX, CID2				
Railway	EN 50121-4	–			
Maritime	ABS, DNV, LR, NK	DNV			

DIN-rail Managed Switches

Product Series	EDS-G4014	EDS-G4012	EDS-G4008	EDS-4014	EDS-4012	EDS-4009	EDS-4008
Ethernet Interface							
Max. Number of Ports	14	12	8	14	12	9	8
10/100/1000BaseT(X) Ports (RJ45 Connector)	8	8	8	–	–	–	Up to 2
10/100BaseT(X) Ports (RJ45 Connector)	–	–	–	8	8	6	Up to 8
100/1000/2500BaseSFP Ports	4	Up to 4	–	–	–	–	–
1000/2500BaseSFP Ports	2	–	–	2	–	–	–
100/1000BaseSFP Ports	–	–	–	4	Up to 4	–	Up to 2
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	–	Up to 4	–	–	Up to 4	–	–
100BaseFX Ports (ST or SC Connector)	–	–	–	–	–	3	Up to 2
PoE Ports (10/100/1000BaseT(X), RJ45 Connector)	–	Up to 8	–	–	Up to 8	–	Up to 4
Filter							
802.1p Class of Service	✓	✓	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3 Snooping	✓	✓	✓	✓	✓	✓	✓
Industrial Protocols							
EtherNet/IP	✓	✓	✓	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓	✓	✓	✓
PROFINET	✓	✓	✓	✓	✓	✓	✓
MMS	✓	✓	✓	✓	✓	✓	✓
Management							
DHCP Relay Agent (Option 82)	✓	✓	✓	✓	✓	✓	✓
Port Mirroring	✓	✓	✓	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓	✓
Redundancy Protocols							
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓	✓
MRP	✓	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓	✓
Security							
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓
TACACS+/RADIUS	✓	✓	✓	✓	✓	✓	✓
MAB Authentication	✓	✓	✓	✓	✓	✓	✓
IEEE 802.1X	✓	✓	✓	✓	✓	✓	✓
MAC Sticky	✓	✓	✓	✓	✓	✓	✓
Access Control List	✓	✓	✓	✓	✓	✓	✓
Time Management							
IEEE 1588v2 PTP (Hardware-based)	✓	✓	✓	✓	✓	✓	✓
Power Parameters							
Input Voltage	The input voltage depends on the installed PWR-100 Power Module Series model. Refer to the Modular Power Supplies section (pg 167) for more information.						
Physical Characteristics							
Installation	DIN-rail mounting, Wall mounting (with optional kit)						
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)						
Standards and Certifications							
EMI	CISPR 32, FCC Part 15B Class A						
Safety	UL 61010-2-201, EN 62368-1						
Hazardous Locations	-LV/-LV-T models: ATEX, CID2, IECEx						
Railway	EN 50121-4						
Traffic Control	NEMA TS2						
Power Substation	IEC 61850-3, IEEE 1613 Class 1						
Maritime	-LV/-LV-T, PoE/PoE-T models: DNV, ABS, NK, LR						
Industrial Cybersecurity	IEC 62443-4-1, IEC 62443-4-2						

DIN-rail Managed Switches

Product Series	EDS-G516E	EDS-G512E	EDS-G508E	EDS-528E	EDS-518E	EDS-510E
Ethernet Interface						
Max. Number of Ports	16	12	8	28	18	10
10/100/1000BaseT(X) Ports (RJ45 Connector)	12	Up to 8	8	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	–	–	–	24	Up to 14	7
100/1000BaseSFP Ports	4	4	–	–	–	–
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	–	–	–	4	4	3
100BaseFX Ports (ST or SC Connector)	–	–	–	–	Up to 2	–
PoE Ports (10/100/1000BaseT(X), RJ45 Connector)	–	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 Relay Agent (Option 82)	✓	✓	✓	✓	✓	✓
Port Mirroring	✓	✓	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓
Redundancy Protocols						
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓
MRP	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓
Security						
HTTPS/SSL	✓	✓	✓	✓	✓	✓
TACACS+/RADIUS	✓	✓	✓	✓	✓	✓
MAB Authentication	✓	✓	✓	✓	✓	–
IEEE 802.1X	✓	✓	✓	✓	✓	✓
MAC Sticky	✓	✓	✓	✓	✓	✓
Access Control List	✓	✓	✓	✓	✓	–
Power Parameters						
Input Voltage	12/24/48/-48 VDC Redundant dual inputs	Non-PoE models: 12/24/48/-48 VDC PoE models: 48 VDC Redundant dual inputs	12/24/48/-48 VDC Redundant dual inputs	12/24/48/-48 VDC Redundant dual inputs	-LV models: 12/24/48/-48 VDC, Redundant dual inputs -HV models: 110/220 VDC/VAC, Single input	12/24/48/-48 VDC Redundant dual inputs
Physical Characteristics						
Installation	DIN-rail mounting, Wall mounting (with optional kit)					
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)					
Standards and Certifications						
EMI	CISPR 32, FCC Part 15B Class A					
Safety	UL 508	All models: UL 508 PoE models: EN 62368-1	UL 508	UL 61010-2-201, EN 62368-1	UL 508, EN 62368-1	UL 508
Hazardous Locations	ATEX, CID2	Non-PoE models: ATEX, CID2	ATEX, CID2	–	ATEX, CID2	
Railway	EN 50121-4			–	EN 50121-4	
Traffic Control	NEMA TS2			–	NEMA TS2	
Power Substation	IEC 61850-3, IEEE 1613					
Maritime	ABS, DNV, LR, NK	Non-PoE models: ABS, DNV, LR, NK	ABS, DNV, LR, NK	–	ABS, DNV, LR, NK	

DIN-rail Managed Switches

Product Series	EDS-G509	EDS-510A	EDS-508A	EDS-505A	EDS-408A	EDS-405A
Ethernet Interface						
Max. Number of Ports	9	10	8	5	8	5
10/100/1000BaseT(X) Ports (RJ45 Connector)	4	Up to 3	–	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	–	7	Up to 8	Up to 5	Up to 8	Up to 5
100/1000BaseSFP Ports	–	Up to 3	–	–	–	–
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	5	–	–	–	–	–
100BaseFX Ports (ST or SC Connector)	–	–	Up to 2	Up to 2	Up to 3	Up to 2
Filter						
802.1p Class of Service	✓	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓	✓
IGMP v1/v2 Snooping	✓	✓	✓	✓	✓	✓
Industrial Protocols						
EtherNet/IP	✓	✓	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓	✓	✓
PROFINET	–	–	–	–	PN models	PN models
Management						
DHCP Relay Agent (Option 82)	✓	✓	✓	✓	✓	✓
Port Mirroring	✓	✓	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	–	–	–	–
Telnet/SSH	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓
Redundancy Protocols						
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓
MRP	–	–	–	–	–	–
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓
Security						
HTTPS/SSL	✓	✓	✓	✓	HTTPS only	HTTPS only
TACACS+/RADIUS	✓	✓	✓	✓	–	–
MAB Authentication	–	–	–	–	–	–
IEEE 802.1X	✓	✓	✓	✓	–	–
MAC Sticky	–	–	–	–	–	–
Access Control List	–	–	–	–	–	–
Power Parameters						
Input Voltage	12/24/48 VDC Redundant dual inputs	24 VDC Redundant dual inputs	12/24/48 VDC Redundant dual inputs	12/24/48 VDC Redundant dual inputs	EDS-408A-3S-3C-48(-T) models: ±24/±48 VDC Other models: 12/24/48 VDC Redundant dual inputs	12/24/48 VDC Redundant dual inputs
Physical Characteristics						
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)	Standard models: -10 to 60°C (14 to 140°F) Wide temp. models: -40 to 75°C (-40 to 167°F)				
Standards and Certifications						
EMI	CISPR 32, FCC Part 15B Class A					
Safety	UL 508, EN 62368-1	EN 62368-1, UL 60950-1, UL 508			All models: UL 508 EDS-408A, EDS-408A-MM-SC/MM-ST/SS-SC/EIP/PN models: UL 60950-1, EN 62368-1	All models: UL 508 Non-PTP models: UL 60950-1, EN 62368-1
Hazardous Locations	–	ATEX, CID2			EDS-408A, EDS-408A-MM-SC/MM-ST/SS-SC/EIP/PN models: ATEX, CID2, IECEx	Non-PTP models: ATEX, CID2
Railway	EN 50121-4	EN 50121-4	–	–	EN 50121-4	–
Traffic Control	–	NEMA TS2	–	–	EDS-408A, EDS-408A-MM-SC/MM-ST/SS-SC/EIP/PN models: NEMA TS2	Non-PTP models: NEMA TS2
Power Substation	–	–	–	–	–	–
Maritime	ABS, DNV, LR, NK	DNV			All models (excluding EDS-408A-3S-SC-48-(T)): DNV, NK, LR EDS-408A, EDS-408A-MM-SC/MM-ST/SS-SC/EIP/PN models: ABS	Non-PTP models: DNV, LR

DIN-rail Managed Switches

Preliminary | Preliminary | Preliminary | Preliminary | Preliminary | Preliminary

Product Series	SDS-G3016	SDS-G3010	SDS-G3008	SDS-G3006	SDS-3016	SDS-3010	SDS-3008	SDS-3006
Ethernet Interface								
Max. Number of Ports	16	10	8	6	16	10	8	6
10/100/1000BaseT(X) Ports (RJ45 Connector)	Up to 16	Up to 8	8	Up to 6	Up to 2	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	–	–	–	–	Up to 16	Up to 8	8	Up to 6
100/1000BaseSFP Ports	Up to 2	–	–	–	Up to 2	–	–	–
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	–	2	–	Up to 2	–	2	–	Up to 2
PoE Ports (10/100BaseT(X), 10/100/1000BaseT(X), RJ45 Connector)	–	Up to 8	–	Up to 4	–	Up to 8	–	Up to 4
Filter								
802.1p Class of Service	Fixed profiles							
802.1Q VLAN	✓	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3 Snooping	Enabled via EtherNet/IP function							
Industrial Protocols								
EtherNet/IP	✓	✓	✓	✓	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓	✓	✓	✓	✓
PROFINET	✓	✓	✓	✓	✓	✓	✓	✓
Management								
DHCP Relay Agent (Option 82)	–	–	–	–	–	–	–	–
Port Mirroring	✓	✓	✓	✓	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓	✓	✓	✓	✓
Telnet/SSH	–	–	–	–	–	–	–	–
TFTP	✓	✓	✓	✓	✓	✓	✓	✓
Redundancy Protocols								
STP/RSTP	✓	✓	✓	✓	✓	✓	✓	✓
MSTP	–	–	–	–	–	–	–	–
MRP	✓	✓	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	–	–	–	–	–	–	–	–
Security								
HTTPS/SSL	HTTPS only							
TACACS+/RADIUS	–	–	–	–	–	–	–	–
MAB Authentication	–	–	–	–	–	–	–	–
IEEE 802.1X	–	–	–	–	–	–	–	–
MAC Sticky	–	–	–	–	–	–	–	–
Access Control List	–	–	–	–	–	–	–	–
Power Parameters								
Input Voltage	SDS-(G)3010-8PoE-2GTXSFP models: 48 VDC All other models: 12/24/48 VDC Redundant dual inputs							
Physical Characteristics								
Installation	DIN-rail mounting, Wall mounting (with optional kit)							
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)							
Standards and Certifications								
EMI	CISPR 32, FCC Part 15B Class A							
Safety	UL 61010-2-201, EN 62368-1							

DIN-rail Managed Switches

Product Series	TSN-G5008	TSN-G5004
Ethernet Interface		
Max. Number of Ports	8	4
10/100/1000BaseT(X) Ports (RJ45 Connector)	6	4
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	2	–
Filter		
802.1p Class of Service	✓	✓
802.1Q VLAN	✓	✓
IGMP v1/v2/v3 Snooping	–	–
Industrial Protocols		
EtherNet/IP	–	–
Modbus TCP	–	–
PROFINET	–	–
Management		
DHCP Relay Agent (Option 82)	–	–
Port Mirroring	✓	✓
RMON	–	–
SNMPv1/v2c/v3	✓	✓
Syslog	✓	✓
Fiber Check	–	–
Telnet/SSH	✓	✓
TFTP	✓	✓
Redundancy Protocols		
STP/RSTP	✓	✓
MSTP	–	–
MRP	–	–
Turbo Ring/Turbo Chain	Turbo Chain only	
Security		
HTTPS/SSL	✓	✓
TACACS+/RADIUS	✓	✓
MAB Authentication	–	–
IEEE 802.1X	–	–
MAC Sticky	–	–
Access Control List	–	–
Time Management		
IEEE 1588v2 PTP (Hardware-based)	✓	✓
IEEE 802.1 AS	✓	✓
IEEE 802.1 Qbv	✓	✓
Power Parameters		
Input Voltage	12 to 48 VDC, Redundant dual inputs	
Physical Characteristics		
Installation	DIN-rail mounting, Wall mounting (with optional kit)	
Environmental Limits		
Operating Temperature	-10 to 60°C (14 to 140°F)	
Standards and Certifications		
EMI	CISPR 32, FCC Part 15B Class A	
Safety	UL 61010-2-201, EN 62368-1	

DIN-rail Managed Switches

Product Series	MDS-G4028-4XGS	MDS-G4020-4XGS	MDS-G4012-4XGS	MDS-G4028	MDS-G4020	MDS-G4012
Ethernet Interface						
Max. Number of Ports	28	20	12	28	20	12
10GbE SFP+ Slots	4	4	4	–	–	–
10/100/1000BaseT(X) or 1000BaseSFP Ports	Up to 24	Up to 16	Up to 8	Up to 28 (up to 24 SFP ports)	Up to 20 (up to 16 SFP ports)	Up to 12 (up to 8 SFP ports)
Modular Ports (10/100BaseT(X) or 100BaseSFP)	Up to 24	Up to 16	Up to 8	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/MMS	✓	✓	✓	✓	✓	✓
Management						
Layer 3 Switching	L3 models					
DHCP Relay Agent (Option 82)	✓	✓	✓	✓	✓	✓
Port Mirroring (SPAN/RSPAN)	✓	✓	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓
Redundancy Protocols						
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓
MRP	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓
Security						
HTTPS/SSL	✓	✓	✓	✓	✓	✓
TACACS+/RADIUS	✓	✓	✓	✓	✓	✓
MAC Sticky	✓	✓	✓	✓	✓	✓
MAB Authentication	✓	✓	✓	✓	✓	✓
IEEE 802.1X	✓	✓	✓	✓	✓	✓
Access Control List	✓	✓	✓	✓	✓	✓
DHCP Snooping	✓	✓	✓	✓	✓	✓
Dynamic ARP Inspection	✓	✓	✓	✓	✓	✓
IP Source Guard	✓	✓	✓	✓	✓	✓
Time Management						
IEEE 1588v2 PTP (Hardware-based)	✓	✓	✓	–	–	–
Power Parameters						
Input Voltage	The input voltage depends on the installed PWR(-A) Power Module Series model. Refer to the Modular Power Supplies section (pg 167) for more information.					
Physical Characteristics						
Installation	DIN-rail mounting, Wall mounting (with optional kit), Rack mounting (with optional kit)					
Environmental Limits						
Operating Temperature	-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)		
Standards and Certifications						
EMI	CISPR 32, FCC Part 15B Class A					
Safety	EN 62368-1, IEC 62368-1, UL 62368-1, IEC 60950-1, UL 61010-2-201, EN 61010-2-201			EN 62368-1, IEC 62368-1, UL 62368-1, IEC 60950-1		
Hazardous Locations	–			ATEX, CID2		
Railway	EN 50121-4					
Traffic Control	NEMA TS2					
Power Substation	IEC 61850-3, IEEE 1613					

DIN-rail Managed Switches

Product Series	EDS-619	EDS-616	EDS-611	EDS-608	CM-600 Modules
Ethernet Interface					
Max. Number of Ports	19	16	11	8	–
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	3	–	3	–	–
Modular Ports (10/100BaseT(X), RJ45 Connector)	Up to 16	Up to 16	Up to 8	Up to 8	CM-600-3MSC/1TX: 1 CM-600-3SSC/1TX: 1 CM-600-4TX: 4 CM-600-2MSC/2TX: 2 CM-600-2SSC/2TX: 2
Modular Ports (100BaseFX)	Up to 16	Up to 16	Up to 8	Up to 8	CM-600-3MSC/1TX: 3 CM-600-3SSC/1TX: 3 CM-600-4MST: 4 CM-600-4MSC: 4 CM-600-4SSC: 4 CM-600-2MSC/2TX: 2 CM-600-2SSC/2TX: 2
Filter					
802.1p Class of Service	✓	✓	✓	✓	–
802.1Q VLAN	✓	✓	✓	✓	–
IGMP v1/v2 Snooping	✓	✓	✓	✓	–
Industrial Protocols					
EtherNet/IP	✓	✓	✓	✓	–
Modbus TCP	✓	✓	✓	✓	–
Management					
DHCP Relay Agent (Option 82)	✓	✓	✓	✓	–
Port Mirroring	✓	✓	✓	✓	–
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	–
Syslog	✓	✓	✓	✓	–
Fiber Check	✓	–	✓	–	–
Telnet/SSH	✓	✓	✓	✓	–
TFTP	✓	✓	✓	✓	–
Redundancy Protocols					
STP/RSTP/MSTP	✓	✓	✓	✓	–
Turbo Ring/Turbo Chain	✓	✓	✓	✓	–
Security					
HTTPS/SSL	✓	✓	✓	✓	–
TACACS+/RADIUS	✓	✓	✓	✓	–
802.1X	✓	✓	✓	✓	–
Power Parameters					
Input Voltage	12/24/48 VDC, Redundant dual inputs				–
Physical Characteristics					
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					
EMI	CISPR 32, FCC Part 15B Class A				–
Safety	EN 62368-1, UL 508				–
Hazardous Locations	ATEX, CID2				–
Railway	EN 50121-4				–
Traffic Control	NEMA TS2				–
Maritime	ABS, DNV, LR, NK				–

DIN-rail Managed Switches




Product Series	PT-G510	PT-G503	PT-510	PT-508
Ethernet Interface				
Max. Number of Ports	10	3	10	8
10/100/1000BaseT(X) Ports (RJ45 Connector)	Up to 8	–	–	–
100/1000BaseSFP Slots	Up to 10	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	–	–	Up to 8	6
100BaseFX Ports	–	–	Up to 4	2
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	–	3	–	–
Filter				
IGMP v1/v2/v3	✓	–	v1, v2 only	v1, v2 only
802.1Q VLAN	✓	–	✓	✓
GVRP	✓	–	✓	✓
Management				
DHCP Relay Agent (Option 82)	✓	✓	✓	✓
Port Mirror	✓	✓	✓	✓
SNMPv1/v2c/v3	✓	✓	✓	✓
LLDP	✓	✓	✓	✓
Fiber Check	✓	✓	–	–
Telnet	✓	✓	✓	✓
TFTP	✓	–	✓	✓
HTTP	✓	✓	✓	✓
Syslog	✓	✓	✓	✓
IPv4/IPv6	✓	✓	✓	✓
Redundancy Protocols				
STP/RSTP/MSTP	✓	–	✓	✓
MRP	✓	–	–	–
Turbo Ring/Turbo Chain	✓	–	✓	✓
PRP/HSR	✓	✓	–	–
Security				
TACACS+/RADIUS	✓	✓	✓	✓
SSH	✓	✓	✓	✓
Port Lock	✓	–	✓	✓
MAC Sticky	✓	–	–	–
Broadcast Storm Protection	✓	–	–	–
MAB Authentication	✓	–	–	–
Access Control List	✓	–	–	–
Time Management				
SNTP, NTP Server/Client	✓	✓	✓	✓
IEEE 1588v2 PTP (Hardware-based)	✓	✓	–	–
Power Parameters				
Input Voltage	24/48 VDC, 110/220 VDC/VAC, Redundant dual inputs		24/48 VDC, 110/220 VDC/VAC	
Environmental Limits				
Operating Temperature	-40 to 75°C (-40 to 167°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)
Standards and Certifications				
EMI	CISPR 32, FCC Part 15B Class A			
Safety	IEC 62368-1, UL 62368-1	UL 508		
Railway	EN 50121-4		–	
Maritime	-WV models: DNV, IEC 60945		–	
Power Substation	IEC 61850-3 Edition 2.0 Class 2, IEEE 1613	IEC 61850-3, IEEE 1613		

Rackmount Managed Switches

Preliminary

Preliminary

Preliminary

Product Series	MRX-Q4064	MRX-G4064	XM-4000 Modules
	Modular Switch	Modular Switch	Modules for MRX-Q4064/G4064
Ethernet Interface			
Max. Number of Ports	64	64	–
10GbE SFP+ Slots	16	8	–
Modular Ports (1000/2500BaseT(X) or 1000/2500BaseSFP)	Up to 48	–	XM-4000-16QGTX/-16QGSFP: 16
1000BaseT(X) or 1000BaseSFP Ports	Up to 48	Up to 56	XM-4000-16GTX/-16GSFP: 16
Filter			
IGMP v1/v2/v3	✓	✓	–
802.1p Class of Service	✓	✓	–
802.1Q VLAN	✓	✓	–
Management			
Layer 3 Switching	✓	✓	–
Port Mirroring (SPAN/RSPAN)	✓	✓	–
RMON/SNMPv1/v2c/v3	✓	✓	–
LLDP	✓	✓	–
Telnet/SSH	✓	✓	–
TFTP	✓	✓	–
Redundancy Protocols			
STP/RSTP/MSTP	✓	✓	–
Turbo Ring/Turbo Chain	Turbo Ring only		–
ERPS	✓	✓	–
Security			
HTTPS/SSL	✓	✓	–
TACACS+/RADIUS	✓	✓	–
MAC Sticky	✓	✓	–
IEEE 802.1X	✓	✓	–
Access Control List	✓	✓	–
Time Management			
IEEE 1588v2 PTP (Hardware-based)	✓	✓	–
Power Parameters			
Input Voltage	230 to 240 VDC; 100 to 240 VAC, 50 to 60 Hz (using the PWR-300 Series, see pg 167)		–
Physical Characteristics			
Installation	Rack mounting		–
Environmental Limits			
Operating Temperature	-10 to 60°C (14 to 140°F)		–
Standards and Certifications			
EMI	CISPR 32, FCC Part 15B Class A		–
Safety	EN 62368-1, UL 61010, IEC 62368-1, UL 62368-1		–
Railway	EN 50121-4		–

Rackmount Managed Switches

Product Series	ICS-G7852A	ICS-G7850A	ICS-G7848A	ICS-G7752A	ICS-G7750A	ICS-G7748A	IM-G7000A Modules
	Modular Switch	Modular Switch	Modular Switch	Modular Switch	Modular Switch	Modular Switch	Modules for ICS-G7700A/ G7800A
Ethernet Interface							
Max. Number of Ports	52	50	48	52	50	48	–
10GbE SFP+ Slots	4	2	–	4	2	–	–
Modular Ports (10/100/1000BaseT(X), RJ45 Connector)	Up to 48	Up to 48	Up to 48	Up to 48	Up to 48	Up to 48	IM-G7000A-4GTX: 4 IM-G7000A-4PoE: 4 (PoE)
Modular Ports (100/1000BaseSFP)	Up to 48	Up to 48	Up to 48	Up to 48	Up to 48	Up to 48	IM-G7000A-4GSFP: 4
Filter							
IGMP v1/v2/v3	✓	✓	✓	✓	✓	✓	–
802.1p Class of Service	✓	✓	✓	✓	✓	✓	–
802.1Q VLAN	✓	✓	✓	✓	✓	✓	–
Industrial Protocols							
EtherNet/IP	✓	✓	✓	✓	✓	✓	–
Modbus TCP	✓	✓	✓	✓	✓	✓	–
Management							
Layer 3 Switching	✓	✓	✓	–	–	–	–
DHCP Relay Agent (Option 82)	✓	✓	✓	✓	✓	✓	–
Port Mirroring	✓	✓	✓	✓	✓	✓	–
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓	–
LLDP	✓	✓	✓	✓	✓	✓	–
Fiber Check	✓	✓	✓	✓	✓	✓	–
Telnet/SSH	✓	✓	✓	✓	✓	✓	–
TFTP	✓	✓	✓	✓	✓	✓	–
Redundancy Protocols							
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓	–
MRP	✓	✓	✓	✓	✓	✓	–
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓	–
Security							
HTTPS/SSL	✓	✓	✓	✓	✓	✓	–
TACACS+/RADIUS	✓	✓	✓	✓	✓	✓	–
MAC Sticky	✓	✓	✓	✓	✓	✓	–
MAB Authentication	✓	✓	✓	✓	✓	✓	–
IEEE 802.1X	✓	✓	✓	✓	✓	✓	–
Access Control List	✓	✓	✓	✓	✓	✓	–
Power Parameters							
Input Voltage	110 to 220 VAC, Redundant dual inputs						–
Physical Characteristics							
Installation	Rack mounting						–
Environmental Limits							
Operating Temperature	-10 to 60°C (14 to 140°F)						–
Standards and Certifications							
EMI	CISPR 32, FCC Part 15B Class A						–
Safety	EN 61010-2-201, UL 61010-2-201						–
Railway	EN 50121-4						–

Rackmount Managed Switches

Product Series	ICS-G7828A	ICS-G7826A	ICS-G7528A	ICS-G7526A
Ethernet Interface				
Max. Number of Ports	28	26	28	26
10GbE SFP+ Slots	4	2	4	2
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	4	4	4	4
10/100/1000BaseT(X) Ports (RJ45 Connector) or 100/1000BaseSFP Slots	20	20	20	20
Filter				
IGMP v1/v2/v3	✓	✓	✓	✓
802.1p Class of Service	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓
Industrial Protocols				
EtherNet/IP	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓
PROFINET	✓	✓	✓	✓
Management				
Layer 3 Switching	✓	✓	–	–
DHCP Relay Agent (Option 82)	✓	✓	✓	✓
Port Mirroring	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓
LLDP	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓
TFTP	✓	✓	✓	✓
Redundancy Protocols				
STP/RSTP/MSTP	✓	✓	✓	✓
MRP	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓
Security				
HTTPS/SSL	✓	✓	✓	✓
TACACS+/RADIUS	✓	✓	✓	✓
MAC Sticky	✓	✓	✓	✓
MAB Authentication	✓	✓	✓	✓
IEEE 802.1X	✓	✓	✓	✓
Access Control List	✓	✓	✓	✓
Power Parameters				
Input Voltage	100 to 240 VAC, Redundant dual inputs			
Physical Characteristics				
Installation	Rack mounting			
Environmental Limits				
Operating Temperature	-40 to 75°C (-40 to 167°F)			
Standards and Certifications				
EMI	CISPR 32, FCC Part 15B Class A			
Safety	UL 61010-2-201, EN 61010-2-201, UL 62368-1, IEC 62368-1			
Railway	EN 50121-4			
Traffic Control	NEMA TS2			

Rackmount Managed Switches




Product Series	RKS-G4028	RM-G4000 Modules	IKS-G6824A	IKS-G6524A
	Modular Switch	Modules for RKS-G4028	Switch	Switch
Ethernet Interface				
Max. Number of Ports	28	–	24	24
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	–	–	4	4
10/100/1000BaseT(X) Ports (RJ45 Connector)	Up to 28	RM-G4000-8GPoE/-GTX: 8	Up to 24	Up to 24
Modular Ports (10/100BaseT(X), RJ45 Connector)	Up to 24	RM-G4000-4MSC2TX/-4SSC2TX/-4MST2TX: 2 RM-G4000-2MST4TX/-2SSC4TX/-2MSC4TX: 4 RM-G4000-8TX/-8PoE: 8 RM-G4000-2MSC4TX: 4	–	–
100/1000BaseSFP Ports	Up to 28	RM-G4000-8GSFP: 8	Up to 24	Up to 24
Modular Ports (100BaseSFP)	Up to 24	RM-G4000-8SFP: 8	–	–
Modular Ports (100BaseFX)	Up to 18	RM-G4000-2MST4TX/-2SSC4TX/-2MSC4TX: 2 RM-G4000-4MSC2TX/-4SSC2TX/-4MST2TX: 4 RM-G4000-6SSC/-6MSC/-6MST: 6	–	–
Filter				
IGMP v1/v2/v3	✓	–	✓	✓
802.1p Class of Service	✓	–	✓	✓
802.1Q VLAN	✓	–	✓	✓
Industrial Protocols				
EtherNet/IP/Modbus TCP	✓	–	✓	✓
PROFINET	–	–	✓	✓
MMS	✓	–	–	–
Management				
Layer 3 Switching	L3 models	–	✓	–
DHCP Relay Agent (Option 82)	✓	–	✓	✓
Port Mirroring	✓	–	✓	✓
RMON/SNMPv1/v2c/v3	✓	–	✓	✓
LLDP	✓	–	✓	✓
Fiber Check	✓	–	✓	✓
Telnet/SSH	✓	–	✓	✓
TFTP	✓	–	✓	✓
Redundancy Protocols				
STP/RSTP/MSTP	✓	–	✓	✓
MRP	✓	–	✓	✓
Turbo Ring/Turbo Chain	✓	–	✓	✓
Security				
HTTPS/SSL	✓	–	✓	✓
TACACS+/RADIUS	✓	–	✓	✓
MAC Sticky	✓	–	✓	✓
MAB Authentication	✓	–	✓	✓
IEEE 802.1X	✓	–	✓	✓
Access Control List	✓	–	✓	✓
DHCP Snooping	✓	–	–	–
Dynamic ARP Inspection	✓	–	–	–
IP Source Guard	✓	–	–	–
Time Management				
IEEE 1588v2 PTP (Hardware-based)	✓	–	–	–
Power Parameters				
Input Voltage	24/48 VDC, 110/220 VAC, 110/220 VDC, Redundant power supplies PoE models: 48 VDC	–	110 to 240 VAC, Redundant dual inputs	
Physical Characteristics				
Installation	Rack mounting	–	Rack mounting	
Environmental Limits				
Operating Temperature	-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)	
Standards and Certifications				
EMI	CISPR 32, FCC Part 15B Class A	–	CISPR 32, FCC Part 15B Class A	
Safety	EN 62368-1, UL 62368-1, UL 61010	–	UL 62368-1, IEC 62368-1, UL 61010-2-201, EN 61010-2-201	
Railway	EN 50121-4	–	EN 50121-4	
Traffic Control	NEMA TS2	–	NEMA TS2	
Power Substation	IEC 61850-3, IEEE 1613	–	–	–
Industrial Cybersecurity	IEC 62443-4-1, IEC 62443-4-2	–	–	–

Rackmount Managed Switches



Product Series	IKS-6728A	IKS-6726A	IM-6700A Modules
	Modular Switch	Modular Switch	Modules for IKS-6700A
Ethernet Interface			
Max. Number of Ports	28	26	–
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	4	2	–
10/100BaseT(X) Ports (RJ45 Connector)	Up to 24	Up to 24	IM-6700A-2MSC4TX/-2MST4TX/-2SSC4TX: 4 IM-6700A-4MST2TX/-4SSC2TX/-4MSC2TX: 2 IM-6700A-8TX/-8PoE: 8
Modular Ports (100BaseSFP)	Up to 16	Up to 16	IM-6700A-8SFP: 8
Modular Ports (100BaseFX)	Up to 12	Up to 12	IM-6700A-2MSC4TX/-2MST4TX/-2SSC4TX: 2 IM-6700A-4MST2TX/-4SSC2TX/-4MSC2TX: 4 IM-6700A-6MSC/-6SSC/-6MST: 6
Filter			
IGMP v1/v2/v3	✓	✓	–
802.1p Class of Service	✓	✓	–
802.1Q VLAN	✓	✓	–
Industrial Protocols			
EtherNet/IP/Modbus TCP	✓	✓	–
PROFINET	✓	✓	–
Management			
Layer 3 Switching	–	–	–
DHCP Relay Agent (Option 82)	✓	✓	–
Port Mirroring	✓	✓	–
RMON/SNMPv1/v2c/v3	✓	✓	–
LLDP	✓	✓	–
Fiber Check	✓	✓	–
Telnet/SSH	✓	✓	–
TFTP	✓	✓	–
Redundancy Protocols			
STP/RSTP/MSTP	✓	✓	–
MRP	✓	✓	–
Turbo Ring/Turbo Chain	✓	✓	–
Security			
HTTPS/SSL	✓	✓	–
TACACS+/RADIUS	✓	✓	–
MAC Sticky	✓	✓	–
MAB Authentication	✓	✓	–
IEEE 802.1X	✓	✓	–
Access Control List	✓	✓	–
Power Parameters			
Input Voltage	24 VDC, 48 VDC, 110/220 VAC, Redundant dual inputs		–
Physical Characteristics			
Installation	Rack mounting		–
Environmental Limits			
Operating Temperature	-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		–
Railway	EN 50121-4		–
Maritime	Non-PoE models: ABS, CCS, DNV, LR, NK	ABS, DNV, LR, NK	–

Rackmount Managed Switches

Product Series	PT-G7828	PT-G7728	LM-7000H Modules	PT-7528	PM-7500 Modules
	Modular Switch	Modular Switch	Modules for PT-G7000/ MDS-G4000(-4XGS)	Switch With Module Slot	Modules for PT-7528
Ethernet Interface					
Max. Number of Ports	28	28	-	28	–
10/100/1000BaseT(X) Ports (RJ45 Connector)	Up to 26	Up to 26	LM-7000H-4GTX: 4	–	–
100/1000BaseSFP Slots	Up to 26	Up to 26	LM-7000H-4GSFP: 4	Up to 4 (1000BaseSFP slots only)	–
10/100BaseT(X) Ports (RJ45 Connector)	Up to 26	Up to 24	LM-7000H-4TX: 4	Up to 24	–
100BaseFX Ports (SC or ST Connector)	–	–	–	Up to 20	PM-7500-2MSC/-2MST/-2SSC: 2 PM-7500-4MSC/-4MST/-4SSC: 4
Combo Ports (100/1000BaseT(X) PRP/HSR or 100/1000BaseSFP PRP/ HSR)	–	Up to 2	LM-7000H-2GPHR: 2 (for PT-G7728 only)	–	–
Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	–	–	–	–	PM-7500-2GTXSFP: 2 PM-7500-4GTXSFP: 4
PoE Ports (10/100BaseT(X), RJ45 Connector)	Up to 24	Up to 24	LM-7000H-4PoE: 4	–	–
PoE Ports (100/1000BaseT(X), RJ45 Connector)	Up to 24	Up to 24	LM-7000H-4GPoE: 4	–	–
Filter					
IGMP v1/v2/v3	✓	✓	–	✓	–
802.1p Class of Service	✓	✓	–	✓	–
802.1Q VLAN	✓	✓	–	✓	–
Management					
Layer 3 Switching	✓	–	–	–	–
DHCP Relay Agent (Option 82)	✓	✓	–	✓	–
Port Mirroring	✓	✓	–	✓	–
SNMPv1/v2c/v3	✓	✓	–	✓	–
LLDP	✓	✓	–	✓	–
Fiber Check	✓	✓	–	✓	–
Telnet	✓	✓	–	✓	–
TFTP	✓	✓	–	✓	–
Dying Gasp	✓	✓	–	–	–
Redundancy Protocols					
STP/RSTP/MSTP	✓	✓	–	✓	–
MRP	–	✓	–	–	–
Turbo Ring/Turbo Chain	✓	✓	–	✓	–
PRP/HSR	–	✓	–	–	–
Security					
TACACS+/RADIUS	✓	✓	–	✓	–
Port Lock	✓	✓	–	✓	–
MAC Sticky	✓	✓	–	–	–
Broadcast Storm Protection	✓	✓	–	✓	–
MAB Authentication	✓	✓	–	–	–
Access Control List	✓	✓	–	–	–
Time Management					
SNTP, NTP Server/Client	✓	✓	–	✓	–
IEEE 1588v2 PTP (Hardware-based)	✓	✓	–	–	–
Power Parameters					
24/48 VDC	✓	✓	–	✓	–
110/220 VDC/VAC	✓	✓	–	✓	–
Power Module Slots	2 (hot-swappable)	2 (hot-swappable)	–	–	–
Environmental Limits					
Operating Temperature	-40 to 85°C (-40 to 185°F) With LM-7000H-2GPHR module installed: -40 to 75°C				
Standards and Certifications					
EMI	CISPR 32, FCC Part 15B Class A		–	CISPR 32, FCC Part 15B Class A	–
Safety	IEC 62368-1, UL 62368-1		–	UL 508	–
Railway	EN 50121-4		–	EN 50121-4	–
Power Substation	IEC 61850-3 Edition 2.0 Class 2, IEEE 1613		–	IEC 61850-3, IEEE 1613	–

PoE Switches









Product Series	RKS-G4028-PoE	IKS-6728A-8PoE	EDS-G4012-8P	EDS-4012-8P	EDS-4008-4P	EDS-G512E-8PoE	EDS-P510A-8PoE	EDS-P510	EDS-P506E-4PoE
Ethernet Interface									
Max. Number of Ports	28	28	12	12	8	12	10	10	6
PoE Ports (10/100/1000BaseT(X), RJ45 Connector)	Up to 24	–	8	–	–	8	–	–	–
PoE Ports (10/100BaseT(X), RJ45 Connector)	Up to 24	Up to 24	–	8	4	–	8	4	4
Filter									
802.1p Class of Service	✓	✓	✓	✓	✓	✓	✓	✓	✓
802.1Q VLAN	✓	✓	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3 Snooping	✓	✓	✓	✓	✓	✓	v1/v2 only	v1/v2 only	✓
Industrial Protocols									
EtherNet/IP/Modbus TCP	✓	✓	✓	✓	✓	✓	✓	✓	✓
PROFINET	–	✓	✓	✓	✓	✓	–	–	✓
MMS	✓	–	–	–	–	–	–	–	–
Management									
DHCP Relay Agent (Option 82)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Port Mirroring	✓	✓	✓	✓	✓	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓	✓	✓	✓
Redundancy Protocols									
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓	✓	✓	✓
MRP	✓	✓	✓	✓	✓	✓	–	–	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓	✓	✓	✓
Security									
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓	✓	✓
TACACS+/RADIUS	✓	✓	✓	✓	✓	✓	✓	✓	✓
MAB Authentication	✓	✓	✓	✓	✓	✓	–	–	✓
IEEE 802.1X	✓	✓	✓	✓	✓	✓	✓	✓	✓
MAC Sticky	✓	✓	✓	✓	✓	✓	–	–	✓
Access Control List	✓	✓	✓	✓	✓	✓	–	–	✓
Power Over Ethernet									
IEEE 802.3af/at	✓	✓	✓	✓	✓	✓	✓	802.3af only	✓
IEEE 802.3bt	✓	–	✓	✓	✓	–	–	–	–
Force Mode	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total Power Budget (Max.)	300 W	720 W	240 W	240 W	240 W	240 W	240 W	61.6 W	180 W
Each PoE Port (Max.)	90 W	36 W	90 W	90 W	90 W	36 W	36 W	15.4 W	60 W
Input Voltage									
12/24/48 VDC	–	–	-LVB/-LVB-T models			–	–	–	✓
48 VDC	✓	✓	-LVA/-LVA-T models			✓	✓	✓	–
Physical Characteristics									
Installation	Rack mounting		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					FCC Part 15B Class A	CISPR 32, FCC Part 15B Class A		
Safety	EN 62368-1, UL 62368-1, UL 61010	EN 60950-1, UL 60950-1	UL 61010-2-201, EN 62368-1			UL 508, EN 62368-1	UL 508	UL 508, EN 62368-1	UL 61010-2-201, EN 61010-2-201
Hazardous Locations	–						CID2	–	
Railway	EN 50121-4							–	EN 50121-4
Traffic Control	NEMA TS2	–	NEMA TS2			–	NEMA TS2	–	NEMA TS2
Power Substation	IEC 61850-3, IEEE 1613	–	IEC 61850-3, IEEE 1613 Class 1			IEC 61850-3, IEEE 1613	–		IEC 61850-3, IEEE 1613
Maritime	–	–	ABS, DNV, LR, NK			–	–	ABS, DNV, LR, NK	–

PoE Switches

Preliminary | Preliminary | Preliminary | Preliminary

Product Series	SDS-G3010-8PoE	SDS-G3006-4PoE	SDS-3010-8PoE	SDS-3006-4PoE	EDS-G205A-4PoE	EDS-P206A-4PoE
Ethernet Interface						
Max. Number of Ports	10	6	10	6	5	6
PoE Ports (10/100/1000BaseT(X), RJ45 Connector)	8	4	–	–	4	–
PoE Ports (10/100BaseT(X), RJ45 Connector)	–	–	8	4	–	4
Filter						
802.1p Class of Service	Fixed Profiles				–	–
802.1Q VLAN	✓	✓	✓	✓	–	–
IGMP v1/v2/v3 Snooping	Enabled via EtherNet/IP function				–	–
Industrial Protocols						
EtherNet/IP	✓	✓	✓	✓	–	–
Modbus TCP	✓	✓	✓	✓	–	–
PROFINET	✓	✓	✓	✓	–	–
Management						
Port Mirroring	✓	✓	✓	✓	–	–
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	–	–
Syslog	✓	✓	✓	✓	–	–
Fiber Check	✓	✓	✓	✓	–	–
TFTP	✓	✓	✓	✓	–	–
Redundancy Protocols						
STP/RSTP	✓	✓	✓	✓	–	–
MRP	✓	✓	✓	✓	–	–
Security						
HTTPS	✓	✓	✓	✓	–	–
Power Over Ethernet						
IEEE 802.3af/at	✓	✓	✓	✓	✓	✓
Force Mode	✓	✓	✓	✓	–	–
Total Power Budget (Max.)	240 W	120 W	240 W	120 W	144 W	120 W
Each PoE Port (Max.)	30 W	30 W	30 W	30 W	36 W	30 W
Power Parameters						
12/24 VDC	–	–	–	–	✓	✓
12/24/48 VDC	–	✓	–	✓	–	–
48 VDC	✓	–	✓	–	✓	✓
Physical Characteristics						
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 61010-2-201, EN 62368-1				UL 508, EN 62368-1	UL 508
Railway	-				EN 50121-4	-

PoE Switches

Product Series	MDS-G4028-4XGS	MDS-G4020-4XGS	MDS-G4012-4XGS	MDS-G4028	MDS-G4020	MDS-G4012
Ethernet Interface						
Max. Number of Ports	28	20	12	28	20	12
10GbE SFP+ Slots	4	4	4	–	–	–
PoE Ports (10/100/1000BaseT(X), RJ45 Connector)	Up to 24	Up to 16	Up to 8	Up to 24	Up to 16	Up to 8
PoE Ports (10/100BaseT(X), RJ45 Connector)	Up to 24	Up to 16	Up to 8	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/MMS	✓	✓	✓	✓	✓	✓
Management						
DHCP Relay Agent (Option 82)	✓	✓	✓	✓	✓	✓
Port Mirroring	✓	✓	✓	✓	✓	✓
RMON/SNMPv1/v2c/v3	✓	✓	✓	✓	✓	✓
Syslog	✓	✓	✓	✓	✓	✓
Fiber Check	✓	✓	✓	✓	✓	✓
Telnet/SSH	✓	✓	✓	✓	✓	✓
TFTP	✓	✓	✓	✓	✓	✓
Redundancy Protocols						
Layer 3 Switching	L3 models only					
STP/RSTP/MSTP	✓	✓	✓	✓	✓	✓
MRP	✓	✓	✓	✓	✓	✓
Turbo Ring/Turbo Chain	✓	✓	✓	✓	✓	✓
Security						
HTTPS/SSL	✓	✓	✓	✓	✓	✓
TACACS+/RADIUS	✓	✓	✓	✓	✓	✓
MAB Authentication	✓	✓	✓	✓	✓	✓
IEEE 802.1X	✓	✓	✓	✓	✓	✓
MAC Sticky	✓	✓	✓	✓	✓	✓
Access Control List	✓	✓	✓	✓	✓	✓
DHCP Snooping	✓	✓	✓	✓	✓	✓
Dynamic ARP Inspection	✓	✓	✓	✓	✓	✓
IP Source Guard	✓	✓	✓	✓	✓	✓
Time Management						
IEEE 1588v2 PTP (Hardware-based)	✓	✓	✓	–	–	–
Power Over Ethernet						
IEEE 802.3af/at	✓	✓	✓	✓	✓	✓
Force Mode	✓	✓	✓	✓	✓	✓
Total Power Budget (Max.)	720 W					
Each PoE Port (Max.)	36 W					
Power Parameters						
Input Voltage	48 VDC					
Physical Characteristics						
Installation	DIN-rail mounting, Wall mounting (with optional kit), Rack 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					
Safety	EN 62368-1, IEC 62368-1, UL 62368-1, IEC 60950-1, UL 61010-2-201, EN 61010-2-201			EN 62368-1, IEC 62368-1, UL 62368-1, IEC 60950-1		
Hazardous Locations	–			ATEX, CID2		
Railway	EN 50121-4					
Traffic Control	NEMA TS2					
Power Substation	IEC 61850-3, IEEE 1613					

EN 50155 Ethernet Switches

Product Series	TN-4512A	TN-4516A	TN-4516A-PoE	TN-4516A-PoE-ODC	TN-4520A-PoE	TN-4524A-PoE	TN-4528A-PoE	TN-4528A-PoE-ODC
Ethernet Interface								
Max. Number of Ports	12	16	16	16	20	24	28	28
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector)	–	Up to 4	–	–	–	–	–	–
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector With Bypass Relay)	–	Up to 4	Up to 2	–	–	–	Up to 2	–
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	12	Up to 16	–	–	–	8	8	8
PoE Ports (100/1000BaseT(X), M12 X-coded 8-pin Female Connector)	–	–	Up to 4	2	4	–	Up to 4	2
PoE Ports (10/100BaseT(X), M12 D-coded 4-pin Female Connector)	–	–	12	12	16	16	16	16
10/100/1000BaseT(X) Ports (Q-ODC Fiber Connector)	–	–	–	2	–	–	–	2
Filter								
802.1Q	✓	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓	✓	✓	✓	✓
Port-based VLAN	✓	✓	✓	✓	✓	✓	✓	✓
Static Multicast	✓	✓	✓	✓	✓	✓	✓	✓
Management								
DHCP Option 66/67/82	✓	✓	✓	✓	✓	✓	✓	✓
IPv4/IPv6	✓	✓	✓	✓	✓	✓	✓	✓
QoS/CoS/ToS	✓	✓	✓	✓	✓	✓	✓	✓
DNS Server	✓	✓	✓	✓	✓	✓	✓	✓
Redundancy Protocols								
MSTP	✓	✓	✓	✓	✓	✓	✓	✓
RSTP	✓	✓	✓	✓	✓	✓	✓	✓
Turbo Ring V2	✓	✓	✓	✓	✓	✓	✓	✓
Turbo Ring With DRC	✓	✓	✓	✓	✓	✓	✓	✓
Port Trunk	✓	✓	✓	✓	✓	✓	✓	✓
Security								
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓	✓	✓	✓	✓
Port Lock	✓	✓	✓	✓	✓	✓	✓	✓
Time Management								
NTP Server/Client	✓	✓	✓	✓	✓	✓	✓	✓
SNTP	✓	✓	✓	✓	✓	✓	✓	✓
Power Parameters								
Input Voltage	24/36/48/72/96/110 VDC, Redundant dual inputs							
Power Connector	M23 connector							
Total PoE Power Budget	–	120 W						
Physical Characteristics								
IP Rating	IP42							
Protection	-CT models: PCB conformal coating							
Environmental Limits								
Operating Temperature	-40 to 70°C (-40 to 158°F)							
Standards and Certifications								
Railway	EN 50121-4, EN 50155, IEC 60571							
Railway Fire Protection	EN 45545-2							

EN 50155 Ethernet Switches

Product Series	TN-G4500	TN-G6500	TN-5508A	TN-5508A-PoE	TN-5510A	TN-5510A-PoE	TN-5510A-PoE-ODC
Ethernet Interface							
Max. Number of Ports	16	12	8	8	10	10	10
10GBaseT(X) Ports (M12 X-coded 8-pin Female Connector With Bypass Relay)	Up to 2	–	–	–	–	–	–
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector)	4	4	–	–	Up to 2	Up to 2	–
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector With Bypass Relay)	–	–	–	–	Up to 2	Up to 2	–
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	–	–	8	–	8	–	Up to 8
PoE Ports (10GBaseT(X), M12 X-coded 8-pin Female Connector)	Up to 4	–	–	–	–	–	–
PoE Ports (100/1000BaseT(X), M12 X-coded 8-pin Female Connector)	8	8	–	–	–	–	–
PoE Ports (10/100BaseT(X), M12 D-coded 4-pin Female Connector)	–	–	–	8	–	8	Up to 8
10/100/1000BaseT(X) Ports (Q-ODC Fiber Connector)	–	–	–	–	–		2
Filter							
802.1Q	✓	✓	✓	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓	✓	✓	✓
Port-based VLAN	✓	✓	✓	✓	✓	✓	✓
Static Multicast	✓	✓	✓	✓	✓	✓	✓
Management							
DHCP Option 66/67/82	✓	✓	✓	✓	✓	✓	✓
IPv4/IPv6	✓	✓	✓	✓	✓	✓	✓
QoS/CoS/ToS	✓	✓	✓	✓	✓	✓	✓
DNS Server	✓	✓	–	–	–	–	–
Redundancy Protocols							
MSTP	✓	✓	✓	✓	✓	✓	✓
RSTP	✓	✓	✓	✓	✓	✓	✓
Turbo Ring V2	✓	✓	✓	✓	✓	✓	✓
Turbo Ring With DRC	✓	✓	✓	✓	✓	✓	✓
Port Trunk	✓	✓	✓	✓	✓	✓	✓
Security							
HTTPS/SSL	✓	✓	✓	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓	✓	✓	✓
Port Lock	✓	✓	✓	✓	✓	✓	✓
Time Management							
NTP Server/Client	✓	✓	✓	✓	✓	✓	✓
SNTP	✓	✓	✓	✓	✓	✓	✓
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	–	120 W	120 W
Physical Characteristics							
IP Rating	IP40	IP67	IP54				
Protection	-CT models: PCB conformal coating						
Environmental Limits							
Operating Temperature	-40 to 70°C (-40 to 158°F)		-40 to 75°C (-40 to 167°F)				
Standards and Certifications							
Railway	EN 50121-4, EN 50155, IEC 60571		EN 50121-4, EN 50155				
Railway Fire Protection	EN 45545-2						

EN 50155 Ethernet Switches

Product Series	TN-5516A	TN-5516A-PoE	TN-5518A	TN-5518A-PoE
Ethernet Interface				
Max. Number of Ports	16	16	18	18
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector)	–	–	Up to 2	Up to 2
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector With Bypass Relay)	–	–	Up to 2	Up to 2
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	16	8	16	8
PoE Ports (10/100BaseT(X), M12 D-coded 4-pin Female Connector)	–	8	–	8
10/100/1000BaseT(X) Ports (Q-ODC Fiber Connector)	–	–	–	–
Filter				
802.1Q	✓	✓	✓	✓
IGMP v1/v2/v3	✓	✓	✓	✓
Port-based VLAN	✓	✓	✓	✓
Static Multicast	✓	✓	✓	✓
Management				
DHCP Option 66/67/82	✓	✓	✓	✓
IPv4/IPv6	✓	✓	✓	✓
QoS/CoS/ToS	✓	✓	✓	✓
DNS Server	✓	✓	✓	✓
Redundancy Protocols				
MSTP	✓	✓	✓	✓
RSTP	✓	✓	✓	✓
Turbo Ring V2	✓	✓	✓	✓
Turbo Ring With DRC	✓	✓	✓	✓
Port Trunk	✓	✓	✓	✓
Security				
HTTPS/SSL	✓	✓	✓	✓
TACACS+	✓	✓	✓	✓
RADIUS	✓	✓	✓	✓
Port Lock	✓	✓	✓	✓
Time Management				
NTP Server/Client	✓	✓	✓	✓
SNTP	✓	✓	✓	✓
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	-CT models: PCB conformal coating			
Environmental Limits				
Operating Temperature	-40 to 75°C (-40 to 167°F)			
Standards and Certifications				
Railway	EN 50121-4, EN 50155			
Railway Fire Protection	EN 45545-2			

EN 50155 Ethernet Switches

Product Series	TN-5305A	TN-5308A	TN-5308A-PoE
Ethernet Interface			
Max. Number of Ports	5	8	8
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	5	8	–
PoE Ports (10/100BaseT(X), M12 D-coded 4-pin Female Connector)	–	–	8
Power Parameters			
Input Voltage	24/36/48/72/96/110 VDC, Redundant dual inputs		
Power Connector	M12 4-pin A-coded male connector		
Total PoE Power Budget	–	–	50.2 W
Physical Characteristics			
IP Rating	IP54		
Protection	-CT models: PCB conformal coating		
Environmental Limits			
Operating Temperature	-40 to 70°C (-40 to 158°F)		
Standards and Certifications			
Railway	EN 50121-4, EN 50155, IEC 60571		
Railway Fire Protection	EN 45545-2		

Secure Routers

With security-hardened functions based on the IEC 62443-4-2 cybersecurity standard, our secure routers are the premier solution in the railway and automation industries, facilitating data connectivity and offering advanced security features, such as an intrusion prevention system (IPS), intrusion detection system (IDS), and deep packet inspection (DPI), to ensure the highest level of industrial network security.
Additionally, Moxa offers IEC 61375-2-5 Ethernet routers that can handle traffic between Ethernet Train Backbones (ETB) and Ethernet Consist Networks (ECN).

Secure Routers Product Pages

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Secure Routers

Moxa's EDR Series industrial secure routers protect the control networks of critical facilities while maintaining fast data transmission. They are specifically designed for automation networks and are integrated cybersecurity solutions that combine an industrial firewall, VPN, router, and L2 switching functions into a single product that protects the integrity of remote access and critical devices.

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EN 50155 Routers

TN Series routers are designed for rolling stock backbone networks and include high-performance M12 routers with four bypass relay backbone ports. These routers feature firewall, ETBN, and routing functionality to facilitate the deployment of applications across networks.

Secure Routers

Preliminary

Product Series	EDR-G9010	EDR-G9004	EDR-8010	EDR-810	NAT-102
Input/Output Interface					
Alarm Contact Channels	Resistive load: 1 A @ 24 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					
10/100/1000BaseT(X) Ports (RJ45 Connector)	8	2 (with Gen3 LAN Bypass)	–	–	–
1000BaseSFP Slots	2	–	2	–	–
Combo Ports (10/100/1000BaseT(X) or 1000BaseSFP)	–	2	–	–	–
10/100BaseT(X) Ports (RJ45 Connector)	–	–	8	8	2
100/1000BaseSFP Slots	–	–	–	2	–
Ethernet Software Features					
Redundancy Protocols	RSTP, STP, Turbo Ring v2	–	RSTP, STP, Turbo Ring v2		–
Routing (Based on RFC 2544)	Max. 350K packets per second / 2 Gbps		Max. 50K packets per second / 500 Mbps	Max. 10K packets per second / 100 Mbps	Max. 15K packets per second / 100 Mbps
Routing Redundancy	VRRP				–
Unicast Routing	OSPF, RIPv1/v2, Static Route				Static Route
DoS and DDoS Protection					
Technology	ARP-Flood, FIN Scan, ICMP-Flood, TCP Sessions Without SYN, NMAP-ID Scan, NMAP-Xmas Scan, Null Scan, SYN/FIN Scan, SYN/RST Scan SYN-Flood, Xmas Scan				–
Firewall					
Filter	DDoS, Ethernet protocols, ICMP, IP address, MAC address, Ports				IP address, MAC address
Deep Packet Inspection[1]	DNP3, EtherNet/IP, IEC 60870-5-104, IEC 61850 MMS, Modbus TCP, Modbus UDP, Omron FINS, Siemens S7 Comm.			Modbus TCP, Modbus UDP	–
Intrusion Prevention System	Requires an additional license			–	
Throughput (Based on RFC 2544)	Max. 350K packets per second / 2 Gbps		Max. 50K packets per second / 500 Mbps	Max. 10K packets per second / 100 Mbps	Max. 15K packets per second / 100 Mbps
IPsec VPN					
Concurrent VPN Tunnels	Max. 250 IPsec VPN tunnels		Max. 50 IPsec VPN tunnels	EDR-810-VPN-2GSFP models: Max. 10 IPsec VPN tunnels	–
Throughput (Based on RFC 2544)	Max. 300 Mbps (Conditions: AES-256, SHA-256)		Max. 200 Mbps (Conditions: AES-256, SHA-256)	EDR-810-VPN-2GSFP models: Max. 17 Mbps (Conditions: AES-256, SHA-256)	–
NAT					
Features	1-to-1, N-to-1, NAT loopback, Port forwarding			1-to-1, N-to-1, Port forwarding	1-to-1, N-to-1, Port forwarding, NAT loopback
Power Parameters					
Input Voltage	-LV models: 12/24/48 VDC (DNV certified for 24 VDC) -HV models: 120/240 VDC/VAC	12/24/48 VDC		12 to 48 VDC	12/24/48 VDC
Physical Characteristics					
Dimensions	-LV models: 58 x 135 x 105 mm (2.28 x 5.31 x 4.13 in) -HV models: 64 x 135 x 105 mm (2.52 x 5.31 x 4.13 in)	45 x 135 x 105 mm (1.77 x 5.31 x 4.13 in)		53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)	20 x 90 x 73 mm (0.79 x 3.54 x 2.87 in)
Weight	-LV models: 1,030 g (2.27 lb) -HV models: 1,150 g (2.54 lb)	750 g (1.65 lb)	520 g (1.15 lb)	830 g (2.10 lb)	210 g (0.47 lb)
Installation	DIN-rail mounting (DNV certified), Wall mounting (with optional kit)				DIN-rail mounting, Wall mounting (with optional kit)
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) EDR-G9010-VPN-2MGSFP(-T) models: DNV certified for -25 to 70°C (-13 to 158°F)	Standard models: -10 to 60°C (14 to 140°F) Wide temp. models: -40 to 75°C (-40 to 167°F) All models: DNV certified for -25 to 70°C (-13 to 158°F)			Standard models: -10 to 60°C (14 to 140°F) Wide temp. models: -40 to 75°C (-40 to 167°F)
Standards and Certifications					
Industrial Cybersecurity	IEC 62443-4-1, IEC 62443-4-2	–		IEC 61162-460	–
Railway	-LV models: EN 50121-4	EN 50121-4			
Traffic Control	-LV models: NEMA TS2	NEMA TS2			
Maritime	-LV models: IEC 60945, DNV	IEC 60945, DNV		DNV	–
Power Substation	IEEE 1613, IEC 61850-3 Edition 2.0			–	
Hazardous Locations	-LV models: ATEX, CID2	ATEX, CID2	ATEX, CID2, IECEx	ATEX, CID2	

[1] Additional protocols will be supported through future firmware updates.

EN 50155 Secure Routers

Product Series	TN-4908	TN-4908-4GTX	TN-4908-8GTX	TN-4908-4GPoE-4GTX	TN-4916-4GTX	TN-4916-12PoE-4GTX	TN-4916-8PoE-4GPoE-4GTX
Ethernet Interface							
Max. Number of Ports	8	8	8	8	16	16	16
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	Up to 8	4	–	–	12	–	–
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector With Bypass Relay)	Up to 4	–	–	–	–	–	–
PoE Ports (10/100BaseT(X), M12 D-coded 4-pin Female Connector)	–	–	–	–	–	12	8
PoE Ports (100/1000BaseT(X), M12 X-coded 8-pin Female Connector)	–	–	–	4	–	–	4
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector)	–	Up to 4	Up to 8	Up to 4	Up to 4	Up to 4	Up to 4
10/100/1000BaseT(X) Ports (M12 X-coded 8-pin Female Connector With Bypass relay)	–	Up to 4	Up to 4	Up to 4	Up to 4	Up to 4	Up to 4
Ethernet Software Features							
ETBN	Optional						
Filter	IGMP v1/v2, Static Multicast, 802.1Q						
Management	Back Pressure Flow Control, SNMP Inform, LLDP, Syslog, HTTP, HTTPS, Flow control, SMTP, QoS/CoS/ToS, Port Mirror, SNMP Trap, SNMPv1/v2c/v3, IPv4, Telnet, DHCP Server, SFTP, SCP, TFTP, RARP, Account Management						
Redundancy Protocols	RSTP, Static Port Trunk, Turbo Ring v2, STP						
Routing Redundancy	VRRP						
Security	Secure Boot, IPsec, L2TP (server), RADIUS, Trust access control						
Unicast Routing	RIPv1/v2, OSPF, Static Route						
Deep Packet Inspection	TRDP						
DoS and DDoS Protection							
Technology	NMAP-ID Scan, ARP-Flood, SYN/FIN Scan, Null Scan, ICMP-Flood, FIN Scan, SYN-Flood, TCP Sessions Without SYN, Xmas Scan, NMAP-Xmas Scan, SYN/RST Scan						
Firewall							
Filter	ICMP, MAC address, Ethernet protocols, Ports, IP address, DDoS						
Intrusion Prevention System	Requires an additional license						
Throughput	Max. 350K packets per second						
IPsec VPN							
Authentication	MD5 and SHA (SHA-256), RSA (key size: 1024-bit, 2048-bit), X.509 v3 certificate						
Concurrent VPN Tunnels	Max. 250 IPsec VPN tunnels						
NAT							
Features	1-to-1, N-to-1, Port forwarding						
Serial Interface							
Console Port	RS-232 (M12 B-coded 5-pin female connector)						
Power Parameters							
Input Voltage	24/36/48/72/96/110 VDC, Redundant dual inputs						
Power Connector	M12 K-coded 5-pin male connector						
Total PoE Power Budget	–	–	–	50 W	–	95 W	95 W
Physical Characteristics							
Dimensions	160 x 115 x 70 mm (6.30 x 4.53 x 2.76 in)			160 x 115 x 100 mm (6.30 x 4.53 x 3.94 in)	206 x 115 x 100 mm (8.10 x 4.53 x 3.94 in)		
IP Rating	IP40						
Installation	Wall mounting						
Protection	PCB conformal coating						
Environmental Limits							
Operating Temperature	-40 to 70°C (-40 to 158°F)						
Standards and Certifications							
EMC	EN 55032, EN 55035						
EMI	CISPR 32, FCC Part 15B Class A						
Industrial Cybersecurity	IEC 62443-4-1, IEC 62443-4-2						
Railway	EN 50121-4, EN 50155, IEC 60068-2-1, IEC 60068-2-14, IEC 60068-2-2, IEC 60068-2-30, IEC 60068-2-78, IEC 60571						
Railway Fire Protection	EN 45545-2						
Safety	IEC 62368, UL 62368						

Wireless AP/Bridge/Client

Moxa's industrial WLAN AP/bridge/client product portfolios are designed to overcome the challenges of harsh industrial environments. High electromagnetic immunity protects devices against electromagnetic disturbances, power isolation guards them against voltage instability, while wide temperature ranges and shock and vibration resistance ensure reliable operation even in difficult environments.

Wireless AP/Bridge/Client Product Pages

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, empowering you to deploy reliable train-control operations, video surveillance, and helpful onboard multimedia services that enhance the safety and comfort of your passengers.

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Rail Wireless Access Controller

Zero-latency roaming allows 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.

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WLAN AP/Bridge/Client




Product Series	AWK-1137C	AWK-1131A	AWK-3131A	AWK-4131A
WLAN Interface				
WLAN Standards	802.11a/b/g/n			
Wireless Security	WPA/WPA2			
Transmission Rate	802.11b: 1 to 11 Mbps 802.11a/g: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps			
WLAN Operation Mode	Client, Client-router, Slave, Sniffer	Access point, Client, Sniffer	Access point, Client, Client-router, Master, Slave, Sniffer	
Antenna	External, 2/2 dBi, Omnidirectional			External, 3/6 dBi, Omnidirectional
Antenna Connectors	2 x RP-SMA (female)			2 x N-type (female)
Ethernet Interface				
10/100BaseT(X) Ports (RJ45 Connector)	2	–	–	–
10/100/1000BaseT(X) Ports (RJ45 Connector)	–	1	–	–
PoE Ports (10/100/1000BaseT(X), RJ45 Connector)	–	–	1	1
LED Interface				
LED Indicators	SYS, LAN1, LAN2, WLAN, Serial	PWR, FAULT, STATE, SIGNAL, WLAN, LAN	PWR1, PWR2, PoE, FAULT, STATE, SIGNAL, WLAN, LAN	PWR, FAULT, STATE, WLAN, LAN
Input/Output Interface				
Digital Inputs	–	–	✓	✓
Physical Characteristics				
Housing	Metal			
IP Rating	IP30			IP68
Dimensions	77.1 x 115.5 x 26 mm (3.04 x 4.55 x 1.02 in)	58 x 115 x 70 mm (2.29 x 4.53 x 2.76 in)	52.7 x 135 x 105 mm (2.08 x 5.32 x 4.13 in)	224 x 147.7 x 66.5 mm (8.82 x 5.82 x 2.62 in)
Weight	470 g (1.03 lb)	307 g (0.68 lb)	860 g (1.9 lb)	1,400 g (3.09 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)			Wall mounting (standard) DIN-rail mounting (optional) Pole mounting (optional)
Power Parameters				
Input Voltage	9 to 30 VDC	12 to 48 VDC	12 to 48 VDC PoE: 48 VDC Redundant dual inputs	
Power Connector	1 removable 3-contact terminal block	1 removable 4-contact terminal block	1 removable 10-contact terminal block	M12 A-coded 5-pin male connector
Power Consumption	11.7 W (max.)	6.96 W (max.)	7.2 W (max.)	7.68 W (max.)
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)
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 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 A		
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V 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: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V 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: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V 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: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Radio	EN 300 328, EN 301 489-1/17, EN 301 893, FCC ID SLE-1137C, ANATEL, MIC, NCC, SRRC, WPC, KC, RCM	EN 300 328, EN 301 489-1/17, EN 301 893, FCC ID SLE-WAPN008, MIC, NCC, RCM, SRRC, WPC, KC, RCM, ANATEL	EN 300 328, EN 301 489-1/17, EN 301 893, FCC ID SLE-WAPN008, ANATEL, MIC, NCC, RCM, SRRC, WPC, KC, RCM	EN 300 328, EN 301 489-1/17, EN 301 893, FCC ID SLE-WAPN008, ANATEL, MIC, NCC, RCM, SRRC, WPC, KC
Road Vehicles	E mark E1	–		
Safety	EN 60950-1, UL 60950-1			
Vibration	IEC 60068-2-6			
Hazardous Locations	–		ATEX, CID2, IECEx	–

WLAN AP/Bridge/Client



Product Series	AWK-1151C	AWK-3252A	AWK-4252A
WLAN Interface			
WLAN Standards	2.4 GHz: 802.11b/g/n 5 GHz: 802.11a/n/ac Wave 2		
Wireless Security	WPA/WPA2/WPA3		
Transmission Rate	2.4 GHz: 802.11b: 1 to 11 Mbps 802.11g: 6 to 54 Mbps 802.11n: 6.5 to 400 Mbps 5 GHz: 802.11a: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 802.11ac: 6.5 to 867 Mbps		
WLAN Operation Mode	Client, Client-router, Slave, Sniffer	Access point, Client, Client-router, Master, Slave, Sniffer	
Antenna	External, 2/2 dBi, Omnidirectional		External, 3/6 dBi, Omnidirectional
Antenna Connectors	2 x RP-SMA (female)		2 x N-type (female)
Ethernet Interface			
10/100/1000BaseT(X) Ports (RJ45 Connector)	1	1	1
PoE Ports (10/100/1000BaseT(X), RJ45 Connector)	–	1	1
LED Interface			
LED Indicators	PWR, WLAN, SYSTEM, LAN	PWR1, PWR2, PoE, SYS, 2.4G, 5G, LAN	PWR, LAN2, LAN1, 2.4G, 5G, SYS
Physical Characteristics			
Housing	Metal		
IP Rating	IP30		IP68
Dimensions	100 x 130 x 22 mm (3.94 x 5.12 x 0.87 in)	45 x 130 x 100 mm (1.77 x 5.12 x 3.94 in)	66.5 x 157.6 x 244 mm (2.56 x 6.20 x 9.61 in)
Weight	436 g (0.96 lb)	700 g (1.5 lb)	2,024 g (4.7 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)		Wall mounting DIN-rail mounting (with optional kit) Pole mounting (with optional kit)
Power Parameters			
Input Current	9 to 30 VDC, 1.57 to 0.47 A	12 to 48 VDC, 2.2 to 0.5 A	12 to 48 VDC, 2.2 to 0.55 A
Input Voltage	9 to 30 VDC	12 to 48 VDC PoE: 48 VDC Redundant dual inputs	
Power Connector	1 removable 3-contact terminal block	1 removable 10-contact terminal block	M12 A-coded 5-pin male connector
Power Consumption	14 W (max.)	28.4 W (max.)	
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)
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 61000-6-2/-6-4, 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: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V/m IEC 61000-4-8 PFMF: 30 A/m	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: 10 V/m IEC 61000-4-8 PFMF: 30 A/m	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: 10 V/m IEC 61000-4-8 PFMF: 30 A/m
Road Vehicles	E mark E1		–
Safety	IEC 60950-1, IEC 62368-1, UL 62368-1		
Vibration	IEC 60068-2-6		
Radio	EN 300 328, EN 301 489-1/17, EN 301 893, ANATEL, FCC, MIC, NCC, RCM, SRRC, WPC, KC, NBTC, IC		
Industrial Cybersecurity	IEC 62443-4-1, IEC 62443-4-2		
Hazardous Locations	–	ATEX, CID2, IECEx	–

WLAN AP/Bridge/Client

Preliminary

Preliminary

Preliminary

Preliminary

Product Series	AWK-1161C	AWK-1165C	AWK-1161A	AWK-1165A
WLAN Interface				
WLAN Standards	2.4 GHz: 802.11b/g/n/ac/ax 5 GHz: 802.11a/n/ac/ax			
Wireless Security	WPA/WPA2/WPA3			
Transmisson Rate	2.4 GHz: 802.11b: 1 to 11 Mbps 802.11g: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 802.11ax: 6.5 to 574 Mbps 5 GHz: 802.11a: 6 to 54 Mbps 802.11n: 6.5 to 300 Mbps 802.11ac: 6.5 to 867 Mbps 802.11ax: 6.5 to 1201 Mbps			
WLAN Operation Mode	Client, Client-router, Slave, Sniffer		Access point, Master, Sniffer	
Antenna	External, 2/2 dBi, Omnidirectional			
Antenna Connectors	2 x RP-SMA (female)			
Ethernet Interface				
10/100/1000BaseT(X) Ports (RJ45 Connector)	1	5	1	5
LED Interface				
LED Indicators	PWR, WLAN, SYSTEM, LAN			
Physical Characteristics				
Housing	Metal			
IP Rating	IP30			
Dimensions	Standard models: 100 x 60 x 34.2 mm (3.94 x 2.36 x 1.35 in) Wide temp. models: 100 x 60 x 47.2 mm (3.94 x 2.36 x 1.86 in)	Standard models: 100 x 60 x 53 mm (3.94 x 2.36 x 2.09 in) Wide temp. models: 100 x 60 x 66 mm (3.94 x 2.36 x 2.60 in)	Standard models: 100 x 60 x 34.2 mm (3.94 x 2.36 x 1.35 in) Wide temp. models: 100 x 60 x 47.2 mm (3.94 x 2.36 x 1.86 in)	Standard models: 100 x 60 x 53 mm (3.94 x 2.36 x 2.09 in) Wide temp. models: 100 x 60 x 66 mm (3.94 x 2.36 x 2.60 in)
Weight	Standard models: 330 g (0.73 lb) Wide temp. models: 387.5 g (0.85 lb)	Standard models: 428.5 g (0.94 lb) Wide temp. models: 516.5 g (1.14 lb)	Standard models: 330 g (0.73 lb) Wide temp. models: 387.5 g (0.85 lb)	Standard models: 428.5 g (0.94 lb) Wide temp. models: 516.5 g (1.14 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)			
Power Parameters				
Input Voltage	9 to 30 VDC			
Power Connector	1 removable 3-contact terminal block			
Power Consumption	12.6 W	13.8 W	12.6 W	13.8 W
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)			
Storage Temperature (Package Included)	-40 to 85°C (-40 to 185°F)			
Ambient Relative Humidity	5 to 95% (non-condensing)			
Environmental Limits				
EMC	EN 61000-6-2/-6-4, 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: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V/m IEC 61000-4-8 PFMF: 30 A/m			
Road Vehicles	E mark E1			
Safety	IEC 62368-1, UL 62368-1			
Vibration	IEC 60068-2-6			
Radio	EN 300 328, EN 301 489-1/17, EN 301 893, ANATEL, FCC, MIC, NCC, RCM, SRRC, WPC, KC, NBTC, IC			

Railway Wireless LAN

Product Series	TAP-213	TAP-323	AWK-3131A-RTG	AWK-3131A-RCC	AWK-3251A-RCC
WLAN Interface					
WLAN Standards	802.11a/b/g/n 802.11i Wireless Security				2.4 GHz: 802.11b/g/n with 256 QAM support 5 GHz: 802.11a/n/ac Wave 2 with 256 QAM support
Antenna Connectors	2 x N-type (female)	4 x N-type (female)	2 x QMA (female)		
Ethernet Interface					
Total Port Count	2	6	1	1	1
Ethernet Ports	1 x 10/100/1000BaseT(X) (M12 X-coded)	4 x 10/100BaseT(X) (M12 D-coded)	AWK-3131A-M12-RTG models: 1 x 10/100BaseT(X) (M12 D-coded)	1 x 10/100/1000BaseT(X), (M12 A-coded)	1 x 10/100/1000BaseT(X) (M12 X-coded)
Fiber Ports	1 x 1000BaseSFP slot	2 x 1000BaseSFP slots	AWK-3131A-SSC-RTG models: 1 x 100BaseFX (SC connector)	–	–
PoE Support	PD	PSE	AWK-3131A-M12-RTG models: PD	PD	PD
Serial Interface					
Console Port	USB-M12 console (M12 B-coded 5-pin female connector)		RS-232 (RJ45-type)		
Power Parameters					
Input Current	0.65 A @ 24 VDC, 0.16 A @ 110 VDC	AC input: 110 to 220 VAC, 50 to 60 Hz, 1.1 A (max.) DC input: 110 to 220 VDC, 1.1 A (max.)	AWK-3131A-M12-RTG models: 0.85 A @ 12 VDC, 0.22 A @ 48 VDC AWK-3131A-SSC-RTG models: 1.0 A @ 12 VDC, 0.27 A @ 48 VDC	0.67 A @ 12 VDC, 0.17 A @ 48 VDC	12 to 48 VDC, 2.01 to 0.5 A
Input Voltage	24 to 110 VDC Dual inputs	110/220 VAC/VDC (85 to 264 VAC, 88 to 300 VDC) Dual inputs	12 to 48 VDC PoE: 48 VDC Dual inputs		
Power Connector	M12 A-coded 4-pin male connector	6-pin M23 connector	1 removable 10-contact terminal block		
Power Consumption	17.6 W (max.)	85 W (max.)	AWK-3131A-M12-RTG models: 10.5 W (max.) AWK-3131A-SSC-RTG models: 13 W (max.)	8.03 W (max.)	24.12 W (max.)
Source of Input Power	DC or PoE (IEEE 802.3at)	–	AWK-3131A-M12-RTG models: PoE (IEEE 802.3af)	PoE (IEEE 802.3af)	PoE (IEEE 802.3af)
Physical Characteristics					
IP Rating	IP68		IP30		
Installation	Wall mounting (standard) DIN-rail mounting (optional) Pole mounting (optional)	Wall mounting (standard) DIN-rail mounting (optional)	DIN-rail mounting Wall mounting (with optional kit)		

Rail Wireless Access Controller

Product Series	WAC-2004A
Ethernet Interface	
10/100/1000BaseT(X) Ports (RJ45 Connector)	2 Port 1: Communications port for WAC/HA Port 2: Reserved
Serial Interface	
Console Port	1 x RS-232 (DB9 male)
Wireless Access Control	
Controller Failover Mode	1-on-1 hot backup
Handover Time	50 ms
Roaming Support	Turbo Roaming (L2/L3) with inter-controller capabilities
WLAN Products Supported	Layer 2 networks: Up to 190 clients roaming between 400 APs Layer 3 networks: Up to 100 clients roaming between 190 APs
Supported Devices	
TAP Products	TAP-213 Series, TAP-323 Series
AWK Products	AWK-3131A-RTG Series
Power Parameters	
Input Current	1.2 A @ 100 VAC
Input Voltage	100 to 240 VAC
No. of Power Inputs	2
Operating Voltage	100 to 240 VAC
Physical Characteristics	
Installation	19-inch rack mounting
Environmental Limits	
Operating Temperature	0 to 50°C (32 to 122°F)

Cellular Gateways/Routers

Moxa's industrial cellular products encompass a wide range of applications, from private 5G networks to public wireless wide area network (WWAN) communications. The burgeoning demand of IIoT has led to a rapid expansion of public WWAN networks, while private 5G networks have swiftly grown and are poised for a promising future. Moxa provides products that offer better security, enhanced stability, and a closer alignment with customer applications to meet specific business needs in a wide variety of scenarios.

Cellular Gateways/Routers Product Pages

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Private 5G Cellular Gateways

Moxa’s private 5G cellular gateways enable the deployment of 5G private networks and facilitate communication with OT subsystems. These compact and power-efficient gateways are compatible with numerous telecom operators and network integrators, making them ideal for industrial environments.

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Public LTE Cellular Gateways/Routers

Moxa LTE cellular gateways and routers help minimize potential risks associated with public networks. Stable connectivity supported by both wired and cellular redundancy mechanisms ensure reliable, secure, and versatile communication for remote sites.

Private 5G Cellular Gateways



Product Series	CCG-1520-T	CCG-1510-TW-T	CCG-1510-US-T
Cellular Interface			
Cellular Standards	5G R15 (SA)	5G R15 (SA/NSA), LTE (NSA support only)	5G R15 (SA)
Frequency Bands Supported	NR: N79	NR: N1 / N3 / N28 / N41 / N78 LTE: B1 / B3 / B7 / B8 / B28 / B38	NR: N48
Media Converter Interface			
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)		
Serial Ports	1 x RS-232/422/485 port (5-pin terminal block)		
Cellular Antenna Connectors (With GPS)	4 x SMA	6 x SMA	
SIM Format	Nano		
Number of SIMs	2		
Ethernet Interface			
10/100/1000BaseT(X) Ports (RJ45 Connector)	2		
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X)		
Magnetic Isolation Protection	1.5 kV (built-in)		
Serial Interface			
Console Port	1 x 4-pin header to DB9 console port		
Serial Signals			
RS-232	TxD, RxD, RTS, CTS, GND		
RS-422	Tx+, Tx-, Rx+, Rx-, GND		
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND		
LED Indicators			
System	1 x Power 1 x SIM card indicator 1 x 5G / LTE indicator		
Wireless Signal Strength	3 x Cellular		
Power Parameters			
Input Voltage	9 to 24 VDC		
Power Consumption	Average: 8 W Peak: 11 W		
Input Current	9 to 24 VDC @ 1.33 to 0.5 A min		
Power Connector	Terminal block		
Physical Characteristics			
Dimensions	100 x 125 x 35.2 mm (3.93 x 4.92 x 1.38 in)		
Housing	Metal, SECC		
Installation	DIN-rail mounting, Wall mounting (with optional kit)		
IP Rating	IP30[1]		
Weight	750 g (1.65 lb)		
Environmental Limits			
Operating Temperature	-40 to 70°C (-40 to 158°F)		
Storage Temperature (Package Included)	-20 to 70°C (-4 to 158°F)		
Ambient Relative Humidity	5 to 95% (non-condensing)		
MTBF			
Time	1,036,724 hrs		
Standards	Telcordia SR332		
Warranty			
Warranty Period	5 years		

[1] The rubber SIM cover and console port cover should be attached. For the CCG-1520-T model, the SMA protection cover must also be attached.

Public LTE Cellular Gateways/Routers







Product Series	OnCell 3120-LTE-1-AU	OnCell 3120-LTE-1-EU	OnCell 3120-LTE-1-US	OnCell G4302-LTE4-AU	OnCell G4302-LTE4-EU	OnCell G4302-LTE4-US	OnCell G4302-LTE4-JP
Cellular Interface							
Cellular Standards	LTE Cat. 1, HSPA, UMTS, EDGE, GPRS, GSM			LTE CAT 4, HSPA, UMTS, EDGE, GPRS, GSM			
Band Options	LTE Band 1 (2100 MHz) / LTE Band 3 (1800 MHz) / LTE Band 5 (850 MHz) / LTE Band 8 (900 MHz) / LTE Band 9 (1800 MHz) / LTE Band 18 (850 MHz) / LTE Band 19 (850 MHz) / LTE Band 26 (850 MHz) / LTE Band 28 (700 MHz) UMTS/HSPA 2100 MHz / 850 MHz / 800 MHz / 900 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) / LTE Band 28A (700 MHz) UMTS/HSPA 900 MHz / 1800 MHz / 2100 MHz GSM 900 MHz / 1800 MHz	LTE Band 2 (1900 MHz) / LTE Band 4 (1700MHz (AWS)) / LTE Band 5 (850 MHz) / LTE Band 12 (700 MHz) / LTE Band 13 (700 MHz) / LTE Band 14 (700 MHz) / LTE Band 66 (1700 MHz) / LTE Band 71 (600 MHz) UMTS/HSPA 1900 MHz / 1700 MHz / 850 MHz	LTE B1 (2100 MHz) / B3 (1800 MHz) / B5 (850 MHz) / B7 (2600 MHz) / B8 (900 MHz) / B28 (700 MHz) UMTS/HSPA B1 (2100 MHz) / B5 (850 MHz) / B8 (900 MHz) GSM/GPRS/EDGE 900 MHz / 1800 MHz	LTE B1 (2100 MHz) / B3 (1800 MHz) / B7 (2600 MHz) / B8 (900 MHz) / B20 (800 MHz) / B28 (700 MHz) UMTS/HSPA B1 (2100 MHz) / B8 (900 MHz) GSM/GPRS/EDGE 900 MHz / 1800 MHz	LTE B2 (1900 MHz) / B4 (1700/2100 MHz (AWS)) / B5 (850 MHz) / B12 (700 MHz) / B13 (700 MHz) / B14 (700 MHz) / B66 (1700 MHz) / B25 (1900 MHz) / B26 (850 MHz) / B71 (600 MHz) UMTS/HSPA B2 (1900 MHz) / B4 (1700 MHz (AWS)) / B5 (850 MHz)	LTE B1 (2100 MHz) / B3 (1800 MHz) / B8 (900 MHz) / B11 (1500 MHz) / B18 (800 MHz) / B19 (800 MHz) / B21 (1500 MHz) UMTS/HSPA B1 (2100 MHz) / B19 (800 MHz)
No. of SIMs	2						
GNSS Interface							
GNSS Bands	–			GPS (1575.42 MHz) GLONASS (1597.52 MHz) Galileo (1575.42 MHz) BeiDou (1561.098 MHz)			
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 Connector)	2			–			
10/100/1000BaseT(X) Ports (RJ45 Connector)	–			2			
USB Interface							
No. of USB Ports	1						
Serial Interface							
No. of Ports	1						
Input/Output Interface							
Digital Output Channels	–			1			
Digital Input Channels	–			1			
Ethernet Software Features							
Management	GuaranLink, Power Management, Back Pressure Flow Control, LLDP, Syslog, Wireless Search Utility, MRC Quick Link			GuaranLink, Power Management, Back Pressure Flow Control, LLDP, Syslog, Wireless Search Utility, MXview One, MXconfig, MXsecurity, MRC Quick Link			
Filter	–			802.1Q VLAN, Port-based VLAN			
Routing Redundancy	–			VRRP			
IPsec VPN							
Concurrent VPN Tunnels	5			15			
Firewall							
Filter	ICMP, IP address, MAC address, Ports			DDoS, Ethernet protocols, ICMP, IP address, MAC address, Ports			
NAT							
Features	1-to-1, N-to-1, NAT loopback, Port forwarding			1-to-1, N-to-1, PAT, NAT loopback, Double NAT			
Security Functions							
Hardware-based Security	–			Secure Boot			
Power Parameters							
Input Voltage	9 to 36 VDC			12 to 48 VDC			
Physical Characteristics							
IP Rating	IP30			IP40			
Dimensions	128.5 x 26 x 89.1 mm (5.06 x 1.02 x 3.51 in)			125 x 46.2 x 100 mm (4.92 x 1.82 x 3.94 in)			
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)			Standard models: -10 to 55°C (14 to 131°F) Wide temp. models: -30 to 70°C (-22 to 158°F)			
Standards and Certifications							
Hazardous Locations	ATEX, IECEx, CID2						
Railway	–			EN 50121-4			
Traffic Control	–			NEMA TS2			
Road Vehicles	–			E mark E1			

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

Chassis Media Converters

Our TRC Series of rackmount chassis media converters provides up to 19 slots and a wide selection of media converter modules to fulfill a variety of media conversion requirements in high-density applications.

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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 transmission requirements.

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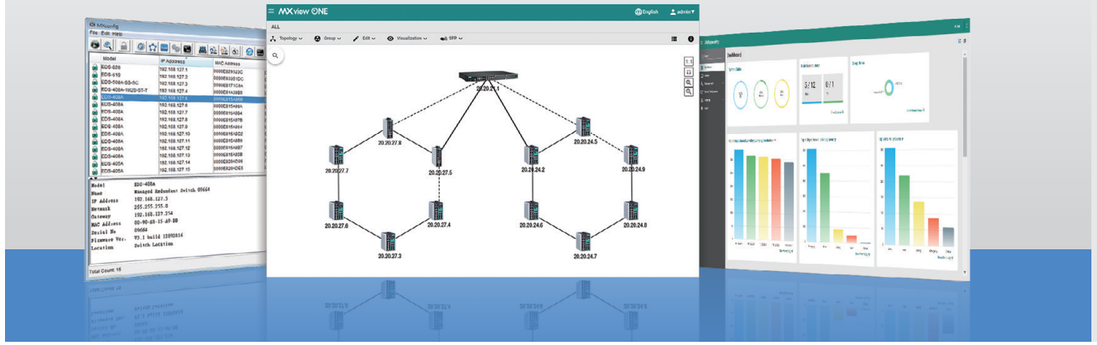
Chassis Media Converters

Product Series	TRC-2190	TRC-190	CSM-400	CSM-200	CSM-G200
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 Connector)	2	–	1	1	–
10/100/1000BaseT(X) Ports (RJ45 Connector)	–	–	–	–	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	SFP 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	Based on SFP module
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	Based on SFP module
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	Based on SFP module
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	Based on SFP module
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	Based on SFP module
Jumbo Frame Size	–				10 KB
Power Parameters					
Input Voltage	TRC-2190-AC models: 110 to 240 VAC TRC-2190-DC-48V models: 48 VDC	TRC-190-AC models: 110 to 240 VAC TRC-190-DC-48 models: 48 VDC Redundant dual inputs	12 VDC		
No. of Power Inputs	2		–		
Power Consumption	TRC-2190-AC models: 1.5 A @ 100 to 240 VAC TRC-2190-DC-48V models: 3.2 A @ 48 VDC	TRC-190-AC models: 1.5 A @ 100 to 240 VAC TRC-190-DC-48 models: 3.2 A @ 48 VDC	220 mA @ 12 VDC	180 mA @ 12 VDC	185 mA @ 12 VDC
Physical Characteristics					
Dimensions	440 x 260 x 77 mm (18.6 x 11 x 3.3 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)	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)	0 to 55°C (32 to 131°F)
Standards and Certifications					
EMC	EN 55032/35				
EMI	CISPR 32, FCC Part 15B Class A				
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV (AC), 1 kV (DC); 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: 2 kV (AC), 1 kV (DC) 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: 2 kV (AC), 1 kV (DC); 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	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 (AC), 1 kV (DC) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV; 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: 30 A/m
Environmental Testing	IEC 60068-2-1, IEC 60068-2-14, IEC 60068-2-2, IEC 60068-2-3	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-3	IEC 60068-2-1, IEC 60068-2-14, IEC 60068-2-2, IEC 60068-2-3		
Safety	UL 62368-1, IEC 62368-1	IEC 62368-1, UL 62368-1	–		

Ethernet-to-fiber Media Converters

Product Series	IMC-21	IMC-21A	IMC-21GA	IMC-101	IMC-101G	PTC-101	IMC-P101
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 Connector)	1	1	–	1	–	1	–
10/100/1000BaseT(X) Ports (RJ45 Connector)	–	–	1	–	1	–	–
1000 Mbps Fiber (SFP Connector)	–	–	1	–	1	–	–
PoE Ports (10/100BaseT(X), RJ45 Connector)	–	–	–	–	–	–	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	100/1000 BaseSX/LX or 100/1000 BaseSFP slot Multi-mode SC or LC 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	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		1000BaseSX: 500 m 1000BaseLX: 10 km	Multi-mode: 4 km or 5 km Single-mode: 40 km or 80 km	40, 80, 110, or 120 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		1000BaseSX: 850 nm 1000BaseLX: 1310 nm	Multi-mode: 1300 nm Single-mode: 1310 or 1550 nm	Based on SFP module	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		1000BaseSX: -3 to -10 dBm 1000BaseLX: -3 to -9 dBm	Multi-mode: -10 to -20 dBm Single-mode: 0 to -5 dBm	Based on SFP module	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		1000BaseSX: -3 to -20 dBm 1000BaseLX: -3 to -21 dBm	Multi-mode: -3 to -32 dBm Single-mode: -3 to -34 dBm	Based on SFP module	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		1000BaseSX: 10 dBm 1000BaseLX: 12 dBm	Multi-mode: 12 dB Single-mode: 29 dB	Based on SFP module	Multi-mode: 12 dBm Single-mode: 29 dBm	Multi-mode: 15 dB Single-mode: 20 dB
Power Parameters							
Input Voltage	12 to 48 VDC			12 to 45 VDC		-LV models: 20 to 72 VDC -HV models: 100 to 240 VAC/VDC (85 to 264 VAC, 88 to 300 VDC)	12 to 57 VDC (HW Rev. 1.1.0 and later) 46 to 57 VDC (HW Rev. 1.0.1 and prior)
Physical Characteristics							
Dimensions	25 x 109 x 97 mm (0.98 x 4.29 x 3.82 in)	30 x 125 x 79 mm (1.19 x 4.92 x 3.11 in)	30 x 125 x 79 mm (1.19 x 4.92 x 3.11 in)	53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)		152.15 x 126.46 x 66.65 mm (5.99 x 4.86 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)		-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 55032/35						
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		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	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: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11	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	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: 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	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: 4 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 KHz to 80 MHz: 3 to 1 V IEC 61000-4-8 PFMF
Hazardous Locations	–			Standard models: CID2 -IEX models: CID2, ATEX Zone 2, IECEx		–	
Maritime	–			DNV	–		
Power Substation	–					IEC 61850-3	–



Network Management Software

Moxa's industrial network management software enables visibility for operational technology (OT), allowing network operators to make more informed decisions throughout network deployment, maintenance, and diagnostics. Visualization tools empower administrators and operators to quickly assess network status through event notifications, minimizing downtime. The featured modules and functions streamline management and enhance overall network efficiency.

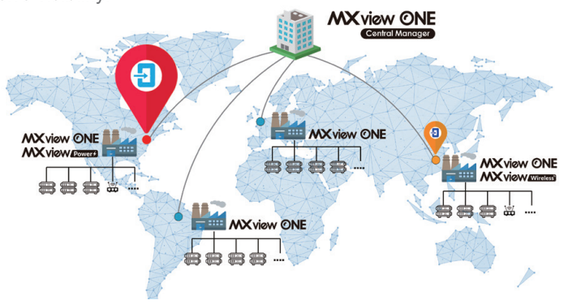
Network Management Software Product Pages

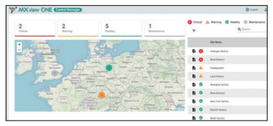
MXview One Central Manager

Centralized Platform for Managing and Monitoring Remote MXview One Sites

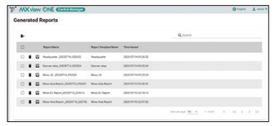
MXview One Central Manager offers administrators a centralized platform that automatically consolidates the status and events from all of their remote MXview One sites, providing comprehensive visibility.

- Intuitive dashboard to easily monitor site status
- Remotely view and access MXview One sites
- Real-time events and notifications
- Scheduled custom report generation
- Flexible license allocation and management





Dashboard and Map View



Reports

MXview One

Next-generation Scalable Industrial Network Management Platform

MXview One provides an integrated management platform that can discover networking devices and SNMP/IP devices installed across subnets. With comprehensive, real-time visibility of wired, wireless, and IEC 61850 substation networks, MXview One helps OT engineers simplify management of converged IT/OT networks and optimizes operations and availability throughout all stages of network deployment, management, and maintenance.

- Automatic topology visualization
- Security View for checking the security level of network devices
- Dashboard with a complete network summary
- SFP Fiber List for fiber link status and warnings
- Run Scripts for mass configuration on devices
- Easy integration through RESTful API, web widget, and syslog for single-pane monitoring with other IT/OT applications
- User-defined third-party SNMP device plug-in to define OIDs monitored in MXview One
- Firmware Management for firmware visibility and multi-mode upgrades

MXview Power

Add-on Tailored for Power Networks

- Visibility of PRP/HSR dual LAN topologies
- Instant visibility of GOOSE messages for troubleshooting
- Automatic scanning and detection of unauthorized IEDs

MXview Wireless

Add-on Tailored for Wireless Networks

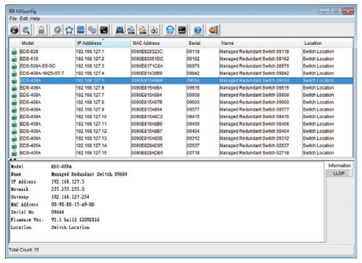
- Dynamic topology view for Wi-Fi networks
- Client roaming playback for troubleshooting
- Device dashboards and performance charts for wireless devices

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 while effectively reducing setup and maintenance costs.

- 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



MXsecurity Industrial Network Security Management Software

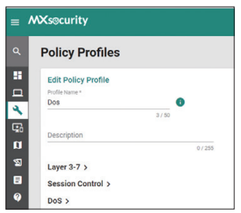
Mass Deployment of Policy Rules, IPS Patterns, and Cyberthreat Monitoring

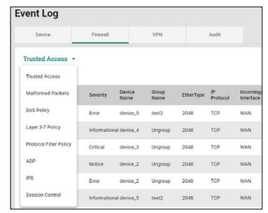
MXsecurity is cybersecurity management software tailored for Moxa Router/Firewall users, saving substantial time for Operational Technology (OT) users deploying firewall rules and reducing the risk of misconfiguration. Furthermore, MXsecurity features an easy-to-understand dashboard that visually represents cyberthreats within the network, thereby decreasing the cost required for clients to analyze logs.

MXsecurity

- At-a-glance dashboard of cyberthreat events
- Centralized deployment of secure router firewall policies, firmware, configurations, and IPS signatures
- Automatic IPS pattern upgrades from the Moxa firmware server[1]
- Real-time alerts with email notifications
- Map View for real-time location monitoring
- Scheduled batch deployment and reports

Map View





Policy Management and Event Logs

[1] Available in Q2, 2024.

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

Moxa Remote Connect Suite

Effortless Access to Your Remote Equipment

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. Moxa Remote Connect Suite consists of three primary components:

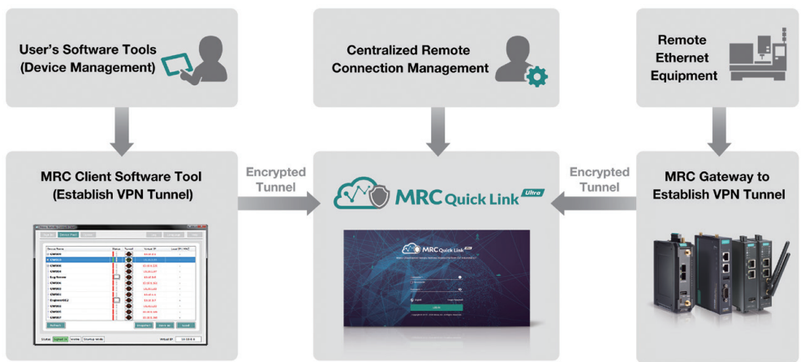
1. MRC Quick Link: A secure cloud-based remote access platform. This centralized connection management platform handles security levels, user privileges, and configuration of the MRC Gateway and MRC Client.

2. MRC Gateway: A Moxa device that supports MRC functionality, allowing secure remote access to local devices via the MRC Client.

3. MRC Client: Windows software enabling engineers to connect to remote devices from their laptops.

Highlights

- Friendly user experience that doesn't require specialized IT knowledge.
- Provides scalable solutions for distributed applications, capable of supporting expansion to thousands of devices.
- Integrates easily with existing security policies to minimize configuration workload.
- Simultaneous connections to multiple field machines through a virtual IP mapping scheme.
- Secure on-demand access control, managed centrally or by remote site operators, with configurable connection times.
- Supports international applications by choosing the most efficient connection pathways and point-to-point connections.



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 establish remote connections only when necessary.

◆ Remote Monitoring Minimizes On-site Maintenance

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

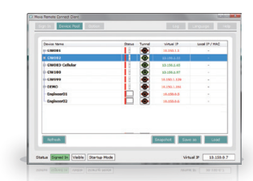
◆ LAN-like Site-to-site Secure Network Infrastructure

Moxa Remote Connect enables communication between different machines even if equipment is not in the same location. With Moxa Remote Connect, equipment can communicate as though it were communicating over a local area network (LAN).

Product Portfolio

MRC Client Software

Software to connect engineers to the MRC Server, enabling them to perform remote troubleshooting and maintenance tasks.



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

MRC Quick Link

Cloud-based connection management platform that provides a centralized management portal for users.

- Supports device and permission grouping for multi-client device management
- Includes a 5-year free basic connection service
- Supports connection service add-on for service expansion

MRC Gateway

A Moxa device that supports MRC functionality, allowing local devices at remote sites to be accessed securely by a MRC Client.

- Remote connection control managed by inserting a USB or digital input signal
- Configurable remote access permissions based on client and application
- Capable of remotely accessing up to 25 local devices

Network Security Appliance

Moxa's Network Security Appliances are 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) and Intrusion Prevention System (IPS).

Network Security Appliance Product Pages

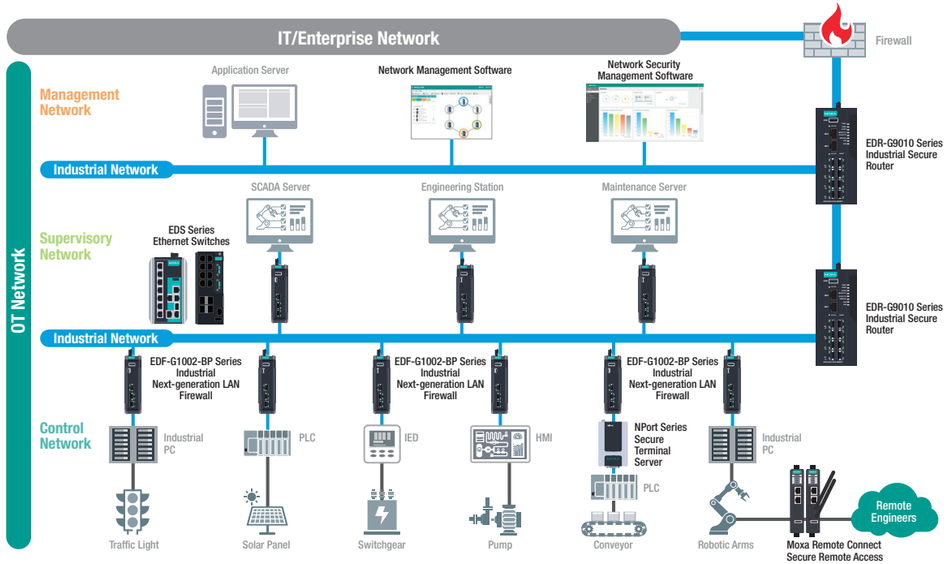
OT-IT Integrated Security

Protect OT Assets From Cyberthreats and Mitigate Cyber Risks

Introducing a new class of product—the Network Security Appliance—that protects industrial networks from intruders and unwanted traffic. Network Security Appliances are specifically designed to secure industrial networks from both an Operational Technology (OT) and Information Technology (IT) perspective to better address the surging market demand for comprehensive cybersecurity solutions 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, specifically tailored to protect OT networks from cyberthreats without disrupting industrial operations.

- **EDR-G9010/8010:** Secure router combo switch and firewall, provides routing between different networks and VPN for secure remote access.
- **EDF-G1002-BP:** Industrial next-generation LAN firewall, protects critical assets against horizontal cyberthreats inside the LAN network.
- **MXsecurity:** Network security management software, provides central management of the EDF-G1002-BP Series and EDR-G9010/8010 Series with visibility of critical assets, network analysis, and pattern updates.

Defend Industrial Networks at All Levels



EDF-G1002-BP Industrial Next-generation LAN Firewall | Preliminary

Highlights

- Out-of-band management port minimize installation impact
- Software-configurable Gen3 LAN Bypass prevents single point of failure
- Industrial-grade Intrusion Prevention/Detection System (IPS/IDS)
- Examine industrial protocol data with Deep Packet Inspection (DPI) technology
- Stateful firewall protects critical assets
- Supports secure boot for checking system integrity
- Check firewall settings with the intelligent Security Check feature
- -40 to 75°C operating temperature range (-T model)
- Supports conformal coating (-CT model)

Introduction

The EDF-G1002-BP Series is an industrial-grade LAN firewall with IPS and DPI functions to protect mission-critical assets and zones, specifically for the intra-LAN east-west communication. These industrial firewalls provide software-configurable Gen3 LAN bypass functions to achieve bump-in-the-wire installation and minimize the installation impact for industrial applications such as ITS, pump-and-treat systems in water stations, distributed control systems in oil and gas, and PLC/SCADA systems in factory automation.

Intrusion Prevention System (IPS)

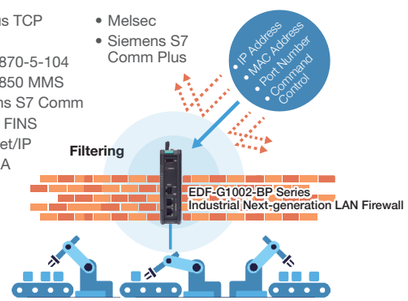
The EDF-G1002-BP features IPS functions allowing you to apply virtual patches for vulnerabilities in legacy devices and protecting against abnormal web threats.

EDF-G1002-BP Series
Industrial Next-generation LAN Firewall

Deep Packet Inspection (DPI)

The EDF-G1002-BP extends DPI to the following OT protocols to filter content and help mission-critical infrastructure fend off malicious traffic:

- Modbus TCP
- DNP3
- IEC 60870-5-104
- IEC 61850 MMS
- Siemens S7 Comm
- Omron FINS
- EtherNet/IP
- OPC UA
- Melsec
- Siemens S7 Comm Plus



Serial Device Servers

With a portfolio of over 500 serial 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

63

Secure Terminal Servers

Moxa's terminal servers have specialized functions for serial communication and cybersecurity features, which enable the establishment of secure and reliable terminal connections to networks. The terminal servers can connect a variety of devices, including terminals, modems, data switches, mainframe computers, and POS devices, making them accessible to network hosts and processes.

67

Combo Switch / Serial Device Servers

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

68

Substation-level Device Servers

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

70

Railway Device Servers

The NPort 5000AI-M12 complies 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.

71

General-purpose Device Servers

Our NPort device servers make your serial devices network-ready in an instant. This series offers from 1- to 16-port options, making the device servers ideal for connecting devices such as power meters and serial instruments to an IP-based Ethernet LAN, from lightweight remote site applications to high-density cabinet/rack systems.

77

Industrial-grade Device Servers

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

79

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.

80

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	NPort 6250	NPort 6250-M-SC	NPort 6250-S-SC	NPort 6450	NPort 6610-8	NPort 6610-16
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 Connector)	1		–	–	1		
100BaseFX Ports (Multi-mode SC Connector)	–	–	1	–	–	–	–
100BaseFX Ports (Single-mode SC Connector)	–	–	–	1	–	–	–
Compatible Modules	–	–	–	–	NM expansion modules for optional extension of RJ45 and fiber Ethernet ports		
Ethernet Software Features							
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), MCC Tool, Serial Console, Telnet/SSH Console						
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, ICMP, IPv4/IPv6, LLDP, PPPoE, SMTP, SNMPv1/v2c/v3, SNTP, TCP/IP, Telnet, UDP						
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95, Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x						
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x 4.x, macOS 14, 13, 12, 11						
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)						
Android API	Android 3.1.x and later						
Unicast Routing	RIPV1/V2, Static Route						
Security Functions							
Authentication	Local database, RADIUS, TACACS+						
Encryption	HTTPS, AES-128, AES-256, HMAC, RSA-1024, SHA-1, SHA-256, SHA-384						
Security Protocols	HTTPS (TLS 1.2), SNMPv3, SSHv2						
Serial Interface							
Connector	DB9 male					8-pin RJ45	
No. of Ports	1	2			4	8	16
Serial Standards	RS-232, RS-422, RS-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, Reverse Telnet, RFC2217, TCP Client, TCP Server, Terminal, UDP						
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)						
Flow Control	RTS/CTS, DTR/DSR, XON/XOFF						
Console Port	–				Serial port 1: RS-232 (19200, n, 8, 1)	RS-232 (TxD, RxD, GND), 8-pin RJ45 (19200, n, 8, 1)	
Power Parameters							
Input Current	285 mA @ 12 to 48 VDC	430 mA @ 12 to 48 VDC			730 mA @ 12 VDC	140 mA @ 100 VAC	192 mA @ 100 VAC
Input Voltage	12 to 48 VDC					100 to 240 VAC, 47 to 63 Hz	
Physical Characteristics							
Dimensions (Without Ears)	67 x 100.4 x 29 mm (2.64 x 3.95 x 1.1 in)	77 x 111 x 29 mm (3.30 x 4.37 x 1.1 in)			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)	
Installation	Desktop, DIN-rail mounting (with optional kit), Wall mounting					Rack mounting	
Environmental Limits							
Operating Temperature	0 to 55°C (32 to 131°F)						
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°F)						
Standards and Certifications							
EMC	EN 55032/35						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m, IEC 61000-4-4 EFT: Power: 1 kV; 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					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	
Safety	UL 60950-1, UL 62368-1				UL 60950-1		
MTBF							
Time	1,934,102 hrs	1,606,182 hrs	1,526,091 hrs		850,905 hrs	135,891 hrs	102,373 hrs
Standards	Telcordia (Bellcore) Standard TR/SR					Telcordia (Bellcore) Standard	

Secure Terminal Servers

Product Series	NPort 6610-32	NPort 6650-8	NPort 6650-16	NPort 6650-32	NPort 6610-8-48V	NPort 6650-8-48V	NPort 6650-8-HV-T
Input/Output Interface							
Alarm Contact Channels	Resistive load: 1 A @ 24 VDC						
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 Connector)	1 (Auto MDI/MDI-X connection)						
Compatible Modules	NM Series expansion modules for optional extension of RJ45 and fiber Ethernet ports						
Ethernet Software Features							
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), MCC Tool, Serial Console, Telnet/SSH Console						
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, ICMP, IPv4/IPv6, LLDP, PPPoE, SMTP, SNMPv1/v2c/v3, SNTP, TCP/IP, Telnet, UDP						
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003 Windows Embedded CE 6.0/5.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x						
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11						
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)						
Android API	Android 3.1.x and later						
Unicast Routing	RIPV1/V2, Static Route						
Security Functions							
Authentication	Local database, RADIUS, TACACS+						
Encryption	HTTPS, AES-128, AES-256, HMAC, RSA-1024, SHA-1, SHA-256, SHA-384						
Security Protocols	HTTPS (TLS 1.2), SNMPv3, SSHv2						
Serial Interface							
Connector	8-pin RJ45						
No. of Ports	32	8	16	32	8		
Serial Standards	RS-232	RS-232, RS-422, RS-485			RS-232	RS-232, RS-422, RS-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, Reverse Telnet, RFC2217, TCP Client, TCP Server, Terminal, UDP						
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)						
Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (19200, n, 8, 1)						
Flow Control	RTS/CTS, DTR/DSR, XON/XOFF						
Power Parameters							
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, 47 to 63 Hz				±48 VDC, 20 to 72 VDC, -20 to -72 VDC		
Physical Characteristics							
Installation	Rack mounting						
Dimensions (With Ears)	480 x 195 x 44 mm (18.9 x 7.68 x 1.73 in)						
Dimensions (Without Ears)	440 x 195 x 44 mm (17.32 x 7.68 x 1.73 in)						
Environmental Limits							
Operating Temperature	0 to 55°C (32 to 131°F)						-40 to 85°C (-40 to 185°F)
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°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: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11				IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF		IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Safety	UL 60950-1						
MTBF							
Time	68,707 hrs	636,600 hrs	439,673 hrs	310,078 hrs	135,891 hrs	636,600 hrs	501,171 hrs
Standards	Telcordia (Bellcore) Standard						

Secure Terminal Servers

Product Series	CN2610-8-2AC	CN2610-16-2AC	CN2650-8	CN2650-16	CN2650-8-2AC	CN2650-16-2AC
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 Connector)	2					
Ethernet Software Features						
Configuration Options	Serial Console, Telnet Console, Windows Utility, Device Search Utility (DSU), Web Console (HTTP/HTTPS)					
Management	ARP, BOOTP, DDNS, DHCP Client, DNS, HTTP, IPv4, SMTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, ICMP, SLIP					
MIB	MIB-II					
Security	HTTPS/SSL, RADIUS, SSH, PAP, CHAP					
Unicast Routing	RIPV1/V2, Static Route					
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x					
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X					
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)					
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11					
Android API	Android 3.1.x and later					
Security Functions						
Authentication	Local database (password only), RADIUS					
Encryption	HTTPS, AES-128, AES-256, HMAC, RSA-1024, SHA-1					
Security Protocols	SNMPv3, SSHv2					
Serial Interface						
Connector	8-pin RJ45					
No. of Ports	8	16	8	16	8	16
Serial Standards	RS-232		RS-232, RS-422, RS-485			
Operation Modes	Real COM mode, TCP Server mode, TCP Client mode, UDP mode, RFC2217 mode, Terminal mode, Reverse Telnet mode, PPP mode, DRDAS mode, Redundant COM mode, Disabled					
Baudrate	50 bps to 921.6 kbps					
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF					
Isolation	–					
Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (19200, n, 8, 1)					
Power Parameters						
No. of Power Inputs	2		1		2	
Input Current	130 mA @ 110 VAC					
Input Voltage	100 to 240 VAC (50/60 Hz)					
Physical Characteristics						
Dimensions (With Ears)	480 x 198 x 45.5 mm (18.9 x 7.80 x 1.77 in)					
Dimensions (Without Ears)	440 x 198 x 45.5 mm (17.32 x 7.80 x 1.77 in)					
Environmental Limits						
Operating Temperature	0 to 55°C (32 to 131°F)					
Storage Temperature (Package Included)	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: 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					
Safety	UL 60950-1				IEC 60950-1	UL 60950-1
MTBF						
Time	773,268 hrs	604,346 hrs	657,123 hrs	457,175 hrs	773,268 hrs	442,699 hrs
Standards	Telcordia (Bellcore) Standard TR/SR					

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					
Ethernet Software Features						
Configuration Options	Serial Console, Telnet Console, Windows Utility, Device Search Utility (DSU), Web Console (HTTP/HTTPS)					
Management	ARP, BOOTP, DDNS, DHCP Client, DNS, HTTP, IPv4, SMTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP, ICMP, SLIP					
MIB	MIB-II					
Security	HTTPS/SSL, RADIUS, SSH, PAP, CHAP					
Unicast Routing	RIPV1/V2, Static Route					
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x					
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X					
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)					
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11					
Android API	Android 3.1.x and later					
Security Functions						
Authentication	Local database (password only), RADIUS					
Encryption	HTTPS, AES-128, AES-256, HMAC, RSA-1024, SHA-1					
Security Protocols	SNMPv3, SSHv2					
Serial Interface						
Connector	DB9 male					
No. of Ports	8	16	8	16	8	16
Serial Standards	RS-232, RS-422, RS-485					
Operation Modes	Real COM mode, TCP Server mode, TCP Client mode, UDP mode, RFC2217 mode, Terminal mode, Reverse Telnet mode, PPP mode, DRDAS mode, Redundant COM mode, Disabled					
Baudrate	50 bps to 921.6 kbps					
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF					
Isolation	2 kV					
Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (19200, n, 8, 1)					
Power Parameters						
No. of Power Inputs	1		2		1	
Input Current	130 mA @ 110 VAC				200 mA @ 88 VDC	
Input Voltage	100 to 240 VAC (50/60 Hz)				110 VDC (88 to 300 VDC)	
Physical Characteristics						
Dimensions (Without Ears)	440 x 198 x 45.5 mm (17.32 x 7.80 x 1.77 in)					
Environmental Limits						
Operating Temperature	0 to 55°C (32 to 131°F)					
Storage Temperature (Package Included)	0 to 55°C (32 to 131°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 PFMF IEC 61000-4-11	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 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 61000-4-11	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: 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	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; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 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
Safety	UL 62368-1					
MTBF						
Time	374,652 hrs	248,837 hrs	370,752 hrs	247,119 hrs	357,995 hrs	241,404 hrs
Standards	Telcordia (Bellcore) Standard TR/SR					

Combo Switch/Serial Device Servers



Product Series	NPort S8455I	NPort S8455I-MM-SC	NPort S8455I-SS-SC
Input/Output Interface			
Alarm Contact Channels	2, Resistive load: 1 A @ 24 VDC		
Digital Input Channels	2		
Digital Inputs	+13 to +30 V for state 1, -30 to +1 V for state 0, Max. input current: 8 mA		
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
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		
Filter	802.1Q, GVRP, IGMP v1/v2		
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95, Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT, Windows Embedded CE 5.0/6.0, Windows XP Embedded		
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x		
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x, SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X		
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)		
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11		
Android API	Android 3.1.x and later		
Time Management	SNTP		
MIB	Bridge MIB, Device Settings MIB, Ethernet-like MIB, MIB-II, P-BRIDGE MIB, Q-BRIDGE MIB, RFC1213, RFC1317, RMON MIB Groups 1, 2, 3, 9, RSTP MIB		
Redundancy Protocols	RSTP, Turbo Chain, Turbo Ring v1, Turbo Ring v2		
Security	HTTPS, SSL, SSH		
Authentication	Local Account Accessibility, RADIUS		
Serial Interface			
Connector	DB9 male		
No. of Ports	4		
Operation Modes	Disabled, Real COM mode, RFC2217 mode, TCP Client mode, TCP Server mode, UDP mode		
Baudrate	50 bps to 921.6 kbps		
Flow Control	None, RTS/CTS, XON/XOFF		
Isolation	2 kV		
Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (19200, n, 8, 1)		
Serial Standards	RS-232, RS-422, RS-485		
Power Parameters			
No. of Power Inputs	2		
Power Connector	2 removable 6-contact terminal blocks		
Input Current	935 mA @ 12 VDC		
Input Voltage	12 to 48 VDC		
Physical Characteristics			
Dimensions	73.1 x 134 x 125 mm (2.88 x 5.27 x 4.92 in)		
Installation	DIN-rail mounting, Wall mounting (with optional kit)		
Environmental Limits			
Operating Temperature	0 to 60°C (32 to 140°F)		
Storage Temperature	-40 to 75°C (-40 to 167°F)		
Standards and Certifications			
EMC	EN 55032/35		
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: 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 PFMF		
Environmental Testing	IEC 60068-2-1, IEC 60068-2-3		
Hazardous Locations	CID2		
Safety	EN 60950-1, IEC 60950-1, UL 508, UL 60950-1		
MTBF			
Time	287,354 hrs	200,951 hrs	286,993 hrs
Standards	Telcordia (Bellcore) Standard TR/SR		

Substation-level Device Servers





Product Series	NPort S9450I-WV-T	NPort S9450I-2M-SC-WV-T	NPort S9450I-2M-ST-WV-T	NPort S9450I-2S-SC-WV-T	NPort S9450I-2S-ST-WV-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
Ethernet Software Features					
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), MCC Tool, Command Line Interface (CLI) through Serial/Telnet/SSH				
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95, Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT, Windows Embedded CE 5.0/6.0, Windows XP Embedded				
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x				
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X				
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)				
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11				
Android API	Android 3.1.x and later				
Industrial Protocols	Modbus TCP Server (Slave), DNP3 TCP Outstation				
Time Management	NTP Server/Client, SNTP				
MIB	Bridge MIB, Device Settings MIB, Ethernet-like MIB, MIB-II, P-BRIDGE MIB, Q-BRIDGE MIB, RFC1213, RFC1317, RMON MIB Groups 1, 2, 3, 9, RSTP MIB				
Redundancy Protocols	RSTP, Turbo Chain, Turbo Ring v1, Turbo Ring v2				
Security	HTTPS/SSL, Local Account Accessibility, TACACS+, RADIUS, SSH				
Serial Interface					
No. of Ports	4				
Serial Standards	RS-232, RS-422, RS-485				
Operation Modes	Real COM mode, RFC2217 mode, TCP Client mode, TCP Server mode, UDP mode, Modbus mode, DNP3 mode, DNP3 Raw Socket mode, Disabled				
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)				
Flow Control	None, RTS/CTS, XON/XOFF				
Isolation	2 kV				
Surge	4 kV				
Power Parameters					
No. of Power Inputs	2				
Input Current	520 mA @ 24 VDC				
Input Voltage	24/48 VDC (18 to 72 VDC)				
Physical Characteristics					
Dimensions	80 x 160 x 109 mm (3.15 x 6.30 x 4.29 in)				
Installation	DIN-rail mounting, Wall mounting (with optional kit)				
Environmental Limits					
Operating Temperature	-40 to 85°C (-40 to 185°F)				
Storage Temperature (Package Included)	-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				
Power Substation	IEC 61850-3, IEEE 1613				
Hazardous Locations	CID2				
Safety	EN 61010-2-201, UL 61010-2-201				
MTBF					
Time	347,436 hrs				
Standards	Telcordia SR332				

Substation-level Device Servers

Product Series	NPort S9650I-8-2HV-E-T	NPort S9650I-8-2HV-MSC-T	NPort S9650I-8-2HV-SSC-T	NPort S9650I-8B-2HV-IRIG-T	NPort S9650I-8F-2HV-E-T	NPort S9650I-8F-2HV-MSC-T	NPort S9650I-8F-2HV-SSC-T
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
Ethernet Software Features							
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), MCC Tool, Command Line Interface (CLI) through Serial/Telnet/SSH						
Windows Real COM Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10 (x86/x64), Windows 2008 R2/2012/2012 R2/2016/2019 (x64), Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x						
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x, SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11						
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)						
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						
MIB	Bridge MIB, Device Settings MIB, Ethernet-like MIB, MIB-II, P-BRIDGE MIB, Q-BRIDGE MIB, RFC1213, RFC1317, RMON MIB Groups 1, 2, 3, 9, RSTP MIB						
Redundancy Protocols	RSTP, Turbo Chain, Turbo Ring v1, Turbo Ring v2						
Security	HTTPS/SSL, Local Account Accessibility, TACACS+, RADIUS, SSH						
IRIG-B Interface							
PWM/PPS Output, BNC Connector	–	–	–	1	–	–	–
PWM/PPS Output, DB9 Female	–	–	–	8	–	–	–
PWM Input, BNC Connector	–	–	–	1	–	–	–
Serial Interface							
No. of Ports	8						
Serial Standards	RS-232, RS-422, RS-485						
Operation Modes	Real COM mode, RFC2217 mode, TCP Client mode, TCP Server mode, UDP mode, Modbus mode, DNP3 mode, DNP3 Raw Socket mode, Disabled						
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)						
Flow Control	None, RTS/CTS, XON/XOFF						
Isolation	2 kV						
Surge	4 kV						
Console Port	RS-232 (TxD, RxD, GND), 10-pin RJ45 (19200, n, 8, 1)						
Power Parameters							
No. of Power Inputs	2						
Input Current	0.65 A @ 100 VAC, 0.47 A @ 100 VDC						
Input Voltage	110/220 VAC/VDC (100 to 240 VAC, 100 to 250 VDC)						
Dimensions	457 x 32 x 330 mm (18 x 1.25 x 12.99 in)						
Environmental Limits							
Operating Temperature	-40 to 85°C (-40 to 185°F)						
Storage Temperature (Package Included)	-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: 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						
Power Substation	IEC 61850-3, IEEE 1613						
Safety	EN 61010-2-201, UL 61010-2-201						
MTBF							
Time	224,670 hrs	220,944 hrs		213,025 hrs	311,734 hrs	304,587 hrs	
Standards	Telcordia SR332						

Railway Device Servers

Product Series	NPort 5150AI-M12	NPort 5250AI-M12	NPort 5450AI-M12
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, Device Search Utility (DSU), MCC Tool, Telnet Console		
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP		
Filter	IGMP v1/v2		
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded		
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x		
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X		
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)		
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11		
Android API	Android 3.1.x and later		
Security Functions			
Authentication	Local database		
Encryption	HTTPS, AES-128, RSA-1024, SHA-1, SHA-256		
Security Protocols	SNMPv3, HTTPS (TLS 1.2)		
Serial Interface			
Connector	DB9 male		
No. of Ports	1	2	4
Serial Standards	RS-232, RS-422, RS-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		
Flow Control	RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF		
RS-485 Data Direction Control	ADDC (automatic data direction control)		
Isolation	2 kV		
Power Parameters			
Input Current	310 mA @ 12 VDC	360 mA @ 12 VDC	440 mA @ 12 VDC
Input Voltage	12 to 48 VDC (compliant with EN 50155 for 24/48 VDC)		
Power Connector	M12 A-coded 5-pin male connector		
Physical Characteristics			
Dimensions	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	-25 to 55°C (-13 to 131°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 55032/35		
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		
MTBF			
Time	789,341 hrs	639,622 hrs	467,777 hrs
Standards	Telcordia (Bellcore) Standard TR/SR		

General-purpose Device Servers

Product Series	NPort 5110	NPort 5130	NPort 5150	NPort 5110A	NPort 5130A	NPort 5150A	NPort P5150A
Ethernet Interface							
10/100BaseT(X) Ports	1						
Standards	–						PoE (IEEE 802.3af)
Ethernet Software Features							
Configuration Options	Windows Utility, Telnet Console, Web Console (HTTP)			Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), Telnet Console, Serial Console, MCC Tool	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), Telnet Console, MCC Tool	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), Telnet Console, Serial Console, MCC Tool	
Management	DHCP Client, IPv4, SMTP, SNMPv1, Telnet, DNS, HTTP, ARP, BOOTP, UDP, TCP/IP, ICMP						
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95, Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x						
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x, SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11						
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)						
Android API	Android 3.1.x and later						
Security Functions							
Authentication	Local database (password only)			Local database			–
Encryption	–			HTTPS, AES-128, SHA-1, RSA-1024, SHA-256			–
Security Protocols	–			HTTPS (TLS 1.2)			–
Serial Interface							
Connector	DB9 male						
No. of Ports	1						
Serial Standards	RS-232	RS-422, RS-485	RS-232, RS-422, RS-485	RS-232	RS-422, RS-485	RS-232, RS-422, RS-485	RS-232, RS-422, RS-485
Operation Modes	Disabled, Ethernet Modem, Pair Connection, Real COM, Reverse Telnet, TCP Client, TCP Server, UDP			Disabled, Ethernet Modem, Pair Connection, Real COM, Reverse Telnet, RFC2217, TCP Client, TCP Server, UDP			
Baudrate	110 bps to 230.4 kbps	50 bps to 921.6 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			
Flow Control	RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF						
Pull High/Low Resistor for RS-485	–	1 kilo-ohm, 150 kilo-ohms		–	1 kilo-ohm, 150 kilo-ohms		
Terminator for RS-485	–			120 ohms			–
Power Parameters							
Input Current	128.7 mA @ 12 VDC	200 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)
No. of Power Inputs	1						
Source of Input Power	Power input jack						Power input jack, PoE
Physical Characteristics							
Dimensions (With Ears)	75.2 x 80 x 22 mm (2.96 x 3.15 x 0.87 in)						100 x 111 x 26 mm (3.94 x 4.37 x 1.02 in)
Environmental Limits							
Operating Temperature	0 to 55°C (32 to 131°F)			0 to 60°C (32 to 140°F)			
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°F)						
Standards and Certifications							
EMC	EN 55032/35						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; 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			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			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
Safety	UL 60950-1						
MTBF							
Time	3,126,448 hrs	2,836,863 hrs	2,736,202 hrs	2,231,530 hrs			
Standards	Telcordia (Bellcore) Standard TR/SR						

General-purpose Device Servers

Product Series	NPort 5210	NPort 5230	NPort 5232	NPort 5232I	NPort 5210A	NPort 5230A	NPort 5250A
Ethernet Interface							
10/100BaseT(X) Ports	1						
Ethernet Software Features							
Configuration Options	Windows Utility, Serial Console, Telnet Console, Web Console (HTTP)		–		Serial Console	–	Serial Console
Management	DHCP Client, IPv4, SNTP, SMTP, SNMPv1, DNS, HTTP, ARP, BOOTP, UDP, TCP/IP, Telnet, ICMP				ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, SMTP, SNMPv1/v2c, Telnet, TCP/IP, UDP		
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95, Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT, Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x						
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x, SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11						
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)						
Android API	Android 3.1.x and later						
Filter	–				IGMP v1/v2		
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, RS-422, RS-485[1]	RS-422, RS-485		RS-232	RS-422, RS-485	RS-232, RS-422, RS-485
Operation Modes	Disabled, Ethernet Modem, Pair Connection, Real COM, Reverse Telnet, TCP Client, TCP Server, UDP				Disabled, Ethernet Modem, Pair Connection, Real COM, Reverse Telnet, RFC2217, TCP Client, TCP Server, UDP		
Baudrate	110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230400 bps				50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230.4k, 460.8k, 921.6k bps		
Flow Control	RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF						
Pull High/Low Resistor for RS-485	None	1 kilo-ohm (fixed value)			1 kilo-ohm, 150 kilo-ohms		
Isolation	–			2 kV	–		
Terminator for RS-485	–				120 ohms		
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				1 removable 3-contact terminal block, 1 power input jack		
Physical Characteristics							
Dimensions (With Ears)	90 x 100.4 x 22 mm (3.54 x 3.95 x 0.87 in)			90 x 100.4 x 35 mm (3.54 x 3.95 x 1.37 in)	100 x 111 x 26 mm (3.94 x 4.37 x 1.02 in)		
Environmental Limits							
Operating Temperature	0 to 55°C (32 to 131°F)				0 to 60°C (32 to 140°F)		
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°F)						
Standards and Certifications							
EMC	EN 55032/35						
EMI	CISPR 32, FCC Part 15B Class A						
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m, IEC 61000-4-4 EFT: Power: 1 kV; 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				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		
Safety	UL 60950-1						
Maritime	–	DNV			–		
Medical	EN 60601-1-2: 2007 compliant EN 55011: 2007+A2: 2007 Class A (Group 1) compliant	–			–		
MTBF							
Time	381,342 hrs	377,937 hrs	309,383 hrs	309,383 hrs	847,750 hrs	847,750 hrs	847,750 hrs
Standards	Telcordia (Bellcore) Standard TR/SR						

[1] The NPort 5230 supports RS-232 on one port and RS-422/485 on the other.

General-purpose Device Servers

Product Series	NPort 5410	NPort 5430	NPort 5430I	NPort 5450	NPort 5450I
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 Connector)	1				
Ethernet Software Features					
Configuration Options	Telnet Console, Windows Utility, Web Console (HTTP/HTTPS)				
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, Rtelnet, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP				
Filter	IGMP v1/v2				
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded				
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x				
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X				
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11				
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)				
Android API	Android 3.1.x and later				
Security Functions					
Authentication	Local database				
Encryption	HTTPS, AES-128, RSA-1024, SHA-1, SHA-256				
Security Protocols	HTTPS (TLS 1.2), SNMPv3				
Serial Interface					
Connector	DB9 male	Terminal block		DB9 male	DB9 male
No. of Ports	4				
Serial Standards	RS-232	RS-422, RS-485		RS-232, RS-422, RS-485	
Operation Modes	Real COM, TCP Server, TCP Client, UDP, Ethernet Modem, Pair Connection, Reverse Telnet, Disabled				
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				
Flow Control	RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF				
Isolation	–		2 kV	–	2 kV
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms				
Terminator for RS-485	120 ohms				
Power Parameters					
Input Current	365 mA @ 12 VDC	320 mA @ 12 VDC	430 mA @ 12 VDC	365 mA @ 12 VDC	550 mA @ 12 VDC
No. of Power Inputs	2				
Power Connector	1 removable 3-contact terminal block Power input jack				
Input Voltage	12 to 48 VDC, 24 VDC for DNV				
Physical Characteristics					
Dimensions (With Ears)	181 x 103 x 33 mm (7.14 x 4.06 x 1.30 in)				
Dimensions (Without Ears)	158 x 103 x 33 mm (6.22 x 4.06 x 1.30 in)				
Environmental Limits					
Operating Temperature	0 to 55°C (32 to 131°F)				
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°F)				
Standards and Certifications					
EMC	EN 55032/35				
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: 2 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				
Safety	UL 62368-1				
Maritime	DNV				
Medical	EN 60601-1-2 Class B, EN 55011	–		EN 60601-1-2 Class B, EN 55011	EN 60601-1-2 Class B, EN 55011
MTBF					
Time	880,274 hrs	826,688 hrs	718,600 hrs	773,682 hrs	678,381 hrs
Standards	Telcordia (Bellcore) Standard TR/SR			Telcordia (Bellcore) Standard TR/SR	Telcordia (Bellcore) Standard TR/SR

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					
Ethernet Software Features						
Configuration Options	Telnet Console, Web Console (HTTP/HTTPS), Windows Utility					
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, RFC2217, Rtelnet, PPP, SLIP, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP					
Filter	IGMP v1/v2c					
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003 Windows Embedded CE 6.0/5.0, Windows XP Embedded					
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x					
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x, SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X					
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11					
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)					
Android API	Android 3.1.x and later					
Security Functions						
Authentication	Local database					
Encryption	HTTPS, AES-128, RSA-1024, SHA-1, SHA-256					
Security Protocols	HTTPS (TLS 1.2), SNMPv3					
Serial Interface						
Connector	8-pin RJ45					
No. of Ports	8			16		
Serial Standards	RS-232		RS-422, RS-485	RS-232		RS-422, RS-485
Operation Modes	Disabled, Ethernet Modem, Pair Connection, Real COM, Reverse Telnet, RFC2217, TCP Client, TCP Server, UDP					
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					
Flow Control	None, RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF					
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms					
Terminator for RS-485	120 ohms					
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	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						
Dimensions (With Ears)	480 x 45 x 198 mm (18.90 x 1.77 x 7.80 in)					
Dimensions (Without Ears)	440 x 45 x 198 mm (17.32 x 1.77 x 7.80 in)					
Interactive Interface	LCD panel display, Push buttons for configuration					
Environmental Limits						
Operating Temperature	0 to 60°C (32 to 140°F)					
Storage Temperature (Package Included)	-20 to 70°C (-4 to 158°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 PFMF IEC 61000-4-11					
Safety	UL 62368-1					
Medical	EN 55011: 2007+A2: 2007 Class A (Group 1) compliant, EN 60601-1-2: 2007 compliant					
MTBF						
Time	903,009 hrs	892,692 hrs	844,009 hrs	680,154 hrs	693,529 hrs	618,263 hrs
Standards	MIL-HDBK-217F					

General-purpose Device Servers

Product Series	NPort 5650-8	NPort 5650-16	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							
Ethernet Software Features								
Configuration Options	Telnet Console, Web Console (HTTP/HTTPS), Windows Utility							
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, RFC2217, Rtelnet, PPP, SLIP, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP							
Filter	IGMP v1/v2c							
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003 Windows Embedded CE 6.0/5.0, Windows XP Embedded							
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x							
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x, SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X							
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11							
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)							
Android API	Android 3.1.x and later							
Security Functions								
Authentication	Local database							
Encryption	HTTPS, AES-128, RSA-1024, SHA-1, SHA-256							
Security Protocols	HTTPS (TLS 1.2), SNMPv3							
Serial Interface								
Connector	8-pin RJ45							
No. of Ports	8	16	8		16		8	16
Serial Standards	RS-232, RS-422, RS-485							
Operation Modes	Disabled, Ethernet Modem, Pair Connection, Real COM, Reverse Telnet, RFC2217, TCP Client, TCP Server, UDP							
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							
Flow Control	None, RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF							
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms							
Terminator for RS-485	120 ohms							
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								
Dimensions (With Ears)	480 x 45 x 198 mm (18.90 x 1.77 x 7.80 in)							
Dimensions (Without Ears)	440 x 45 x 198 mm (17.32 x 1.77 x 7.80 in)							
Interactive Interface	LCD panel display, Push buttons for configuration						–	
Environmental Limits								
Operating Temperature	0 to 60°C (32 to 140°F)						-40 to 85°C (-40 to 185°F)	
Storage Temperature (Package Included)	-20 to 70°C (-4 to 158°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 PFMF IEC 61000-4-11						IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	
Safety	UL 62368-1							
Medical	EN 55011: 2007 + A2: 2007 Class A (Group 1) compliant, EN 60601-1-2: 2007 compliant							
MTBF								
Time	754,927 hrs	525,107 hrs	738,291 hrs		517,019 hrs		716,168 hrs	506,093 hrs
Standards	MIL-HDBK-217F						Telcordia (Bellcore) Standard TR/SR	

General-purpose Device Servers

Product Series	NPort 5610-8-DT	NPort 5610-8-DT-J	NPort 5650-8-DT	NPort 5650-8-DT-J	NPort 5650I-8-DT
Ethernet Interface					
10/100BaseT(X) Ports (RJ45 Connector)	2				
Ethernet Software Features					
Configuration Options	Serial Console, Telnet Console, Web Console (HTTP/HTTPS), Windows Utility				
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, Rtelnet, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP				
Filter	IGMP v1/v2				
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003 Windows Embedded CE 6.0/5.0, Windows XP Embedded				
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x				
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, SCO UnixWare 7, Sun Solaris 10, QNX 4.25, QNX 6.x, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X				
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11				
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)				
Android API	Android 3.1.x and later				
Security Functions					
Authentication	Local database				
Encryption	HTTPS, AES-128, RSA-1024, SHA-1, SHA-256				
Security Protocols	HTTPS (TLS 1.2), SNMPv3				
Serial Interface					
Connector	DB9 male	8-pin RJ45	DB9 male	8-pin RJ45	DB9 male
No. of Ports	8				
Serial Standards	RS-232	RS-232, RS-422, RS-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				
Flow Control	RTS/CTS, DTR/DSR, XON/XOFF				
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms				
Terminator for RS-485	120 ohms				
Isolation	-I models: 2 kV				
Surge	0.5 kV				
Console Port	RS-232 (TxD, RxD, GND), 3-pin (19200, n, 8, 1)				
Power Parameters					
Input Current	611 mA @ 12 VDC		615 mA @ 12 VDC		1066 mA @ 12 VDC
No. of Power Inputs	2				
Input Voltage	12 to 48 VDC				
Reverse Polarity Protection	Supported				
Source of Input Power	Terminal block, Power input jack				
Physical Characteristics					
Dimensions (With Ears)	229 x 46 x 125 mm (9.01 x 1.81 x 4.92 in)				
Dimensions (Without Ears)	197 x 44 x 125 mm (7.76 x 1.73 x 4.92 in)				
Dimensions (With DIN-rail Kit on Bottom Panel)	197 x 53 x 125 mm (7.76 x 2.09 x 4.92 in)				
Interactive Interface	LCD panel display, Push buttons for configuration				
Environmental Limits					
Operating Temperature	0 to 55°C (32 to 131°F)				
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°F)				
Standards and Certifications					
EMC	EN 55032/35				
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: 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				
Safety	UL 60950-1, IEC 62368-1				
MTBF					
Time	836,374 hrs				
Standards	Telcordia (Bellcore) Standard				

Industrial-grade Device Servers

Product Series	NPort IA-5150	NPort IA-5150I	NPort IA-5150-M-SC	NPort IA-5150-S-SC	NPort IA-5150I-M-SC	NPort IA-5150I-S-SC	NPort IA-5250
Ethernet Interface							
10/100BaseT(X) Ports (RJ45 Connector)	2 (1 IP, Ethernet cascade)		–	–	–	–	2 (1 IP, Ethernet cascade)
100BaseFX Ports (Multi-mode SC Connector)	–	–	1	–	1	–	–
100BaseFX Ports (Single-mode SC Connector)	–	–	–	1	–	1	–
Ethernet Software Features							
Configuration Options	Web Console (HTTP), Windows Utility, Telnet Console, Serial Console						
Management	DHCP Client, IPv4, SMTP, SNMPv1, Telnet, ARP, BOOTP, DNS, HTTP, TCP/IP, UDP, ICMP, RtelnetDHCP Client, IPv4, SMTP, SNMPv1, Telnet, ARP, BOOTP, DNS, HTTP, TCP/IP, UDP, ICMP, Rtelnet						
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded						
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x						
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X						
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11						
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)						
Android API	Android 3.1.x and later						
Security Functions							
Authentication	Local database (password only)						
Serial Interface							
Connector	DB9 male for RS-232, Terminal block for RS-422/485						2 x DB9 male
No. of Ports	1						2
Serial Standards	RS-232, RS-422, RS-485						
Baudrate	Supports standard baudrates (unit=bps): 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200, 230400						
Flow Control	RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF						
Terminator for RS-485	120 ohms						
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms						
Isolation	–	2 kV	–		2 kV		–
Power Parameters							
Input Voltage	12 to 48 VDC						
Input Current	435 mA @ 12 VDC	555 mA @ 12 VDC	510 mA @ 12 VDC	555 mA @ 12 VDC	555 mA @ 12 VDC	555 mA @ 12 VDC	435 mA @ 12 VDC
No. of Power Inputs	2						
Power Connector	Terminal block						
Physical Characteristics							
Dimensions	29 x 89.2 x 118.5 mm (0.82 x 3.51 x 4.57 in)						
Installation	DIN-rail mounting						
Environmental Limits							
Operating Temperature	0 to 60°C (32 to 140°F)						
Storage Temperature (Package Included)	-40 to 85°C (-40 to 167°F)						
Standards and Certifications							
EMC	EN 55032/35						
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: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11						
Safety	IEC 60950-1, EN 60950-1, EN 62368-1, UL 508						
Maritime	DNV						
Hazardous Locations	ATEX, CID2, IECEx						
MTBF							
Time	1,349,710 hrs		1,175,887 hrs		768,343 hrs	763,707 hrs	1,236,384 hrs
Standards	Telcordia (Bellcore) Standard TR/SR						

Industrial-grade Device Servers

Product Series	NPort IA5150A	NPort IA5150AI	NPort IA5250A	NPort IA5250AI	NPort IA5450A	NPort IA5450AI
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 Connector)	2 (supports 2 IP addresses, Auto MDI/MDI-X connection)					
Ethernet Software Features						
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility, Device Search Utility (DSU), MCC Tool, Serial Console, Telnet Console					
Management	ARP, BOOTP, DHCP Client, DNS, HTTP, HTTPS, ICMP, IPv4, LLDP, Rtelnet, SMTP, SNMPv1/v2c, TCP/IP, Telnet, UDP					
Filter	IGMP v1/v2					
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x					
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x, SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X					
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)					
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11					
Android API	Android 3.1.x and later					
Security Functions						
Authentication	Local database					
Encryption	HTTPS, AES-128, RSA-1024, SHA-1, SHA-256					
Security Protocols	–				SNMPv3	
Serial Interface						
Connector	DB9 male for RS-232, Terminal block for RS-422/485		DB9 male			
No. of Ports	1		2		4	
Serial Standards	RS-232, RS-422, RS-485					
Operation Modes	Disabled, Ethernet Modem, Pair Connection, Real COM, Reverse Telnet, RFC2217, TCP Client, TCP Server, UDP					
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					
Flow Control	None, RTS/CTS (RS-232 only), DTR/DSR (RS-232 only), XON/XOFF					
Isolation	–	2 kV	–	2 kV	–	2 kV
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms					
Terminator for RS-485	120 ohms					
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					
No. of Power Inputs	2					
Physical Characteristics						
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)	
Installation	DIN-rail mounting, Wall mounting (with optional kit)					
Environmental Limits						
Operating Temperature	0 to 60°C (32 to 140°F)					
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°F)					
Standards and Certifications						
EMC	EN 55032/35					
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					
Hazardous Locations	ATEX Zone 2, CID2				ATEX Zone 2, CID2, IECEx	
Safety	UL 508					
MTBF						
Time	262,805 hrs				763,711 hrs	
Standards	Telcordia (Bellcore) Standard TR/SR					

Wireless Device Servers

Product Series	NPort W2150A-W4	NPort W2250A-W4
Ethernet Interface		
10/100BaseT(X) Ports (RJ45 Connector)	1	
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 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded	
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x	
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X	
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11	
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)	
Android API	Android 3.1.x and later	
WLAN Interface		
WLAN Standards	802.11a/b/g/n	
Security Functions		
Authentication	Local database, RADIUS	
Encryption	AES-128, AES-256, HMAC, RSA-1024, SHA-1, SHA-256, SHA-384	
Security Protocols	SNMPv3, SSHv2, HTTPS (TLS 1.3)	
Wireless Security	WEP, WPA/WPA2-Enterprise (IEEE 802.1X/RADIUS support EAP-TLS 1.3), WPA/WPA2-Personal	
Hardware-based Security	Secure Boot	
Serial Interface		
Connector	DB9 male	
No. of Ports	1	2
Serial Standards	RS-232, RS-422, RS-485	
Operation Modes	Real COM mode, TCP Server mode, TCP Client mode, UDP mode, RFC2217 mode, Pair Connection mode, Ethernet Modem mode, Disabled	
Baudrate	300 bps to 921.6 kbps	
Flow Control	None, RTS/CTS, XON/XOFF	
Surge	1 kV	
Power Parameters		
Input Current	429 mA @ 12 VDC	455 mA @ 12 VDC
Input Voltage	12 to 48 VDC	
Physical Characteristics		
Dimensions (With Ears, Without Antenna)	100 x 111 x 26 mm (3.94 x 4.37 x 1.02 in)	
Dimensions (Without Ears or Antenna)	77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)	
Environmental Limits		
Operating Temperature	Standard models: 0 to 55°C (32 to 131°F) Wide temp. models: -40 to 75°C (-40 to 167°F)	
Storage Temperature (Package Included)	-40 to 75°C (-40 to 167°F)	
Standards and Certifications		
EMC	EN 55032/35	
EMI	CISPR 32, FCC Part 15B Class A	
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 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	
Radio Frequency	CE (ETSI EN 301 893, ETSI EN 300 328, ETSI EN 301489-1/-17), MIC, KC, RCM, WPC	
Safety	UL 62368-1, IEC 62368-1	
MTBF		
Time	1,356,464 hrs	1,187,539 hrs
Standards	Telcordia SR332	

Embedded Device Servers

Product Series	MiiNePort E2	MiiNePort E3
Embedded System		
CPU	32-bit Arm® Core	
Memory		
Flash	2 MB	
SDRAM	4 MB	
Input/Output Interface		
Configurable DIO Channels (by Software)	4	
Ethernet Interface		
10/100BaseT(X) Ports, Auto MDI/MDI-X	4-pin pin header	8-pin RJ45
Magnetic Isolation Protection	1.5 kV (built-in)	
PoE Pass-through	–	IEEE 802.3af for PoE
Ethernet Software Features		
Configuration Options	Web Console (HTTP), Windows Utility	
Management	ARP, BOOTP, Device Search Utility (DSU), DHCP Client, IPv4, SMTP, SNMPv1, TCP/IP, Telnet, TFTP, UDP, ICMP	
Windows Real COM Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT Windows Embedded CE 5.0/6.0, Windows XP Embedded	
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x	
Fixed TTY Drivers	macOS Intel 64: 14, 13, 12, 11, 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X	
Virtual Machine	VMWare ESXi (Windows 11, 10), VMware Fusion and Parallels Desktop (Windows on macOS 14, 13, 12, 11, 10.1x)	
Arm®-based Platform Support	Windows 11, Linux kernel 6.x, 5.x, 4.x, macOS 14, 13, 12, 11	
Android API	Android 3.1.x and later	
Serial Interface		
No. of Ports	1	
Serial Standards	TTL	
Operation Modes	Real COM mode, RFC2217 mode, TCP Client mode, TCP Server mode, UDP mode, Ethernet Modem mode, MCSC mode	Real COM mode, TCP Server mode, TCP Client mode, UDP mode, RFC2217 mode, Ethernet Modem mode
Baudrate	50 bps to 230.4 kbps	
Flow Control	None, RTS/CTS, DTR/DSR, XON/XOFF	
Serial Signals		
TTL	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RST (reset circuit), GND	
NetEZ Technology		
NetEZ Functions	EZPower, EZPage, SCM (Serial Command Mode), AutoCFG, MCSC (Multi-channel Serial Communication)	EZPower, EZPage, SCM (Serial Command Mode), AutoCFG
Power Parameters		
Input Current	157 mA @ 3.3 VDC	
Input Voltage	3.3 to 5 VDC	
Physical Characteristics		
Dimensions	29 x 17 x 12.6 mm (1.14 x 0.67 x 0.50 in)	35 x 52.5 x 18 mm (1.38 x 2.07 x 0.71 in)
Weight	5 g (0.01 lb)	12 g (0.03 lb)
Form Factor Type	Drop-in modules	–
Environmental Limits		
Operating Temperature	0 to 55°C (32 to 131°F)	
Storage Temperature (Package Included)	-40 to 60°C (-40 to 140°F)	
Standards and Certifications		
EMC	EN 55032/24	
EMI	CISPR 32, FCC Part 15B Class B	
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11	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
Environmental Testing	IEC 60068-2-1, IEC 60068-2-3	
MTBF		
Time	5,696,350 hrs	
Standards	Telcordia SR332	

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 interfaces to optical fiber.

Serial Converters Product Pages

Chassis Media Converters

Our TRC Series of rackmount chassis media converters offer up to 19 slots and a range of media converter modules to meet your diverse media conversion needs 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.

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Serial-to-serial Converters

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

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

Moxa's fieldbus-to-fiber converters make fieldbus-to-fiber conversion easy. They also feature easy configuration and effortless troubleshooting. Our industrial-grade ICF converters can handle CAN-to-fiber and PROFIBUS-to-fiber conversions, even in harsh settings.

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Chassis Media Converters

Product Series	TRC-190	TCF-142-RM
Power Parameters		
Input Voltage	TRC-190-AC models: 110 to 240 VAC TRC-190-DC-48 models: 48 VDC Redundant dual inputs	12 VDC
No. of Power Inputs	2	1
Power Consumption	TRC-190-AC models: 1.5 A @ 100 to 240 VAC TRC-190-DC-48 models: 3.2 A @ 48 VDC	150 mA @ 12 VDC
Serial Interface		
No. of Ports	–	2
Serial Standards	–	RS-232, RS-422, RS-485
Baudrate	–	50 bps to 921.6 kbps (supports non-standard baudrates)
Flow Control	–	ADDC (automatic data direction control) for RS-485
Connector	–	DB9 female
Optical Fiber	–	TCF-142-M-SC-RM models: 100BaseFX ports (multi-mode SC connector) TCF-142-M-ST-RM models: 100BaseFX ports (multi-mode ST connector) TCF-142-S-SC-RM models: 100BaseFX ports (single-mode SC connector) TCF-142-S-ST-RM models: 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 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)
Installation	19-inch rack mounting	–
Environmental Limits		
Ambient Relative Humidity	5 to 95% (non-condensing)	
Operating Temperature	0 to 60°C (32 to 140°F)	
Storage Temperature (Package Included)	-20 to 75°C (-4 to 167°F)	
Standards and Certifications		
EMC	EN 55032/35	
EMI	CISPR 32, FCC Part 15B Class A	
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV (AC), 1 kV (DC) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF	
Safety	IEC 62368-1, UL 62368-1	EN 60950-1, IEC 60950-1

Serial-to-fiber Media Converters

Product Series	TCF-90	TCF-142	ICF-1150
Serial Interface			
No. of Ports	2		
Serial Standards	RS-232	RS-232, RS-422, RS-485	
Baudrate	300 bps to 115.2 kbps	50 bps to 921.6 kbps (supports non-standard baudrates)	
Isolation	–		I models: 2 kV
Connector	DB9 female	7-pin terminal block	RS-232 interface: DB9 female RS-422/485 interface: 5-pin terminal block RS-232/422/485 interface: Fiber ports
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 µm, 800 MHz or 62.5/125 µm, 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, GND[1]	TxD, RxD, GND	
RS-422	–	Tx+, Tx-, Rx+, Rx-, GND	
RS-485-4w	–	Tx+, Tx-, Rx+, Rx-, GND	
RS-485-2w	–	Data+, Data-, GND	
Power Parameters			
Input Current	5 to 12 VDC, 20 mA (max.)	70 to 140 mA @ 12 to 48 VDC	ICF-1150 models: 264 mA @ 12 to 48 VDC ICF-1150I models: 300 mA @ 12 to 48 VDC
Input Voltage	5 to 12 VDC	12 to 48 VDC	
No. of Power Inputs	1		
Physical Characteristics			
Housing	Plastic	Metal	
Dimensions	42 x 80 x 22 mm (1.65 x 3.15 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)	
Ambient Relative Humidity	5 to 95% (non-condensing)		
Standards and Certifications			
EMC	EN 55032/35		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 3 V 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: 3 V 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
Environmental Testing	IEC 60068-2-1, IEC 60068-2-14, IEC 60068-2-2, IEC 60068-2-3	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-3	
Hazardous Locations	–		IEX models: CID2, ATEX Zone 2, IECEx All other models: CID2, ATEX Zone 2

[1] The DTR, DSR, DCD, CTS, and RTS pins are internally shorted.

Serial-to-serial Converters



Product Series	TCC-80/80I	TCC-100/100I	TCC-120/120I
Serial Interface			
Connector	TCC-80-DB9/80I-DB9 models: DB9 male TCC-80/80I models: Terminal block	Terminal block	
No. of Ports	2		
Serial Standards	RS-232, RS-422, RS-485		RS-422, RS-485
Isolation	TCC-80I/80I-DB9 models: 2 kV	TCC-100I/100I-T models: 2 kV	TCC-120I models: 2 kV
Baudrate	300 bps to 115.2 kbps	50 bps to 921.6 kbps (supports non-standard baudrates)	
Serial Signals			
RS-232	TxD, RxD, GND[1]	TxD, RxD, RTS, CTS, GND	–
RS-422	Tx+, Tx-, Rx+, Rx-, GND	TX+, TX-, RX+, RX-, RTS, CTS	Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND		
RS-485-2w	Data+, Data-, GND		
Power Parameters			
Input Current	TCC-80/80-DB9 models: 30 mA @ 5 to 12 VDC TCC-80I/80I-DB9 models: 20 mA @ 5 to 12 VDC	TCC-100/100-T models: 50 to 85 mA @ 12 to 48 VDC TCC-100I/100I-T models: 150 mA @ 12 to 48 VDC	TCC-120 models: 65 mA @ 12 VDC TCC-120I models: 180 mA @ 12 VDC
Input Voltage	5 to 12 VDC	12 to 48 VDC	
No. of Power Inputs	1		
Physical Characteristics			
Housing	Plastic top cover, Metal bottom plate	Metal	
Dimensions	TCC-80/80I models: 42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in) TCC-80-DB9/80I-DB9 models: 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 3.93 x 0.87 in)	
Installation	Desktop	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)	-20 to 60°C (-4 to 140°F)
Storage Temperature (Package Included)	-20 to 75°C (-4 to 167°F)	-40 to 85°C (-40 to 185°F)	
Ambient Relative Humidity	5 to 95% (non-condensing)		
Standards and Certifications			
EMC	EN 55032/35		
EMI	CISPR 32, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; 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		
Environmental Testing	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-3		

[1] The DTR, DSR, DCD, CTS, and RTS pins are internally shorted.

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




Product Series	ICF-1170I	ICF-1171I	ICF-1180I	ICF-1280I
Fiber Interface				
No. of Ports	1	1	1	2
Optical Fiber	100BaseFX ports Multi-mode ST connector	100BaseFX ports Single-mode or 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 µm 62.5/125 µm	Multi-mode: 62.5/125 µm Single-mode: 9/125 µm	–	–
Typical Distance	2 km	Multi-mode: 2 km Single-mode: 40 km	Multi-mode: 4 km, Single-mode: 45 km	Multi-mode: 4 km, Single-mode: 45 km
Wavelength (Typical)	850 nm	1310 nm	Multi-mode: 820 nm, Single-mode: 1310 nm	Multi-mode: 820 nm, Single-mode: 1310 nm
Wavelength (TX Range)	840 to 860 nm	1280 to 1340 nm	–	–
Wavelength (RX Range)	800 to 900 nm	1100 to 1600 nm	–	–
Optical Power (TX Range)	0 to -5 dBm	Multi-mode: -10 to -20 dbm, Single-mode: 0 to -5 dbm	Multi-mode: -14 dBm, Single-mode: -8 dBm	Multi-mode: -14 dBm, Single-mode: -8 dBm
Optical Power (RX Range)	0 to -20 dBm	Multi-mode: -3 to -32 dbm Single-mode: -3 to -34 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: 12 dBm Single-mode: 29 dBm	Multi-mode: 14 dBm, Single-mode: 21 dBm	Multi-mode: 14 dBm, Single-mode: 21 dBm
Optical Power (Dispersion Penalty)	1 dB	1 dB	–	–
CAN Interface				
Isolation	2 kV (built-in)		–	
No. of Ports	1		–	
Signals	CAN_L, CAN_H, CAN Signal GND		–	
Terminator	N/A, 120 ohms (by DIP)		–	
Protocols	CAN 2.0A, CAN 2.0B	CAN 2.0A, CAN 2.0B, CAN FD compatible with ISO 11898 standard	–	
PROFIBUS Interface				
Industrial Protocols	–		PROFIBUS DP	
No. of Ports	–		1	2
Connector	–		DB9 female	
Baudrate	–		9600 bps to 12 Mbps	
Isolation	–		2 kV (built-in)	
Power Parameters				
Input Current	221 mA @ 12 to 48 VDC	188.5 mA (max.)	269 mA @ 12 to 48 VDC	370 mA @ 12 to 48 VDC
Input Voltage	12 to 48 VDC			
No. of Power Inputs	2			
Power Connector	Terminal block			
Physical Characteristics				
Housing	Metal			
Dimensions	30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)		30.3 x 115 x 70 mm (1.19 x 4.53 x 2.76 in)	39 x 115 x 70 mm (1.54 x 4.53 x 2.76 in)
Installation	DIN-rail mounting	DIN-rail mounting Wall mounting (with optional kit)	DIN-rail mounting Wall mounting (with optional kit)	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 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: 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 55032/35			
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: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 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: 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: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m; Signal: 10 V/m IEC 61000-4-8 PFMF	IEC 61000-4-2 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: 0.5 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF	
Safety	EN 62368-1, UL 508	UL 62368-1, EN 62368-1	IEC 60950-1, UL 508	
Maritime	–		DNV	
Hazardous Locations	–		ATEX, CID2, IECEx	

Protocol Gateways

Our fieldbus-to-Ethernet MGate gateways do more than just link serial devices to Ethernet networks–they also facilitate multiple connections and protocol conversions, helping you handle large volumes of data. The MGate supports various protocols, including Modbus TCP, PROFINET, EtherNet/IP, IEC 61850, CANopen and more, catering to energy and industrial automation applications.

Protocol Gateways Product Pages

Find an MGate for Energy Applications

Device A / Device B	Modbus RTU/ASCII Server	Modbus RTU/ASCII Client	DNP3 Serial Outstation	DNP3 Serial Master	IEC 60870-5-101 Slave	IEC 60870-5-101 Master	Modbus TCP Server	Modbus TCP Client	DNP3 TCP Outstation	DNP3 TCP Client	IEC 60870-5-104 Server	IEC 60870-5-104 Client	BACnet/IP Client	IEC 61850 MMS Client	IEC 61850 MMS Server
Modbus RTU/ASCII Server	-	MB3000[1]	-	-	-	-	5105	MB3000 5109 5105	-	5109	-	5114	5217	5119	-
Modbus RTU/ASCII Client	MB3000[1]	-	-	-	-	-	MB3000 5109 5105	5105 5109	5109	5109	5114	-	-	-	5192
DNP3 Serial Outstation	-	-	-	-	-	-	-	5109	-	5109	-	-	-	5119	-
DNP3 Serial Master	-	-	-	-	-	-	5109	5109	5109	-	-	-	-	-	5192
IEC 60870-5-101 Slave	-	-	-	-	-	-	-	5114	-	-	-	5114	-	5119	-
IEC 60870-5-101 Master	-	-	-	-	-	-	5114	-	-	-	5114	-	-	-	5192
Modbus TCP Server	5105	MB3000 5109 5105	-	5109	-	5114	-	MB3000[2]	-	5109	-	5114	5217	5119	-
Modbus TCP Client	MB3000 5109 5105	5105 5109	5109	5109	5114	-	MB3000[2]	5109	5109	5109	5114	-	-	-	5192
DNP3 TCP Outstation	-	5109	-	5109	-	-	-	5109	-	-	-	-	-	5119	-
DNP3 TCP Client	5109	5109	5109	-	-	-	5109	5109	-	-	-	-	-	-	5192
IEC 60870-5-104 Server	-	5114	-	-	-	5114	-	5114	-	-	-	-	-	5119	-
IEC 60870-5-104 Client	5114	-	-	-	5114	-	5114	-	-	-	-	-	-	-	5192
BACnet/IP Client	5217	-	-	-	-	-	5217	-	-	-	-	-	-	-	-
IEC 61850 MMS Client	5119	-	5119	-	5119	-	5119	-	5119	-	5119	-	-	-	-
IEC 61850 MMS Server	-	5192	-	5192	-	5192	-	5192	-	5192	-	5192	-	-	-

[1] Applies only to the MB3270/3660 Series.
[2] Applies to the MB3x70/MB3660 Series.

Find an MGate for Industrial Automation Applications

Device A / Device B	Modbus RTU/ASCII Server	Modbus RTU/ASCII Client	PROFIBUS Slave	PROFIBUS Master	CANopen/ J1939	DF1	Modbus TCP Server	Modbus TCP Client	EtherNet/IP Adapter	EtherNet/IP Scanner	PROFINET Controller
Modbus RTU/ASCII Server	-	MB3000[1]	-	4101 5111	5118	-	5105	MB3000 5109 5105	5105	5105 5135/5435	5103 5134
Modbus RTU/ASCII Client	MB3000[1]	-	-	4101 5111	5118	-	MB3000 5109 5105	5105 5109	5105	5105	5103
PROFIBUS Slave	-	-	-	-	-	-	5101	5101	-	-	5102
PROFIBUS Master	4101 5111	4101 5111	-	-	-	-	5111	5111	-	5111	5111
CANopen/J1939	5118	5118	-	-	-	-	5118	5121 5118	5118	5122 5118	5123 5118
DF1	-	-	-	-	-	-	-	-	EIP3000	EIP3000	-
Modbus TCP Server	5105	MB3000 5109 5105	5101	5111	5118	-	-	MB3000[2]	5105	5105 5135/5435	5103 5134
Modbus TCP Client	MB3000 5109 5105	5105 5109	5101	5111	5121 5118	-	MB3000[2]	5109	5105	5105	5103
EtherNet/IP Adapter	5105	5105	-	-	5118	EIP3000	5105	5105	-	-	-
EtherNet/IP Scanner	5105 5135/5435	5105	-	5111	5122 5118	EIP3000	5105 5135/5435	5105	-	-	5103
PROFINET Controller	5103 5134	5103	5102	5111	5123 5118	-	5103 5134	5103	-	5103	-

[1] Applies to the MB3270/3660 Series.
[2] Applies to the MB3x70/MB3660 Series.

Industrial Ethernet Gateways




Product Series	MGate MB3180/MB3280/MB3480	MGate MB3170/MB3270	MGate MB3660	MGate 5217
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 IPs, Auto MDI/MDI-X connection)	2 (Auto MDI/MDI-X connection)
Magnetic Isolation Protection	1.5 kV (built-in)			
Ethernet Software Features				
Industrial Protocols	Modbus TCP Client, Modbus TCP Server			Modbus TCP Client, BACnet/IP Server
Management	All models: ARP, DHCP Client, DNS, HTTP, SNMPv1/v2c/v3, TCP/IP, Telnet, UDP MGate MB3280/MB3240 models: HTTPS, SMTP, SNMP Trap, NTP Client	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, UDP, NTP Client
BACnet/IP				
Mode	–			Server (Slave)
Memory Size	–			MGate 5217I-1200-T models: 1200 points MGate 5217I-600-T models: 600 points
Serial Interface				
No. of Ports	MGate MB3180 models: 1 MGate MB3280 models: 2 MGate MB3480 models: 4	MGate MB3170 models: 1 MGate MB3270 models: 2	MGate MB3660-8 models: 8 MGate MB3660-16 models: 16	2
Connector	DB9 male	MGate MB3170/MB3170I models: DB9 male for RS-232, Terminal block for RS-422/485 MGate MB3270/MB3270I models: 2 x DB9 male	MGate MB3660-8/16 models: DB9 male MGate MB3660-8/16-J models: RJ45	DB9 male
Serial Standards	RS-232/422/485 (software-selectable)			
Baudrate	50 bps to 921.6 kbps			
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 models: None MGate MB3280/MB3480 models: 120 ohms	120 ohms		
Isolation	–	I models: 2 kV	I models: 2 kV	2 kV (built-in)
Serial Software Features				
Industrial Protocols	Modbus RTU/ASCII Client, Modbus RTU/ASCII Server			
Power Parameters				
Input Voltage	12 to 48 VDC		AC models: 100 to 240 VAC (50/60 Hz) DC models: 20 to 60 VDC (1.5 kV isolation) All models: Redundant dual inputs	24 VAC 12 to 48 VDC
Environmental Limits				
Operating Temperature	MGate MB3180/3480 models: 0 to 55°C (32 to 131°F) MGate MB3280 models: 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)	-40 to 75°C (-40 to 167°F)
Standards and Certifications				
Safety	MB3180 models: EN 62368-1, UL 60950-1 MB3280/3480 models: IEC 62368-1, UL 62368-1	EN 60950-1, IEC 60950-1, IEC 62368-1, UL 62368-1	MGate MB3660-8-2AC/16-2AC/8-2DC/16-2DC models: IEC 62368-1, UL 62368-1 MGate MB3660I-8-2AC/16-2AC models: IEC 62368-1, UL 62368-1 MGate MB3660-8-J-2AC/16-J-2AC models: UL 60950-1	UL 62368-1, IEC 62368-1
EMC	EN 55032/35			
EMI	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 (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	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	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: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11
Hazardous Locations	–	ATEX, CID2, IECEx	–	
Maritime	–	DNV	–	

Industrial Ethernet Gateways






Product Series	MGate 4101-MB-PBS	MGate 5101-PBM-MN	MGate 5102-PBM-PN	MGate 5111	MGate 5103	MGate 5134
Ethernet Interface						
10/100BaseT(X) Ports (RJ45 Connector)	–	1 (Auto MDI/MDI-X connection)	2 (Auto MDI/MDI-X connection)			
Magnetic Isolation Protection	–	1.5 kV (built-in)				
Ethernet Software Features						
Industrial Protocols	–	Modbus TCP Client, Modbus TCP Server	PROFINET IO Device	Modbus TCP Client, Modbus TCP Server, PROFINET IO Device, EtherNet/IP Adapter		Modbus TCP Client, PROFINET IO Device
Management	–	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, SSH, UDP, NTP Client				ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, UDP, NTP Client
Serial Interface						
No. of Ports	1	–		1		
Connector	DB9 male	–		DB9 male		
Serial Standards	RS-232/422/485	–		RS-232/422/485		
Baudrate	50 bps to 921.6 kbps	–		50 bps to 921.6 kbps		300 bps to 921.6 kbps
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, Software-configurable
Terminator for RS-485	120 ohms	–		120 ohms		120 ohms, Software-configurable
Isolation	I models: 2 kV	–		2 kV (built-in)		
Serial Software Features						
Industrial Protocols	Modbus RTU/ASCII Client, Modbus RTU/ASCII Server	–		Modbus RTU/ASCII Client, Modbus RTU/ASCII Server	Modbus RTU/ASCII Client, Modbus RTU/ASCII Server	Modbus RTU/ASCII Client
PROFIBUS Interface						
Industrial Protocols	PROFIBUS DP-V0 Slave	PROFIBUS DP-V1 Master		PROFIBUS DP-V0 Slave	–	
No. of Ports	1				–	
Connector	DB9 female				–	
Baudrate	9600 bps to 12 Mbps				–	
Isolation	2 kV (built-in)				–	
Power Parameters						
Input Voltage	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)					Standard models: -10 to 60°C (14 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 61010-2-201	EN 60950-1, UL 508	EN 61010-2-201, UL 61010-2-201
EMC	EN 55032/35	EN 55032/35	EN 55032/35	EN 61000-6-2/-6-4	EN 55032/35	EN 61000-6-2/-6-4
EMI	FCC Part 15B Class A		CISPR 32, FCC Part 15B Class B	FCC Part 15B Class A	CISPR 32, FCC Part 15B Class B	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: 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: 10 V/m; 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: 10 V/m; 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: 10 V/m; 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: 4 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	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, CID2, IECEx					–

Industrial Ethernet Gateways

Product Series	MGate EIP3170/ EIP3270	MGate 5105-MB-EIP	MGate 5135/5435	MGate 5118	MGate 5121	MGate 5122	MGate 5123
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, Modbus TCP Server, EtherNet/IP Scanner, EtherNet/IP Adapter, MQTT	Modbus TCP Client, EtherNet/IP Adapter	Modbus TCP Client, Modbus TCP Server, PROFINET IO Device, EtherNet/IP Scanner, EtherNet/IP Adapter	Modbus TCP Client	EtherNet/IP Adapter	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	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, UDP, NTP Client	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, SSH, UDP, NTP Client	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, UDP, NTP Client		
Serial/CAN Interface							
Industrial Protocols	DF1	Modbus RTU/ASCII Client, Modbus RTU/ASCII Server	Modbus RTU/ASCII Client	J1939, Modbus RTU/ASCII Client, Modbus RTU/ASCII Server	CANopen, J1939		
No. of Ports	Serial MGate EIP3170 models: 1 MGate EIP3270 models: 2	1 x Serial	Serial MGate 5135 models: 1 MGate 5435 models: 4	1 x Serial 1 x CAN	1 x CAN		
Connector	MGate EIP3170 models: DB9 male for RS-232, Terminal block for RS-422 MGate EIP3270 models: 2 x DB9 male	Serial: DB9 male	Serial: DB9 male	Serial: DB9 male CAN: Spring-type Euroblock terminal	CAN: Spring-type Euroblock terminal		
Serial Standards	RS-232, RS-422	RS-232, RS-422, RS-485			–		
Baudrate	Serial: 1200 bps to 921.6 kbps	Serial: 50 bps to 921.6 kbps	Serial: 300 bps to 921.6 kbps	Serial: 50 bps to 921.6 kbps J1939: 250 kbps, 500 kbps, 1 Mbps	CANopen: 10 kbps, 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 800 kbps, 1 Mbps J1939: 250 kbps, 500 kbps, 1 Mbps		
Isolation	I models: 2 kV	2 kV (built-in)					
Pull High/Low Resistor for RS-485	–	1 kilo-ohm, 150 kilo-ohms	1 kilo-ohm, 150 kilo-ohms, Software-configurable	1 kilo-ohm, 150 kilo-ohms	–		
Terminator	–	RS-485: 120 ohms	RS-485: 120 ohms, Software-configurable	RS-485: 120 ohms CAN: 120 ohms	CAN: 120 ohms, Software-configurable		
Power Parameters							
Input Voltage	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)	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)	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)		
Standards and Certifications							
Safety	EN 60950-1, UL 508		EN 61010-2-201, UL 61010-2-201	EN 62368-1, UL 61010-2-201	EN 61010-2-201, UL 61010-2-201		
EMI	FCC Part 15B Class A	CISPR 32, FCC Part 15B Class B	FCC Part 15B Class A				
EMC	EN 55032/35		EN 61000-6-2/-6-4				
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	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		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: 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	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, CID2, IECEx	ATEX, CID2, IECEx	–	ATEX, CID2, IECEx	–		
Maritime	DNV	–					

Industrial Ethernet Gateways

Product Series	MGate 5109	MGate 5114	MGate 5119	MGate 5192
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	Modbus TCP Client, Modbus TCP Server, DNP3 TCP Client, DNP3 TCP Outstation	Modbus TCP Client, Modbus TCP Server, IEC 60870-5-104 Client, IEC 60870-5-104 Server	Modbus TCP Client, IEC 60870-5-104 Client, IEC 61850 MMS Server, DNP3 TCP Master	IEC 61850 Client, Modbus TCP Server, DNP3 TCP/UDP Outstation, IEC 60870-5-104 Server
Management	ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, Telnet, SSH, UDP, NTP Client			ARP, DHCP Client, DNS, HTTP, HTTPS, SMTP, SNMP Trap, SNMPv1/v2c/v3, TCP/IP, UDP, NTP Client
Serial Interface				
No. of Ports	1			
Connector	DB9 male			
Serial Standards	RS-232, RS-422, RS-485			
Baudrate	50 bps to 921.6 kbps			300 bps to 921.6 kbps
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms			1 kilo-ohm, 150 kilo-ohms, Software-configurable
Terminator for RS-485	120 ohms			120 ohms, Software-configurable
Isolation	2 kV (built-in)			
Serial Software Features				
Industrial Protocols	Modbus RTU/ASCII Client, Modbus RTU/ASCII Server, DNP3 Serial Client, DNP3 Serial Outstation	Modbus RTU/ASCII Client, Modbus RTU/ASCII Server, IEC 60870-5-101 Client (Balanced/Unbalanced), IEC 60870-5-101 Server (Balanced/Unbalanced)	Modbus RTU/ASCII Client, IEC 60870-5-101 Client (Balanced/Unbalanced), DNP3 Serial Client	Modbus RTU/ASCII Server, DNP3 Serial Server, IEC 60870-5-101 (Balanced/Unbalanced)
IEC 61850				
Mode	–		MMS Server	MMS Client
Max. No. of Information Objects	–		1200 points	5000 points
Power Parameters				
Input Voltage	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)			Standard models: -10 to 60°C (14 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, IEC 60950-1, IEC 62368-1, UL 60950-1, EN 62368-1, UL 62368-1	EN 61010-2-201, UL 61010-2-201
EMC	EN 55032/35			EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class B		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 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		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV IEC 61000-4-6 CS: 10 V/m IEC 61000-4-8 PFMF: 100 A/m	
Hazardous Locations	ATEX, CID2, IECEx		–	
Power Substation	–		IEEE 1613, IEC 61850-3	

USB-to-serial Converters/USB Hubs

Moxa's UPort Series of USB-to-serial converters provides SuperSpeed USB 3.2 and Hi-Speed USB 2.0 interfaces. Moxa's USB hubs provide SuperSpeed USB 3.2 speeds up to 5 Gbps. Both come with 15 kV of ESD protection and metal housing to endure harsh environments, making them ideal for ATMs, kiosks, POS stations, and data acquisition applications.

USB-to-serial Converters/
USB Hubs Product Pages

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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 SuperSpeed USB 3.2 and Hi-Speed USB 2.0, advanced UARTs for high-end serial performance, COM port mapping, fixed-base COM functionality, and more.

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Industrial-grade USB Hubs

The industrial-grade UPort Series of USB hubs is designed with the ruggedness and reliability needed for industrial applications. Each port has ESD Level 4 protection and provides SuperSpeed USB 3.2 data rates up to 5 Gbps—even for heavy-load applications. In the UPort Series, you'll find models that have dual power inputs, DIN-rail mounting options, and wide temperature ranges to operate reliably in harsh conditions.

USB-to-serial Converters





Product Series	UPort 1100	UPort 1200-G2	UPort 1400-G2	UPort 1600-8-G2	UPort 2210/2410
USB Interface					
Speed	12 Mbps	5 Gbps, 480 Mbps, 12 Mbps			12 Mbps, 480 Mbps
USB Connector	UPort 1150I models: USB Type B All other models: USB Type A	USB Type B		All models: USB type B (UFP) UPort 1650-8-G2-Hub: Type A (DFP)	USB Type B
USB Standards	USB 2.0 compatible, USB 1.0/1.1 compliant	USB 3.2 Gen 1, USB 1.1/2.0 compliant			USB 1.1/2.0 compliant
Serial Interface					
No. of Ports	1	2	4	8	UPort 2210 models: 2 UPort 2410 models: 4
Connector	DB9 male				
Baudrate	50 bps to 921.6 kbps	50 bps to 921.6 kbps (supports non-standard baudrates)			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	I models: 2 kV				–
Serial Standards	RS-232, RS-422, or RS-485 (refer to the product's datasheet for detailed specifications)				RS-232
FIFO	64 bytes	512 bytes			–
Pull High/Low Resistor for RS-485	UPort 1150I models: 1 kilo-ohm, 150 kilo-ohms	1 kilo-ohm, 150 kilo-ohms			–
Terminator for RS-485	UPort 1150I models: 120 ohms	120 ohms			–
Surge	–	0.5 kV			–
Serial Software Features					
Windows Drivers	Windows 11, 10, 8.1, 8, 7, Vista, ME, XP Windows Server 2022, 2019, 2016, 2012 R2, 2012, 2008 R2, 2008, 2003, 2000, NT	Windows 11, 10, 8.1, 8, 7 Windows Server 2022, 2019, 2016, 2012 R2, 2012, 2008 R2			
Linux Drivers	Kernel 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x	Kernel 6.x, 5.x, 4.x			Kernel 6.x, 5.x, 4.x., 3.x, 2.6.x
Mac Drivers	Intel 64: 14, 13, 12, 11, 10.1x	Intel 64: 13, 12, 11, 10.1x			Intel 64: 11, 10.1x
Arm®-based Platform Support	Linux kernel 6.x, 5.x Windows 11 macOS 14, 13, 12, 11	Linux kernel 6.x, 5.x Windows 11			Linux kernel 6.x, 5.x
Power Parameters					
Input Voltage	5 VDC	5 VDC by USB bus power	5 VDC by USB bus power or 12 to 48 VDC by external power adaptor	UPort 1610-8-G2/1650-8-G2 models: 5 VDC by USB bus power All models: 12 to 48 VDC by external power adaptor	5 VDC
Input Current	UPort 1110 models: 30 mA UPort 1130 models: 60 mA UPort 1130I models: 65 mA UPort 1150 models: 77 mA UPort 1150I models: 260 mA	UPort 1250-G2 models: 160 mA @ USB 2.0, 320 mA @ USB 3.2 UPort 1250I-G2 models: 240 mA @ USB 2.0, 400 mA @ USB 3.2	UPort 1410-G2 models: 200 mA @ 12 VDC UPort 1450-G2 models: 240 mA @ 12 VDC UPort 1450I-G2 models: 340 mA @ 12 VDC	UPort 1610-8-G2 models: 260 mA @ 12 VDC UPort 1650-8-G2 models: 350 mA @ 12 VDC UPort 1650I-8-G2 models: 530 mA @ 12 VDC UPort 1650-8-G2-Hub: 2,250 mA @ 12 VDC	UPort 2210 models: 140 mA @ 5 VDC UPort 2410 models: 240 mA @ 5 VDC
Physical Characteristics					
Housing	UPort 1150I models: Metal All other models: ABS + Polycarbonate (PC)	Metal			Polycarbonate (PC)
Dimensions	UPort 1150I models: 52 x 80 x 22 mm (2.05 x 3.15 x 0.87 in) All other models: 37.5 x 20.5 x 60 mm (1.48 x 0.81 x 2.36 in)	75.8 x 25.0 x 111.0 mm (2.98 x 0.98 x 4.37 in)	185 x 30 x 90.6 mm (7.28 x 1.18 x 3.57 in)	216 x 41.5 x 121.6 mm (8.50 x 1.63 x 4.79 in)	UPort 2210 models: 70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in) UPort 2410 models: 80 x 35 x 185 mm (3.15 x 1.38 x 7.28 in)
Environmental Limits					
Operating Temperature	0 to 55°C (32 to 131°F)	Standard models: 0 to 60°C (32 to 140°F) Wide temp. models: -40 to 75°C (-40 to 167°F)			0 to 55°C (32 to 131°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)	-40 to 75°C (-40 to 167°F)			-20 to 70°C (-4 to 158°F)
Standards and Certifications					
EMC	EN 55032/35				EN 55032/24
EMI	CISPR 32, FCC Part 15B Class 1	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				
	IEC 61000-4-5 Surge: Power: 2 kV	IEC 61000-4-5 Surge: 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				
	IEC 61000-4-8 PFMF				
Safety	UL 60950-1 (UPort 1150I)	IEC 62368-1, EN 62368-1, UL 62368-1 (CB), KC			UL 60950-1

USB-to-serial Converters




Product Series	UPort 1450	UPort 1450I	UPort 1650-8	UPort 1650-16
USB Interface				
Speed	12 Mbps, 480 Mbps			
USB Connector	USB Type B			
USB Standards	USB 1.1/2.0 compliant			
Serial Interface				
No. of Ports	4	4	8	16
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	–	–
Serial Standards	RS-232, RS-422, RS-485			
Serial Software Features				
Windows Drivers	Windows 11/10/8.1/8/7/Vista/XP/ME/98/95 Windows Server 2022/2019/2016/2012 R2/2012/2008 R2/2008/2003/2000/NT			
Linux Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x			
Mac Drivers	macOS versions: 13, 12, 11, 10.1x			
Virtual Machine	VMware Fusion (Windows on macOS 10.12 to 13) VMWare ESXi (Linux kernel 4) Parallels Desktop (Windows on macOS 10.12 to 11.x)			
Arm®-based Platform Support	Linux kernel 6.x, 5.x, 4.x			
Android API	Android 3.1.x and later			
Power Parameters				
Input Voltage	12 to 48 VDC			100 to 240 VAC
Input Current	260 mA @ 12 VDC	360 mA @ 12 VDC	580 mA @ 12 VDC	220 mA @ 100 VAC
Physical Characteristics				
Dimensions	204 x 30 x 125 mm (8.03 x 1.18 x 4.92 in)		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 7.8 in)
Environmental Limits				
Operating Temperature	0 to 55°C (32 to 131°F)			
Storage Temperature (Package Included)	-20 to 75°C (-4 to 167°F)			
Standards and Certifications				
EMC	EN 55032/35			
EMI	CISPR 32, FCC Part 15B Class A			
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV 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 62368-1, IEC 62368-1			UL 60950-1
Package Contents				
Device	1 x UPort 1200/1400/1600 Series USB-to-serial converter			
Cable	1 x USB type A male to USB type B male			
Connectors	UPort 1250/1450/1650 models: 1 x Mini DB9F-to-TB			
Power Supply	UPort 1250I/1450/1450I/1600-8 models: 1 x power adapter, universal UPort 1600-16 models: 1 x power cord			
Installation Kit	UPort 1600-16 models: 1 x rack-mounting ear			

USB Hubs




Product Series	UPort 400A	UPort 200A	UPort 404/407	UPort 207/204
USB Interface				
USB Standards	USB 3.2 Gen 1 USB 1.1/2.0 compliant		USB 1.1/2.0 compliant	
Speed	5 Gbps		12 Mbps, 480 Mbps	
USB Connector	UFP: type B DFP: type A			
No. of USB Ports	UPort 404A models: 5 (UFP: 1, DFP: 4) UPort 407A models: 8 (UFP: 1, DFP: 7)	UPort 204A models: 5 (UFP: 1, DFP: 4) UPort 207A models: 8 (UFP: 1, DFP: 7)	UPort 404 models: 4 UPort 407 models: 7	UPort 204 models: 4 UPort 207 models: 7
Power Parameters				
Input Voltage	12 to 48 VDC No. of power inputs: 2	No. of power inputs: 1 12 VDC	12 to 40 VDC	
Power Connector	Power jack 3-pin terminal block	Power jack	Power jack, 3-pin terminal block	Power jack
Reverse Polarity Protection	Supported		–	
Input Current	UPort 407A models: 4.75 A @ 12 VDC UPort 404A models: 2.8 A @ 12 VDC	UPort 207A models: 4.5 A @ 12 VDC UPort 204A models: 2.65 A @ 12 VDC	UPort 404 models: 1.3 A @ 12 VDC UPort 407 models: 2.3 A @ 12 VDC	UPort 204 models: 1.21 A @ 12 VDC UPort 207 models: 2.17 A @ 12 VDC
Output Power Rating	Port 1: 900/1500 mA @ 5 VDC (BC 1.2 compatible) All other ports: 900 mA @ 5 VDC		500 mA @ 5 VDC	
Physical Characteristics				
Dimensions	UPort 407A models: 80 x 27 x 140 mm (3.15 x 1.06 x 5.51 in) UPort 404A models: 85 x 27 x 100 mm (3.35 x 1.06 x 3.94 in)	UPort 207A models: 80 x 27 x 140 mm (3.15 x 1.06 x 5.51 in) UPort 204A models: 85 x 27 x 100 mm (3.35 x 1.06 x 3.94 in)	UPort 404 models: 80 x 35 x 130 mm (3.15 x 1.38 x 5.12 in) UPort 407 models: 100 x 35 x 192 mm (3.94 x 1.38 x 7.56 in)	UPort 204 models: 70 x 35 x 120 mm (2.76 x 1.38 x 4.72 in)' UPort 207 models: 80 x 35 x 185 mm (3.15 x 1.38 x 7.28 in)
Standards and Certifications				
EMC	EN 55032/35		All models: EN 55032/24 UPort 407 models: BSMI	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: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 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: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m IEC 61000-4-8 PFMF	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	
Safety	EN 62368-1, UL 62368-1, KC		All models: UL 508 UPort 407 models: BSMI, KC	–
MTBF				
Standards	Telcordia (Bellcore), GB			
Time	UPort 407A models: 1,467,922 hrs UPort 404A models: 2,107,973 hrs	UPort 207A models: 1,957,123 hrs UPort 204A models: 2,678,801 hrs	UPort 404 models: 1,490,340 hrs UPort 407 models: 1,111,361 hrs	UPort 204 models: 1,577,573 hrs UPort 207 models: 1,059,201 hrs
Package Contents				
Device	1 x UPort 400A Series USB hub	1 x UPort 200A Series USB hub	1 x UPort 404/407 Series USB hub	1 x UPort 204/207 Series USB hub
Cable	1 x USB 3.2 Gen 1 type A male to USB type B male cable with latch and screw lock, 1.2 M	1 x USB 3.2 Gen 1 type A male to USB type B male cable, 1.2 M	1 x USB type A male to USB type B male	
Power Supply	1 x power adapter, suitable for your region (for standard temperature models only)	1 x power adapter, suitable for your region	1 x power adapter, universal (standard temperature models only)	1 x power adapter, universal
Installation Kit	1 x terminal block, 3-pin, 3.5 mm 4 x rubber stand 1 x wall-mounting kit 6 x Nylok screw	4 x rubber stand	1 x wall-mounting kit	–

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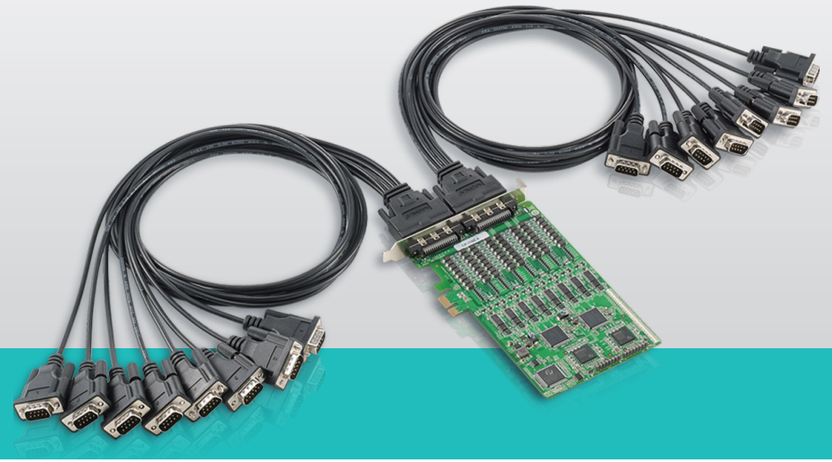
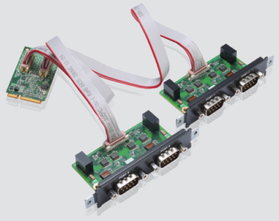


Multiport Serial Boards

Backed by over thirty years of experience in multiport serial board technology and development, Moxa stands out in the market with its vast selection of industrial-grade multiport serial cards. Moxa offers serial boards for a variety of slot types, including Mini PCIe, PCI Express (PCIe), Universal PCI, and PC/104.

Multiport Serial Boards Product Pages



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PCI Express (PCIe) Serial Boards

Our PCI Express boards are designed for factory automation, kiosk, and ATM applications, and they are a top choice of industrial automation engineers and system integrators. They support many operating systems, including Windows, Linux, and even UNIX.

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Universal PCI Serial Boards

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

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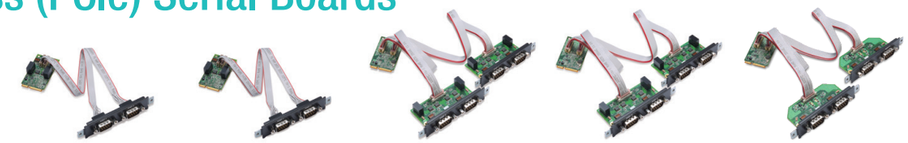
CAN Interface Boards/Modules

Moxa's CANbus serial boards are the culmination of over 30 years of experience in fieldbus interface boards. These serial boards are rugged, high-quality CAN interface modules that come with features such as ESD surge protection and long-term driver support.

PCI Express (PCIe) Serial Boards



Product Series	CP-102N	CP-132N	CP-104N	CP-134N	CP-114N
Serial Interface					
Comm. Controller	16C550C compatible				
Bus	Mini PCI Express				
Connector	DB9 male				
FIFO	128 bytes				
No. of Ports	2		4		
Serial Standards	RS-232	RS-422, RS-485	RS-232	RS-422, RS-485	RS-232, RS-422, RS-485 (software-selectable)
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)				
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, X ON/XOFF	None, XON/XOFF	None, RTS/CTS, XON/XOFF
Isolation	I models: 2.5 kV			2.5 kV	–
Data Bits	–	5, 6, 7, 8			
Serial Software Features					
Windows Drivers	Windows 7/8/8.1/10/11 (x86/x64), Windows 2008 R2/2012/2012 R2/2016/2019 (x64), Windows Server 2022				
Linux Drivers	Linux kernel 6.x, 5.x, 4.x				
Physical Characteristics					
Dimensions	30 x 50.95 mm (1.18 x 2 in)				
Environmental Limits					
Operating Temperature	-40 to 85°C (-40 to 185°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 55032/35				
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				
Declaration					
Green Product	RoHS, CRoHS, WEEE				
MTBF					
Time	CP-102N-I-T models: 3,512,504 hrs CP-102N-T models: 4,715,178 hrs	CP-132N-I-T models: 3,583,931 hrs CP-132N-T models: 4,128,967 hrs	CP-104N-I-T models: 2,189,472 hrs CP-104N-T models: 3,673,087 hrs	2,412,169 hrs	3,077,789 hrs
Package Contents					
Device	1 x CP-102N Series serial board	1 x CP-132N Series serial board	1 x CP-104N Series serial board	1 x CP-134N Series serial board	1 x CP-114N Series serial board
Cable	2 x 10-pin female to 1 DB9 male serial cables, 25 cm		2 x 20-pin female to 20-pin female serial cables, 25 cm		
Installation Kit	Door/CP-100N Port12		Door/CP-100N Port12, Door/CP-100N Port34		

PCI Express (PCIe) Serial Boards

Product Series	CP-102E	CP-102EL-DB9M	CP-104EL-A	CP-114EL	CP-116E-A
Serial Interface					
Comm. Controller	16C550C compatible				
Bus	PCI Express 1.0				
Connector	2 x DB9 male	DB25 female	DB44 female		VHDCI 68
FIFO	128 bytes				
No. of Ports	2		4		16
Serial Standards	RS-232			RS-232, RS-422, RS-485	
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)				
Stop Bits	1, 1.5, 2				
Parity	None, Even, Odd, Space, Mark				
Flow Control	None, RTS/CTS, XON/XOFF				
Data Bits	–	–	5, 6, 7, 8		
Isolation	–	–	–	CP-114EL-I models: 2 kV	–
Surge	–	–	–	–	4 kV
Serial Software Features					
Windows Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10/11 (x86/x64), Windows 2008 R2/2012/2012 R2/2016/2019 (x64)/2022, Windows Embedded CE 5.0/6.0, Windows XP Embedded				
Linux Drivers	Linux kernel 6.x, 5.x, 4.x, 3.x, 2.6x, 2.4x				
UNIX Drivers	QNX 6, Solaris 10, UnixWare 7, SCO OpenServer 5, SCO OpenServer 6				Solaris 10, UnixWare 7, SCO OpenServer 5, SCO OpenServer 6
Arm®-based Platform Support	Linux kernel 6.x, 5.x				
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 55032/35				
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
MTBF					
Time	4,947,552 hrs		3,601,447 hrs	CP-114EL models: 2,347,197 hrs CP-114EL-I models: 603,671 hrs	310,993 hrs

PCI Express (PCIe) Serial Boards





Product Series	CP-118E-A-I w/o cable	CP-138E-A-I w/o cable	CP-132EL	CP-134EL-A-I	CP-168EL-A
Serial Interface					
Comm. Controller	16C550C compatible				
Bus	PCI Express 1.0				
Connector	DB78 female		DB25 female	DB44 female	VHDCI 68
FIFO	128 bytes				
No. of Ports	8		2	4	8
Serial Standards	RS-232, RS-422, RS-485	RS-422, RS-485			RS-232
Baudrate	50 bps to 921.6 kbps (supports non-standard 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
Isolation	2 kV		CP-132EL-I-DB9M models: 2 kV	2 kV	–
Surge	4 kV		–	4 kV	–
Serial Software Features					
Windows Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10/11 (x86/x64), Windows 2008 R2/2012/2012 R2/2016/2019 (x64)/2022, Windows Embedded CE 5.0/6.0, Windows XP Embedded				
Linux Drivers	Linux kernel 6.x, 5.x, 4.x, 3.x, 2.6x, 2.4x				
UNIX Drivers	Solaris 10, UnixWare 7, SCO OpenServer 5, SCO OpenServer 6		Solaris 10, UnixWare 7, SCO OpenServer 5, SCO OpenServer 6, QNX 6	Solaris 10, UnixWare 7, SCO OpenServer 5, SCO OpenServer 6	
Arm®-based Platform Support	Linux kernel 6.x, 5.x				
Physical Characteristics					
Dimensions	107 x 136.9 mm (4.21 x 5.39 in)		CP-132EL-DB9M models: 67.21 x 101.97 mm (2.65 x 4.08 in) CP-132EL-I-DB9M models: 67.21 x 103.97 mm (2.65 x 4.16 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 55032/35				
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
MTBF					
Time	CP-118E-A-I models: 390,883 hrs CP-138E-A-I models: 221,331 hrs		CP-132EL-DB9M models: 4,147,133 hrs CP-132EL-I-DB9M models: 1,681,099 hrs	433,077 hrs	2,351,336 hrs

Universal PCI Serial Boards






Product Series	CP-102U	CP-102UL-DB9M	CP-104UL-DB9M	CP-104JU	CP-112UL	CP-114UL
Serial Interface						
Comm. Controller	MU860 (16C550C compatible)					
Bus	32-bit Universal PCI					
Connector	2 x DB9 male	DB25 female	DB44 female	4 x RJ45	DB25 female	DB44 female
No. of Ports	2	2	4	4	2	4
Serial Standards	RS-232				RS-232, RS-422, RS-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	–				CP-112UL-I models: 2 kV	CP-114UL-I models: 2 kV
Serial Software Features						
Windows Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10/11 (x86/x64), Windows 2008 R2/2012/2012 R2/2016/2019 (x64)/2022, Windows Embedded CE 5.0/6.0, Windows XP Embedded					
Linux Drivers	Linux kernel 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x					
UNIX Drivers	QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD					
Arm®-based Platform Support	Linux kernel 6.x, 5.x					
Physical Characteristics						
Dimensions	80 x 120 mm (3.15 x 4.72 in)	64.5 x 120 mm (2.53 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)	83 x 120 mm (3.27 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)	CP-114UL models: 64.4 x 120 mm (2.53 x 4.72 in) CP-114UL-I models: 64.4 x 130 mm (2.53 x 5.12 in)
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 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 55032/35					
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 61000-4-2 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 models: 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
MTBF						
Time	574,050 hrs	576,401 hrs	558,961 hrs	571,627 hrs	219,971 hrs	114,223 hrs

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)					16C550C compatible
Bus	32-bit Universal PCI					
Connector	DB62 female		DB25 female	DB44 female	DB62 female	DB44 female
No. of Ports	8		2	4	8	4
Serial Standards	RS-232, RS-422, RS-485	RS-422, RS-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	–		CP-132UL-I models: 2 kV	CP-134U-I models: 2 kV	–	
Serial Software Features						
Windows Drivers	Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7/8/8.1/10/11 (x86/x64), Windows 2008 R2/2012/2012 R2/2016/2019 (x64)/2022, Windows Embedded CE 5.0/6.0, Windows XP Embedded					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 6.x, 5.x, 4.x, 3.x, 2.6.x, 2.4.x					
UNIX Drivers	QNX 6, SCO OpenServer, UnixWare 7, Solaris 10, FreeBSD					Solaris 10, UnixWare 7, SCO OpenServer 5, SCO OpenServer 6
Arm®-based Platform Support	Linux kernel 6.x, 5.x					
Physical Characteristics						
Dimensions	82 x 135 mm (3.22 x 5.31 in)		64.4 x 120 mm (2.53 x 4.72 in)	CP-134U models: 82.5 x 120 mm (3.24 x 4.72 in) CP-134U-I models: 115 x 120 mm (4.52 x 4.72 in)	82 x 120 mm (3.22 x 4.72 in)	64.4 x 120 mm (2.53 x 4.72 in)
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 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 55032/35					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
MTBF						
Time	1,073,385 hrs	1,147,210 hrs	1,647,832 hrs	480,209 hrs	280,854 hrs	2,124,022 hrs

CAN Interface Boards/Modules

Product Series	CP-602U-I	CP-602E-I	CB-602I
CAN Interface			
Baudrate	10/20/50/125/250/500/800/1000 kbps, User-defined		
Connector	DB9 male		20-pin box header
No. of Ports	2		
Serial Interface			
Isolation	2 kV		
Environmental Limits			
Operating Temperature	CP-602U-I models w/o cable: 0 to 55°C (32 to 131°F) CP-602U-I-T models 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 55032/35		
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	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11
MTBF			
Time	1,989,990 hrs	4,645,502 hrs	248,563 hrs

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

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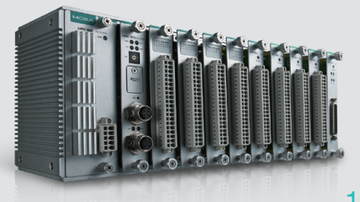
Advanced Controllers and I/Os

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.

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Universal Controllers and I/Os

Our universal controllers and I/O products use Click&Go control logic, and include 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(-T)
Computer	
CPU	Armv7 Cortex-A7 dual-core 1 GHz
OS	Moxa Industrial Linux 3
Clock	Real-time clock with capacitor backup
DRAM	2GB DDR3
MRAM	128 kB
Storage Preinstalled	8 GB eMMC (5 GB reserved for the user)
Storage Slot	1 x microSD slot (up to 32 GB)
Expansion Slots	Up to 64 (with 45MR I/O modules) Up to 5 (with 45ML communication modules)
Control Logic	
Language	C/C++, Python
Ethernet Interface	
10/100BaseT(X) Ports (RJ45 Connector)	2, 2 MAC addresses
Magnetic Isolation Protection	1.5 kV (built-in)
Serial Interface	
No. of Ports	1 x RS-232/422 or 2 x RS-485-2w
System Power Parameters	
No. of Power Inputs	1
Input Voltage	12 to 48 VDC
Field Power Parameters	
No. of Power Inputs	1
Input Voltage	12/24 VDC
Physical Characteristics	
Housing	Plastic
Dimensions	60.3 x 99 x 75 mm (2.37 x 3.9 x 2.96 in)
Installation	DIN-rail mounting
Standards and Certifications	
EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 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: 10 V IEC 61000-4-8 PFMF
Safety	UL 61010-2-201
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
Hazardous Locations	CID2, ATEX
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)
Altitude	Up to 4000 m
Declaration	
Green Product	RoHS, CRoHS, WEEE
Warranty	
Warranty Period	5 years

Advanced Controllers and I/Os

Product Series	45ML-5401(-T)
Input/Output Interface	
Isolation	3k VDC or 2k VRMs
Serial Interface	
No. of Ports	4
Serial Standards	RS-232, RS-422, RS-485-2w
Physical Characteristics	
Housing	Plastic
Dimensions	26.4 x 99 x 65.5 mm (1.04 x 3.9 x 2.58 in)
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)
Altitude	Up to 2000 m[1]
Standards and Certifications	
EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 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
Warranty	
Warranty Period	5 years

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

Advanced Controllers and I/Os

Product Series	ioThinx 4510(-T)
Input/Output Interface	
Expansion Slots	Up to 32[1,2]
Ethernet Interface	
10/100BaseT(X) Ports (RJ45 Connector)	2, 1 MAC address (Ethernet bypass)
Ethernet Software Features	
Configuration Options	Web Console (HTTP/HTTPS), Windows Utility (IOxpress), MCC Tool
Industrial Protocols	Modbus TCP Server (Slave), RESTful API, SNMPv1/v2c/v3, SNMPv1/v2c/v3 Trap, SNMPv2c/v3 Inform, MQTT
Management	SNMPv1/v2c/v3, SNMPv1/v2c/v3 Trap, SNMPv2c/v3 Inform, DHCP Client, IPv4, HTTP, UDP, TCP/IP
Security Functions	
Authentication	Local database
Encryption	HTTPS, AES-128, AES-256, HMAC, RSA-1024, SHA-1, SHA-256, ECC-256
Security Protocols	SNMPv3, HTTPS (TLS 1.2), SNMPv3 Trap
Serial Interface	
No. of Ports	1 x RS-232/422 or 2 x RS-485 (2 wires)
Serial Software Features	
Industrial Protocols	Modbus RTU Master
System Power Parameters	
No. of Power Inputs	1
Input Voltage	12 to 48 VDC
Field Power Parameters	
No. of Power Inputs	1
Input Voltage	12/24 VDC
Physical Characteristics	
Housing	Plastic
Dimensions	42.3 x 99 x 75 mm (1.67 x 3.9 x 2.95 in)
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)
Altitude	Up to 4000 m[3]
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
Hazardous Locations	CID2, ATEX
Warranty	
Warranty Period	5 years

[1] Compatible only with the ioThinx 4500 Series (45MR) Modules.
[2] Up to 8 slots only when web service via HTTPS and other services are enabled in firmware v1.4 and higher. For more details, refer to the product manual.
[3] 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-2404(-T)	45MR-2600(-T)	45MR-2601(-T)	45MR-2606(-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	–	–	–	–	–	–	–
Analog Input Channels	–	–	–	–	–	–	8	8	–	–	–	–	–
Analog Output Channels	–	–	–	–	–	–	–	–	4	–	–	–	–
Relay 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 / Wet contact (PNP)	Dry / Wet contact (NPN)	–			Dry / Wet contact (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 (w/, w/o burn-out detection)	0 to 10 VDC ±10 VDC	–				
Analog Outputs													
Output Range	–	–	–	–	–	–	–	–	0 to 10 VDC 0 to 20 mA 4 to 20 mA	–	–	–	–
RTDs													
Sensor Type	–	–	–	–	–	–	–	–	–	PT50, PT100, PT200, PT500, PT1000, JPT100, JPT200, JPT500, JPT1000, NI100, NI200, NI500, NI1000, NI120	–	–	–
Resistance Type	–	–	–	–	–	–	–	–	–	310, 620, 1250, 2200 ohms	–	–	–
Thermocouples													
Sensor Type	–	–	–	–	–	–	–	–	–	–	J, K, T, E, R, S, B, N	–	–
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)												
Warranty													
Warranty Period	5 years		2 years	5 years									

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 user) for HW Rev. 1.0.1 8 GB (5.2 GB reserved for user) for HW Rev. 1.1.0
SDRAM	512 MB DDR3(L)
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
Magnetic Isolation Protection	1.5 kV (built-in)
Power Parameters	
No. of Power Inputs	2
Input Voltage	24 to 110 VDC
Power Consumption	223 mA @ 24 VDC
Galvanic Isolation	3k VDC
Physical Characteristics	
Slots	ioPAC 8600-BM005 models: 5 ioPAC 8600-BM009 models: 9 ioPAC 8600-BM012 models: 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)
Altitude	Up to 2000 m[2]

[1] For units operating in extreme temperatures, industrial-grade, wide-temperature microSD cards are required.
[2] Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Rugged Controllers and I/Os

	86M-1620D-T	86M-1832D-T	86M-2821D-T	86M-2830D-T	86M-2604D-T	86M-4420-T	86M-5212U-T	86M-5250-T
Input/Output Interface								
Digital Input Channels	16	8	–	–	–	–	–	–
Digital Output Channels	–	–	8	8	–	–	–	–
Relay Channels	–	–	–	–	6	–	–	–
Analog Output Channels	–	–	–	–	–	4	–	–
2-wire Ethernet Ports	–	–	–	–	–	–	2	–
CAN Ports	–	–	–	–	–	–	–	2
Isolation	3k VDC or 2k Vrms							
Digital Inputs								
Voltage	24 to 110 VDC	24 VDC	–	–	–	–	–	–
Channel-to-channel Isolation	–	1k VDC	–	–	–	–	–	–
I/O Mode	DI	DI, event counter, or frequency	–	–	–	–	–	–
Wet Contact (DI to COM)	On: > 0.3 times external power voltage Off: < 0.15 times external power voltage	On: 10 to 30 VDC Off: 0 to 3 VDC	–	–	–	–	–	–
Digital Outputs								
Voltage	–	–	24 to 110 VDC	24 VDC	–	–	–	–
Current Rating	–	–	1500 mA per channel	200 mA per channel	–	–	–	–
I/O Mode	–	–	DO or PWM	DO or PWM	–	–	–	–
I/O Type	–	–	Source	Sink	–	–	–	–
Relays								
I/O Mode	–	–	–	–	Relay or PWM	–	–	–
Contact Current Rating	–	–	–	–	Resistive load: 5 A @ 30 VDC, 250 VAC	–	–	–
Type	–	–	–	–	Form A (N.O.) power relay	–	–	–
Analog Outputs								
I/O Mode	–	–	–	–	–	Static or waveform mode	–	–
Accuracy	–	–	–	–	–	±0.1% FSR @ 25°C ±0.3% FSR @ -40 to 75°C	–	–
Output Range	–	–	–	–	–	0 to 10 VDC 0 to 20 mA -10 to 10 V 4 to 20 mA	–	–
Resolution	–	–	–	–	–	12-bit	–	–
Ethernet Interface								
Connector	–	–	–	–	–	–	M12 D-coded 2-pin female connector	–
No. of Ports	–	–	–	–	–	–	2	–
Standards	–	–	–	–	–	–	BroadR-Reach® for 10 Mbps and 100 Mbps IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX	–
CAN Interface								
Industrial Protocols	–	–	–	–	–	–	–	CAN 2.0A CAN 2.0B CANopen DS301, V4.02
Connector	–	–	–	–	–	–	–	DB9 male
Terminator	–	–	–	–	–	–	–	N/A, 120 ohms (by DIP)

Rugged Controllers and I/Os

	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
Isolation	3k VDC or 2k Vrms								
Digital Inputs									
Voltage	24 VDC	–	–	–	–	–	–	–	–
I/O Mode	DI, event counter, or frequency	–	–	–	–	–	–	–	–
Points per COM	8 channels	–	–	–	–	–	–	–	–
Sensor Type	Dry contact NPN or PNP	–	–	–	–	–	–	–	–
Digital Outputs									
Voltage	–	24 VDC	–	–	–	–	–	–	–
I/O Type	–	Sink	–	–	–	–	–	–	–
Current Rating	–	200 mA per channel	–	–	–	–	–	–	–
I/O Mode	–	DO or PWM	–	–	–	–	–	–	–
Analog Inputs									
Input Range	–	–	4 to 20 mA (with burn-out detection)		0 to 10 VDC		–	–	–
I/O Type	–	–	Differential				–	–	–
Resolution	–	–	16 bits				–	–	–
Sampling Rate	–	–	All channels: 100 Hz	All channels: 40 kHz	All channels: 100 Hz	All channels: 40 kHz	–	–	–
RTDs									
Input Connection	–	–	–	–	–	–	2- or 3-wire	–	–
Input Impedance	–	–	–	–	–	–	625 kilo-ohms (min.)	–	–
Sensor Type	–	–	–	–	–	–	JPT100, JPT200, JPT500, JPT1000, NI100, NI50, NI500, NI1000, NI120, PT1000, PT50, PT100, PT200, PT500, Resistance of 310, 620, 1250, and 2200 ohms	–	–
Resolution	–	–	–	–	–	–	0.1°C or 0.1 ohms	–	–
Sampling Rate	–	–	–	–	–	–	All channels: 12 Hz	–	–
Thermocouples									
Input Impedance	–	–	–	–	–	–	–	1 mega-ohm (min.)	–
Millivolt Type	–	–	–	–	–	–	–	±19.532 mV ±39.062 mV Fault and over-voltage protection: -35 to +35 VDC (power off); -25 to +30 VDC (power on)	–
Resolution	–	–	–	–	–	–	–	16 bits	–
Sampling Rate	–	–	–	–	–	–	–	All channels: 12 Hz	–
Sensor Type	–	–	–	–	–	–	–	J, K, T, E, R, S, B, N	–
Serial Interface									
Baudrate	–	–	–	–	–	–	–	–	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 921600 bps

Rugged Controllers and I/Os

Product Series	ioLogik E1510-M12-T	ioLogik E1512-M12-T
Input/Output Interface		
Digital Input Channels	12	4
Configurable DIO Channels (by Software)	–	4
Digital Outputs		
I/O Type	–	Sink
Current Rating	–	200 mA per channel
Ethernet Interface		
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	1	
Ethernet Software Features		
Industrial Protocols	Modbus TCP Server (Slave), Moxa AOPC (Active Tag), MXIO Library	
Environmental Limits		
Operating Temperature	-40 to 85°C (-40 to 185°F)	
Storage Temperature	-40 to 85°C (-40 to 185°F)	
Ambient Relative Humidity	5 to 95% (non-condensing)	
Altitude	Up to 2000 m[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	
Railway	EN 50121-4, EN 50155	
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 2512(-T)	ioLogik 2542(-T)
Control Logic		
Language	Click&Go Plus	
Input/Output Interface		
Digital Input Channels	8	–
Configurable DIO Channels (by Software)	8	12
Analog Input Channels	–	4
Ethernet Interface		
10/100BaseT(X) Ports (RJ45 Connector)	4, Switched	
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		
Baudrate	300, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600, 115200 bps	
No. of Ports	2	
Serial Standards	RS-232, RS-422, RS-485-2w, RS-485-4w	
Serial Software Features		
Industrial Protocols	Modbus RTU Master	
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	Up to 2000 m[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 PFMF IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-5 Surge: Power: 1 kV	
Vibration	IEC 60068-2-6	
Shock	IEC 60068-2-27	
Freefall	IEC 60068-2-32	
Hazardous Locations	ATEX, CID2	
Safety	UL 508	
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 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							
Digital Input Channels	12	8	6	–	–	–	–
Digital Output Channels	8	8	–	–	–	4	4
Configurable DIO Channels (by Software)	–	4	–	–	12	–	–
Relay Channels	–	–	6	–	–	–	–
Analog Input Channels	–	–	–	8	4	–	–
Analog Output Channels	–	–	–	2	–	–	–
RTD Channels	–	–	–	–	–	6	–
Thermocouple Channels	–	–	–	–	–	–	8
Ethernet Software Features							
Industrial Protocols	Modbus TCP Server (Slave), SNMPv1/v2c/v3, SNMPv1 Trap, Moxa AOPC (Active Tag), MXIO Library, CGI commands						
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	Up to 2000 m[1]						
Standards and Certifications							
Safety	UL 508						
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 IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF						
Shock	IEC 60068-2-27						
Vibration	IEC 60068-2-6						
Freefall	IEC 60068-2-32						
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										
Digital Input Channels	16	–	8	8	6	–	–	4	–	–
Digital Output Channels	–	16	–	4	–	–	–	–	–	–
Configurable DIO Channels (by Jumper)	–	–	8	4	–	–	–	4	–	–
Relay Channels	–	–	–	–	6	–	–	–	–	–
Analog Input Channels	–	–	–	–	–	8	–	4	–	–
Analog Output Channels	–	–	–	–	–	–	4	–	–	–
RTD Channels	–	–	–	–	–	–	–	–	6	–
Thermocouple Channels	–	–	–	–	–	–	–	–	–	8
Digital Outputs										
I/O Type	–	Sink		Source	–			Sink	–	
Current Rating	–	200 mA per channel		500 mA per channel	–			200 mA per channel	–	
Ethernet Interface										
10/100BaseT(X) Ports (RJ45 Connector)	2, Switched									
Ethernet Software Features										
Industrial Protocols	Modbus TCP Server (Slave), Moxa AOPC (Active Tag), MXIO Library, EtherNet/IP Adapter									
Management	RESTful API, SNMPv1/v2c, SNMPv1 Trap, HTTP, DHCP Client, BOOTP, IPv4, TCP/IP, UDP									
Modbus TCP										
Max. No. of Client Connections	10									
EtherNet/IP										
Max. No. of Scanner Connections	9 (for read-only), 1 (for read/write)									
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	Up to 4000 m[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, CID2			–		ATEX, CID2				
Safety	UL 508									
Shock	IEC 60068-2-27									
Freefall	IEC 60068-2-32									
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					
Baudrate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 921600 bps				
No. of Ports	2				
Surge	1 kV				
ESD	15 kV				
Serial Signals					
RS-485-2w	Data+, Data-, GND				
Serial Software Features					
Industrial Protocols	Modbus RTU 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	Up to 2000 m[1]				
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 IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF				
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.

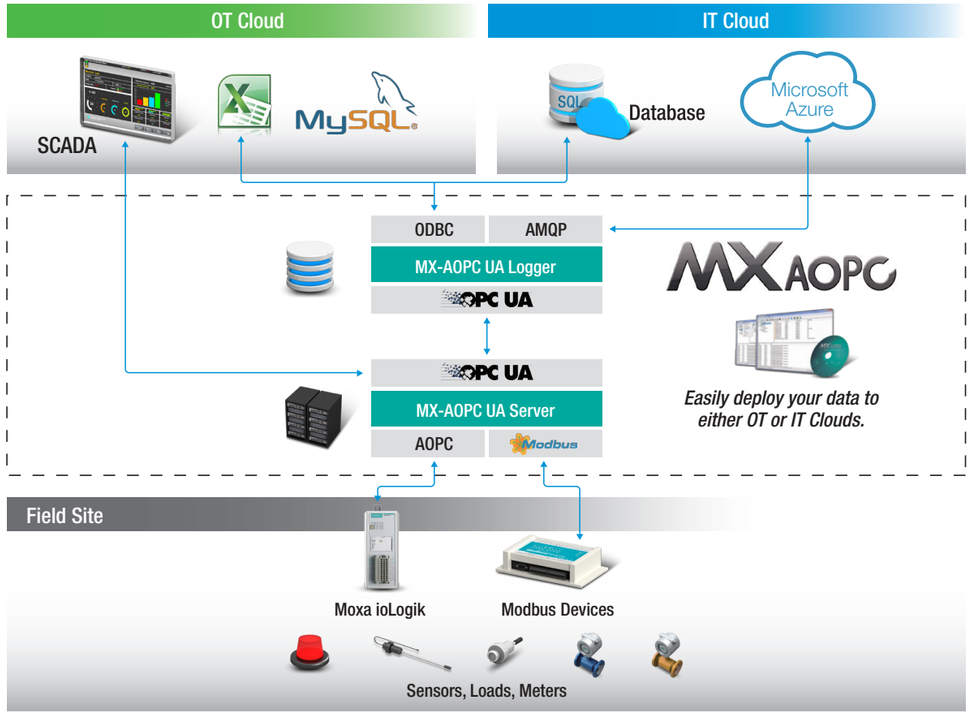
OPC UA Software

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

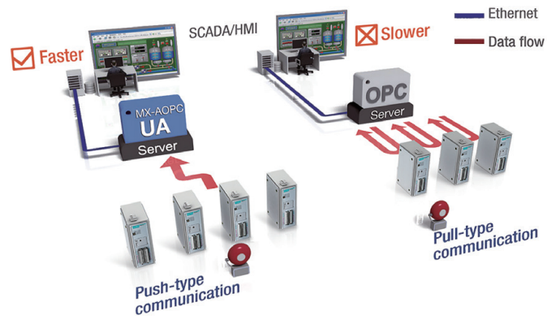
Create a Secure Data Connection Between OT and IT Systems

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.



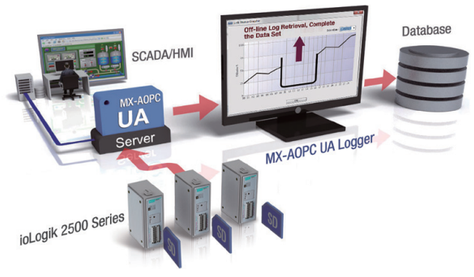
Efficient Data Acquisition Through Push-type Transmission (report by interval or exception method)

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 preconfigured 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	113
ioLogik E1500 Series	116
ioLogik 2500 Series	117
ioLogik E2200 Series	118
ioLogik E1200 Series	119

IP Cameras & Video Servers

Moxa's industrial-grade IP surveillance offering includes a range of IP cameras and industrial video servers designed to serve a broad spectrum of industries. They deliver the reliable, high-quality video performance and security standards needed for applications in demanding and unpredictable environments.

IP Cameras & Video Servers
Product Pages

125

IP Cameras

Our selection of IP cameras includes dome, box, and ruggedized cameras. Our cameras comply with the EN 50155 standard, enabling them to perform reliably and deliver superior image quality suitable for onboard CCTV applications.

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Video Servers

Moxa's industrial video servers are designed to perform reliably even in harsh environments, making them ideal to serve as the core of a remote monitoring or surveillance solution. Our video servers are capable of using efficient H.264 video compression and allow for easy integration of CCTV cameras into your IP surveillance solution.

IP Cameras

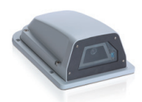



Product Series	VPort P06-1MP-M12	VPort 06-2	VPort 07-3	VPort P06HC-1V
Ethernet Interface				
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	1 (PoE)	1	1	1 (PoE)
System Boot	–		Secure Boot	–
Power Parameters				
Source of Input Power	PoE (IEEE 802.3af)	VPort P06-2 models: PoE (IEEE 802.3af)	VPort P07-3 models: PoE (IEEE 802.3af)	PoE (IEEE 802.3af)
Input Voltage	–	VPort 06-2 models: 12/24 VDC	VPort 07-3 models: 12/24 VDC	–
Power Connector	–	VPort 06-2 models: DB9 connector	VPort 07-3 models: DB9 connector	–
Camera Characteristics				
Lens	• CAM28 models: f=2.8 mm, F2.0, Diagonal 126°, Horizontal 113°, Vertical 58° • CAM36 models: f=3.6 mm, F1.6, Diagonal 99°, Horizontal 94°, Vertical 47° • CAM42 models: f=4.2 mm, F1.8, Diagonal 87°, Horizontal 80°, Vertical 43° • CAM60 models: f=6.0 mm, F1.6, Diagonal 60°, Horizontal 55°, Vertical 29° • CAM80 models: f=8.0 mm, F1.6, Diagonal 45°, Horizontal 40°, Vertical 22°	• 2x28M models: f=2.8 mm, F2.0, Diagonal 94°, Horizontal 85°, Vertical 45° • 2x36M models: f=3.6 mm, F1.6, Diagonal 99°, Horizontal 70°, Vertical 39° • 2x42M models: f=4.2 mm, F1.6, Diagonal 82°, Horizontal 62°, Vertical 34° • 2x60M models: f=6.0 mm, F1.8, Diagonal 62°, Horizontal 43°, Vertical 24° • 2x80M models: f=8.0 mm, F1.6, Diagonal 42°, Horizontal 33°, Vertical 17°	• 3x24M models: f=2.4 mm, F2.0, Diagonal 139°, Horizontal 110°, Vertical 81° • 3x36M models: f=3.6 mm, F1.6, Diagonal 97°, Horizontal 75°, Vertical 55° • 3x42M models: f=4.2 mm, F1.6, Diagonal 82°, Horizontal 64°, Vertical 47° • 3x60M models: f=6.0 mm, F1.8, Diagonal 57°, Horizontal 43°, Vertical 32° • 3x80M models: f=8.0 mm, F1.6, Diagonal 41°, Horizontal 33°, Vertical 24°	• 1V28M models: f=2.8 mm, F2.0, Diagonal 126°, Horizontal 113°, Vertical 58° • 1V36M models: f=3.6 mm, F1.6, Diagonal 99°, Horizontal 94°, Vertical 47° • 1V42M models: f=4.2 mm, F1.8, Diagonal 87°, Horizontal 80°, Vertical 43° • 1V60M models: f=6.0 mm, F1.6, Diagonal 60°, Horizontal 55°, Vertical 29° • 1V80M models: f=8.0 mm, F1.6, Diagonal 45°, Horizontal 40°, Vertical 22°
Minimum Illumination	Color: 0.2 lux, at F1.2 (Gain High, 50 IRE, 1/30 sec)			
White Balance	ATW/AWB			
Electronic Shutter	Auto, Fixed (1/30 to 1/25000 sec)			Auto (1/30 to 1/25000 sec)
DNR (Digital Noise Reduction)	Built-in 2D/3D DNR			Built-in DNR
WDR (Wide Dynamic Range)	110 dB	100 dB		110 dB
Image Rotation	Flip, Mirror, 180° rotation	Flip, Mirror, 90°, 180°, 270° rotation		Flip, Mirror, 180° rotation
AGC (Auto Gain Control)	2X, 4X, 8X, 16X, 32X, 64X	2X, 4X, 8X, 16X		2X, 4X, 8X, 16X, 32X, 64X
BLC (Back Light Compensation)	High/Medium/Low	–		High/Medium/Low
Video Interface				
Video Compression	H.264 (ISO/IEC 14496-10) or MJPEG		H.265 (MPEG-H part 2/HEVC), H.264 (ISO/IEC 14496-10/AVC), or MJPEG	H.264 (ISO/IEC 14496-10) or MJPEG
Video Streams	3 independent H.264 or MJPEG video streams	4 independent H.264 or MJPEG video streams	4 independent video streams	3 independent H.264 or MJPEG video streams
Video Resolution and FPS (Frames per Second)	Up to 1280 x 800 @ 30 FPS	Up to 1920 x 1080 @ 30 FPS	Up to 1920 x 1080 @ 30 FPS Up to 2048 x 1536 @ 20 FPS	Up to 1280 x 800 @ 30 FPS
Input/Output Interface				
Digital Input Channels	–	1		–
Audio Interface				
Audio Inputs	1 x Line-in	VPort 06/P06-2MxxM models: 1 x Built-in microphone VPort 06/P06-2LxxM models: 1 x Line-in	VPort 07/P07-3MxxM models: 1 x Built-in microphone VPort 07/P07-3LxxM models: 1 x Line-in	–
Camera Software Development				
Video Standards	ONVIF Profile S		ONVIF Profile S, T, M	ONVIF Profile S
Camera Alarm Software Features				
Intelligent Video	Camera tampering detection			
Physical Characteristics				
Housing	Plastic top cover, Metal bottom plate IP66 rain and dust protection IK10 vandal-resistant protection Transparent PC cover	IP66 rain and dust protection Metal housing, PC dome cover IK8 vandal-resistant protection	IP66 rain and dust protection Metal housing, PC dome cover IK8 vandal-resistant protection Built-in heater for dome cover demist	Metal
Dimensions	110 x 47 mm (4.33 x 1.85 in)	110 x 115.5 x 61.8 mm (4.33 x 4.53 x 2.43 in)		60 x 60 x 74.6 mm (2.36 x 2.36 x 2.94 in)
Protection	PCB conformal coating is optional and provided on request. If conformal coating is required, please contact Moxa.			
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)		Standard models: -40 to 55°C (-40 to 131°F) Wide temp. models: -40 to 70°C (-40 to 158°F)	-40 to 55°C (-40 to 131°F)
Vandal Resistance	EN 62262, IK10	EN 62262, IK8		–
Standards and Certifications				
Railway Fire Protection	EN 45545-2			
Railway	EN 50155 (complies with a portion of EN 50155 specifications)			
MTBF				
Time	1,944,687 hrs	1,039,008 hrs (min.)	3,826,277 hrs	692,847 hrs

Note: Once any stream is configured for 3-megapixel resolution, all video streams will be limited to 20 FPS maximum at all resolutions due to sensor limitations.

IP Cameras



Product Series	VPort P16-1MP-M12	VPort P16-1MP-M12-IR	VPort P16-2MR	VPort 06EC-2V
Ethernet Interface				
10/100BaseT(X) Ports (M12 D-coded 4-pin Female Connector)	1 (PoE)			
Power Parameters				
No. of Power Inputs	1			1 x PoE for camera 1 x 24 VDC for heater
Input Voltage	–			24 VDC for front-window heater (for defrosting)
Camera Characteristics				
Lens	• CAM36 models: f=3.6 mm, F1.6, Diagonal 99°, Horizontal 94°, Vertical 47° • CAM80 models: f=8.0 mm, F1.6, Diagonal 45°, Horizontal 40°, Vertical 22°	• CAM36 models: f=3.6 mm, F1.6, Diagonal 99°, Horizontal 94°, Vertical 47° • CAM80 models: f=8.0 mm, F1.6, Diagonal 45°, Horizontal 40°, Vertical 22°	• 2MR36M models: f=3.6 mm, F1.6, Diagonal 99°, Horizontal 70°, Vertical 39° • 2MR42M models: f=4.2 mm, F1.6, Diagonal 82°, Horizontal 62°, Vertical 34° • 2MR60M models: f=6.0 mm, F1.8, Diagonal 62°, Horizontal 43°, Vertical 24° • 2MR80M models: f=8.0 mm, F1.6, Diagonal 42°, Horizontal 33°, Vertical 17°	• 2V36M models: f=3.6 mm, F1.6, Diagonal 99°, Horizontal 70°, Vertical 39° • 2V42M models: f=4.2 mm, F1.6, Diagonal 82°, Horizontal 62°, Vertical 34° • 2V60M models: f=6.0 mm, F1.8, Diagonal 62°, Horizontal 43°, Vertical 24° • 2V80M models: f=8.0 mm, F1.6, Diagonal 42°, Horizontal 33°, Vertical 17°
Minimum Illumination	Color: 0.2 lux, at F1.2 (Gain High, 50 IRE, 1/30 sec) B/W: 0.05 lux, at F1.2 (Gain High, 50 IRE, 1/30 sec)	Color: 0.2 lux, at F1.2 (Gain High, 50 IRE, 1/30 sec) B/W: 0.05 lux, at F1.2 (Gain High, 50 IRE, 1/30 sec) Note: 0 lux if IR illuminator is on		Color: 0.2 lux, at F1.6 (Gain High, 50 IRE, 1/30 sec) B/W: 0.05 lux, at F1.6 (Gain High, 50 IRE, 1/30 sec)
Camera Angle	Pan 350°, Tilt 65° (controlled manually)			Pan: ±5°, Tilt: +10/-5° (controlled manually)
Day & Night	Auto/Color/BW; ICR control			
ICR Control	Auto	Auto (light sensor control) or DI control		Auto
White Balance	ATW/AWB			
Electronic Shutter	Auto, Fixed (1/30 to 1/25000 sec)			
DNR (Digital Noise Reduction)	Built-in 2D/3D DNR			
WDR (Wide Dynamic Range)	110 dB		100 dB	
Image Rotation	Flip, Mirror, 180° rotation		Flip, Mirror, 90°, 180°, 270° rotation	
AGC (Auto Gain Control)	2X, 4X, 8X, 16X, 32X, 64X		2X, 4X, 8X, 16X	
BLC (Back Light Compensation)	High/Medium/Low		–	
IR Illumination	–	IR LED illuminators, 5-meter (max.) effective distance; On/Off controlled manually (night mode) or by the light sensor		–
Video Interface				
Video Compression	H.264 (ISO/IEC 14496-10) or MJPEG			
Video Streams	3 independent H.264 or MJPEG video streams		4 independent H.264 or MJPEG video streams	
Video Resolution and FPS (Frames per Second)	Up to 1280 x 800 @ 30 FPS		Up to 1920 x 1080 @ 30 FPS	
Input/Output Interface				
Digital Input Channels	–	1		–
Connector	–	5-pin A-coded male M12 connector with 20 cm cable		
Audio Interface				
Audio Inputs	–	1 x Built-in microphone		–
Memory				
microSD Slot	–		SDXC	
Camera Software Development				
Video Standards	ONVIF Profile S			
Camera Alarm Software Features				
Intelligent Video	Camera tampering detection			
Physical Characteristics				
Housing	IP66 rain and dust protection Metal housing, PC dome cover IK10 vandal-resistant protection		IP66 rain and dust protection Metal housing, PC dome cover IK8 vandal-resistant protection	Metal IP67 Transparent Glass cover
Dimensions	125 x 125 x 120.7 mm (4.92 x 4.92 x 4.8 in)			83 x 168 x 233 mm (3.27 x 6.61 x 8.78 in)
Protection	PCB conformal coating is optional and provided on request. If conformal coating is required, please contact Moxa.			-CT models: PCB conformal coating
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)			
Ingress Protection	IEC 60529, IP66			IEC 60529, IP67
Vandal Resistance	EN 62262, IK10		EN 62262, IK8	–
Standards and Certifications				
Railway Fire Protection	EN 45545-2			
Railway	EN 50155 (complies with a portion of EN 50155 specifications)			
MTBF				
Time	1,598,728 hrs	1,052,184 hrs	997,474 hrs	480,269 hrs

Video Servers

Product Series	VPort 461A	VPort 464
Memory		
microSD Slot	SDXC	
Input/Output Interface		
Digital Input Channels	2	4
Relay Channels	2	
Ethernet Interface		
10/100BaseT(X) Ports (RJ45 Connector)	2	
Serial Interface		
PTZ Port	1 x RS-232 or RS-422/485 port, Terminal block connector, 115.2 kbps	
COM Port	1 x RS-232 or RS-485 port, DB9 male connector, 115.2 kbps	
Power Parameters		
No. of Power Inputs	2	
Operating Voltage	12 to 32 VDC, 18 to 30 VAC, Redundant dual inputs	
Video Interface		
Video Compression	H.264 (ISO/IEC 14496-10) or MJPEG	
Video Input	1, BNC connector (1.0 Vpp, 75 ohm)	4, BNC connector (1.0 Vpp, 75 ohm)
Video Streams	4 independent H.264 or MJPEG video streams	2 independent H.264 or MJPEG video streams 1 quad (4-channel images) stream
NTSC/PAL	Auto-sensing or manual	
Video Resolution and FPS (Frames per Second)	Up to 720 x 480 @ 30 FPS Up to 720 x 576 @ 25 FPS	
Audio Interface		
Audio Inputs	1 x Line-in or mic-in with 3.5 mm phone jack	
Audio Outputs	1 x Line-out with 3.5 mm phone jack	
Camera Software Development		
Video Standards	ONVIF Profile S	
Camera PAN/TILT/ZOOM		
PTZ Camera Control	Via PTZ port or COM port	
Protocols	Pelco D, Pelco P, Custom Camera	
Camera Alarm Software Features		
Intelligent Video	Camera tampering detection	
Physical Characteristics		
Housing	Metal	
Dimensions	46 x 134 x 105 mm (1.81 x 5.31 x 4.13 in)	80.2 x 135 x 105 mm (3.16 x 5.31 x 4.13 in)
Installation	DIN-rail mounting, Wall mounting (with optional kit)	
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)	
Standards and Certifications		
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: 20 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: 10 V IEC 61000-4-8 PFMF	
Freefall	IEC 60068-2-31	
Safety	UL 62368-1	
Shock	IEC 60068-2-27	
Vibration	IEC 60068-2-6	
MTBF		
Time	862,568 hrs	827,831 hrs

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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 extreme temperatures, humidity, vibration, and power surges. Our products have been successfully deployed in automation systems for heavy industries, substations, solar energy management, battery energy storage, water/wastewater management, transportation, oil and gas, and marine vessels.

Industrial Computing Product Pages

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x86 Computers

Moxa's x86 industrial-grade fanless 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 a variety of industrial automation applications.

139

Arm-based Computers

Moxa's Arm®-based compact fanless industrial-grade computers are wireless-ready and come with comprehensive security features. They are built for space-critical applications. The computers are specifically designed for long-term operations 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.

145

EN 50155 Computers

Moxa's EN 50155 computers offer reliable connectivity for automation systems and devices. These computers are equipped with a rich set of interfaces and M12 connectors for stable connections in vibration-prone environments. The computers comply with EN 50155 mandatory test items and are certified for shock and vibration resistance using industrial-grade testing. The rugged design makes them an ideal choice for transportation applications.

146

IEC 61850-3 Computers

Moxa's IEC 61850-3 computers deliver stable and reliable systems for power applications. These computers are designed based on the IEC 61850-3 standard, making them capable of withstanding high EMI/EMC interference. The computers can effectively handle high-speed, low-latency communications for exchanging large amounts of data, and their redundant power supply design ensures continuous system availability for power infrastructure.

147

IIoT Gateways

Moxa's IIoT gateways facilitate rapid entry into the IIoT world. The gateways are secure, reliable, and easy-to-use sensor-to-cloud IIoT solutions that can effortlessly transform data into actionable insights. Our robust and ready-to-deploy IIoT gateways, with value-added functions for reducing programming efforts, are ideal drivers of digital transformation in IIoT systems.

148

Panel Computers

Moxa's industrial-grade panel computers are built to withstand the elements and feature a ruggedized design that make them ideal for HMI applications in outdoor, hazardous, railway-onboard, and marine environments. Certifications include CID2 and ATEX Zone 2, and marine standards such as DNV.

x86 Computers

Product Series	DRP-A100-E2-T DRP-A100-E4-T	DRP-A100-E2-8L-T DRP-A100-E4-8L-T	DRP-A100-E2-6C-T DRP-A100-E4-6C-T	DRP-A100-E2-2L4C-T DRP-A100-E4-2L4C-T
Computer				
CPU	DRP-A100-E2 models: Intel Atom® x6211E (dual-core, 1.5M cache, 1.30 GHz) DRP-A100-E4 models: Intel Atom® x6425E (quad-core, 1.5M cache, 2.00 GHz)			
System Memory Slot	1 x SODIMM DDR4 slot (8 GB preinstalled, 32 GB max.)			
Storage Slot	1 x CFast slot (SATA III interface) 1 x SD slot, SD 3.0 interface (SDHC/SDXC)			
Supported OS	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Windows 11 Professional (64-bit) Linux drivers supported: • Debian 11 (kernel 5.10) • Ubuntu 22.04 LTS (kernel 5.15) • RHEL 9 (kernel 5.14)			
Computer Interface				
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	10 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	8 x RS-232/422/485 ports (software-selectable, DB9 male connector)	6 x RS-232/422/485 ports (software-selectable, DB9 male connector)
USB 3.0	3 x USB 3.0 hosts (type-A connector)			
TPM	TPM v2.0			
Video Output	1 x HDMI 2.0b (type-A connector) 1 x VGA (15-pin D-sub female connector)			
Power Parameters				
Input Voltage	12/24 VDC			
Physical Characteristics				
Dimensions	60 x 130 x 150 mm (2.36 x 5.12 x 5.91 in)	94 x 130 x 150 mm (3.70 x 5.12 x 5.91 in)		
Weight	1,213 g (2.67 lb)	1,612 g (3.55 lb)		
Installation	DIN-rail mounting			
Environmental Limits				
Operating Temperature	-30 to 60°C (-22 to 140°F)			
Warranty				
Warranty Period	3 years			

x86 Computers

Product Series	DRP-C100-C1-T DRP-C100-C5-T DRP-C100-C7-T	DRP-C100-C1-8L-T DRP-C100-C5-8L-T DRP-C100-C7-8L-T	DRP-C100-C1-6C-T DRP-C100-C5-6C-T DRP-C100-C7-6C-T	DRP-C100-C1-2L4C-T DRP-C100-C5-2L4C-T DRP-C100-C7-2L4C-T
Computer				
CPU	DRP-C100-C1 models: Intel® Celeron® 6305E (dual-core, 4M cache, 1.80 GHz) DRP-C100-C5 models: Intel® Core™ i5-1145G7E (quad-core, 8M cache, 2.60 GHz, base: 1.50 GHz) DRP-C100-C7 models: Intel® Core™ i7-1185G7E (quad-core, 12M cache, 2.80 GHz, base: 1.80 GHz)			
System Memory Slot	1 x SODIMM DDR4 slot (8 GB preinstalled, 32 GB max.)			
Storage Slot	1 x CFast slot (SATA III interface) 1 x SD slot, SD 3.0 interface (SDHC/SDXC)			
Supported OS	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Windows 11 Professional (64-bit) Linux drivers supported: • Debian 11 (kernel 5.10) • Ubuntu 22.04 LTS (kernel 5.15) • RHEL 9 (kernel 5.14)			
Computer Interface				
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	10 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	8 x RS-232/422/485 ports (software-selectable, DB9 male connector)	6 x RS-232/422/485 ports (software-selectable, DB9 male connector)
USB 3.0	3 x USB 3.0 hosts (type-A connector)			
TPM	TPM v2.0			
Video Output	1 x HDMI 2.0b (type-A connector) 1 x VGA (15-pin D-sub female connector)			
Power Parameters				
Input Voltage	12/24 VDC			
Physical Characteristics				
Dimensions	60 x 130 x 150 mm (2.36 x 5.12 x 5.91 in)	94 x 130 x 150 mm (3.70 x 5.12 x 5.91 in)		
Weight	1,213 g (2.67 lb)	1,612 g (3.55 lb)		
Installation	DIN-rail mounting			
Environmental Limits				
Operating Temperature	-30 to 60°C (-22 to 140°F)			
Warranty				
Warranty Period	3 years			

x86 Computers




Product Series	BXP-A100-E2-T BXP-A100-E4-T	BXP-A100-E2-8L-T BXP-A100-E4-8L-T	BXP-A100-E2-8C-T BXP-A100-E4-8C-T	BXP-A100-E2-2L3C-T BXP-A100-E4-2L3C-T
Computer				
CPU	BXP-A100-E2 models: Intel Atom® x6211E (dual-core, 1.5M cache, 1.30 GHz) BXP-A100-E4 models: Intel Atom® x6425E (quad-core, 1.5M cache, 2.00 GHz)			
System Memory Slot	1 x SODIMM DDR4 slot (8 GB preinstalled, 32 GB max.)			
Storage Slot	1 x CFast slot (SATA III interface) 1 x SD slot, SD 3.0 interface (SDHC/SDXC)			
Supported OS	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Windows 11 Professional (64-bit) Linux drivers supported: • Debian 11 (kernel 5.10) • Ubuntu 22.04 LTS (kernel 5.15) • RHEL 9 (kernel 5.14)			
Computer Interface				
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	10 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	10 x RS-232/422/485 ports (software-selectable, DB9 male connector)	5 x RS-232/422/485 ports (software-selectable, DB9 male connector)
USB 3.0	2 x USB 3.0 hosts (type-A connector)			
USB 2.0	4 x USB 2.0 hosts (type-A connector)			
Digital Input	4 x DIs			
Digital Output	4 x DOs			
TPM	TPM v2.0			
Video Output	1 x HDMI 2.0b (type-A connector) 1 x VGA (15-pin D-sub female connector)			
Power Parameters				
Input Voltage	12/24 VDC			
Physical Characteristics				
Dimensions	210 x 166 x 48 mm (8.27 x 6.54 x 1.9 in)	210 x 166 x 65.5 mm (8.27 x 6.54 x 2.58 in)	210 x 166 x 83 mm (8.27 x 6.54 x 3.27 in)	210 x 166 x 65.5 mm (8.27 x 6.54 x 2.58 in)
Weight	2,015 g (4.44 lb)	2,355 g (5.19 lb)	2,385 g (5.25 lb)	2,208 g (4.86 lb)
Installation	Wall mounting			
Environmental Limits				
Operating Temperature	-30 to 60°C (-22 to 140°F)			
Warranty				
Warranty Period	3 years			

x86 Computers




Product Series	BXP-C100-C1-T BXP-C100-C5-T BXP-C100-C7-T	BXP-C100-C1-8L-T BXP-C100-C5-8L-T BXP-C100-C7-8L-T	BXP-C100-C1-8C-T BXP-C100-C5-8C-T BXP-C100-C7-8C-T	BXP-C100-C1-2L3C-T BXP-C100-C5-2L3C-T BXP-C100-C7-2L3C-T
Computer				
CPU	BXP-C100-C1 models: Intel® Celeron® 6305E (dual-core, 4M cache, 1.80 GHz) BXP-C100-C5 models: Intel® Core™ i5-1145G7E (quad-core, 8M cache, 2.60 GHz, base: 1.50 GHz) BXP-C100-C7 models: Intel® Core™ i7-1185G7E (quad-core, 12M cache, 2.80 GHz, base: 1.80 GHz)			
System Memory Slot	1 x SODIMM DDR4 slot (8 GB preinstalled, 32 GB max.)			
Storage Slot	1 x CFast slot (SATA III interface) 1 x SD slot, SD 3.0 interface (SDHC/SDXC)			
Supported OS	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Windows 11 Professional (64-bit) Linux drivers supported: • Debian 11 (kernel 5.10) • Ubuntu 22.04 LTS (kernel 5.15) • RHEL 9 (kernel 5.14)			
Computer Interface				
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	10 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	10 x RS-232/422/485 ports (software-selectable, DB9 male connector)	5 x RS-232/422/485 ports (software-selectable, DB9 male connector)
USB 3.0	2 x USB 3.0 hosts (type-A connector)			
USB 2.0	4 x USB 2.0 hosts (type-A connector)			
Digital Input	4 x DIs			
Digital Output	4 x DOs			
TPM	TPM v2.0			
Video Output	1 x HDMI 2.0b (type-A connector) 1 x VGA (15-pin D-sub female connector)			
Power Parameters				
Input Voltage	12/24 VDC			
Physical Characteristics				
Dimensions	210 x 166 x 48 mm (8.27 x 6.54 x 1.9 in)	210 x 166 x 65.5 mm (8.27 x 6.54 x 2.58 in)	210 x 166 x 83 mm (8.27 x 6.54 x 3.27 in)	210 x 166 x 65.5 mm (8.27 x 6.54 x 2.58 in)
Weight	2,015 g (4.44 lb)	2,355 g (5.19 lb)	2,385 g (5.25 lb)	2,208 g (4.86 lb)
Installation	Wall mounting			
Environmental Limits				
Operating Temperature	-30 to 60°C (-22 to 140°F)			
Warranty				
Warranty Period	3 years			

x86 Computers

Product Series	RKP-A110-E2-T RKP-A110-E4-T	RKP-A110-E2-8L-T RKP-A110-E4-8L-T	RKP-A110-E2-8C-T RKP-A110-E4-8C-T	RKP-A110-E2-2L4C-T RKP-A110-E4-2L4C-T
Computer				
CPU	RKP-A110-E2 models: Intel Atom® x6211E (dual-core, 1.5M cache, 1.30 GHz) RKP-A110-E4 models: Intel Atom® x6425E (quad-core, 1.5M cache, 2.00 GHz)			
System Memory Slot	1 x SODIMM DDR4 slot (8 GB preinstalled, 32 GB max.)			
Storage Slot	2 x 2.5-inch SSD slots (SATA III interface)			
Supported OS	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Windows 11 Professional (64-bit) Linux drivers supported: • Debian 11 (kernel 5.10) • Ubuntu 22.04 LTS (kernel 5.15) • RHEL 9 (kernel 5.14)			
Computer Interface				
Ethernet Ports	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	12 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	6 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	10 x RS-232/422/485 ports (software-selectable, DB9 male connector)	6 x RS-232/422/485 ports (software-selectable, DB9 male connector)
USB 3.0	3 x USB 3.0 hosts (type-A connector)			
Digital Input	8 x DIs			
Digital Output	8 x DOs			
TPM	TPM v2.0			
Video Output	1 x HDMI 2.0b (type-A connector) 1 x VGA (15-pin D-sub female connector)			
Power Parameters				
Input Voltage	12/24 VDC			
Physical Characteristics				
Dimensions	440 x 230 x 43.6 mm (17.32 x 9.06 x 1.72 in)			
Weight	3,330 g (7.34 lb)	3,510 g (7.74 lb)	3,520 g (7.76 lb)	3,520 g (7.76 lb)
Installation	Rack mounting (standard 1U)			
Environmental Limits				
Operating Temperature	-30 to 60°C (-22 to 140°F)			
Warranty				
Warranty Period	3 years			

x86 Computers

Product Series	RKP-C110-C1-T RKP-C110-C5-T RKP-C110-C7-T	RKP-C110-C1-8L-T RKP-C110-C5-8L-T RKP-C110-C7-8L-T	RKP-C110-C1-8C-T RKP-C110-C5-8C-T RKP-C110-C7-8C-T	RKP-C110-C1-2L4C-T RKP-C110-C5-2L4C-T RKP-C110-C7-2L4C-T
Computer				
CPU	RKP-C110-C1 models: Intel® Celeron® 6305E (dual-core, 4M cache, 1.80 GHz) RKP-C110-C5 models: Intel® Core™ i5-1145G7E (quad-core, 8M cache, 2.60 GHz, base: 1.50 GHz) RKP-C110-C7 models: Intel® Core™ i7-1185G7E (quad-core, 12M cache, 2.80 GHz, base: 1.80 GHz)			
System Memory Slot	1 x SODIMM DDR4 slot (8 GB preinstalled, 32 GB max.)			
Storage Slot	2 x 2.5-inch SSD slots (SATA III interface)			
Supported OS	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Windows 11 Professional (64-bit) Linux drivers supported: • Debian 11 (kernel 5.10) • Ubuntu 22.04 LTS (kernel 5.15) • RHEL 9 (kernel 5.14)			
Computer Interface				
Ethernet Ports	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	12 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	6 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	10 x RS-232/422/485 ports (software-selectable, DB9 male connector)	6 x RS-232/422/485 ports (software-selectable, DB9 male connector)
USB 3.0	3 x USB 3.0 hosts (type-A connector)			
Digital Input	8 x DIs			
Digital Output	8 x DOs			
TPM	TPM v2.0			
Video Output	1 x HDMI 2.0b (type-A connector) 1 x VGA (15-pin D-sub female connector)			
Power Parameters				
Input Voltage	12/24 VDC			
Physical Characteristics				
Dimensions	440 x 230 x 43.6 mm (17.32 x 9.06 x 1.72 in)			
Weight	3,350 g (7.38 lb)	3,800 g (8.37 lb)	3,610 g (7.95 lb)	3,540 g (7.80 lb)
Installation	Rack mounting (standard 1U)			
Environmental Limits				
Operating Temperature	-30 to 60°C (-22 to 140°F)			
Warranty				
Warranty Period	3 years			

x86 Computers




Product Series	MC-1100	MC-1200	MC-3201	MC-7400
Computer				
CPU	• MC-1100-E2-T models: Intel Atom® E3826 (1M cache, 1.46 GHz) • MC-1100-E4-T models: Intel Atom® E3845 (2M cache, 1.91 GHz)	• MC-1220-KL1-T-S models: Intel® Celeron® 3965U (2M cache, 2.20 GHz) • MC-1220-KL5-T models: Intel® Core™ i5-7300U (3M cache, 3.50 GHz) • MC-1220-KL5-T-S models: Intel® Core™ i5-7300U (3M cache, 3.50 GHz) • MC-1220-KL7-T-S models: Intel® Core™ i7-7600U (4M cache, 3.90 GHz)	• MC-3201-TGL7-M-S/S-S models: Intel® Core™ i7-1185G7E (12M cache, 1.8 GHz) • MC-3201-TGL5-M-S/S-S models: Intel® Core™ i5-1145G7E (8M cache, 1.5 GHz) • MC-3201-TGL3-M-S/S-S models: Intel® Core™ i3-1115G4E (6M cache, 2.2 GHz) • MC-3201-TGL1-M-S/S-S models: Intel® Celeron® 6305E (4M cache, 1.8 GHz)	• Intel® Celeron® G3902E (2M cache, 1.60 GHz) Intel® Core™ i5-6442EQ (6M cache, 2.70 GHz) • Intel® Core™ i7-6822EQ (6M cache, 2.80 GHz)
System Memory Preinstalled	4 GB DDR3L	8 GB DDR4	8 GB DDR4	–
System Memory Slot	1 x SODIMM DDR3/DDR3L slot	2 x SODIMM DDR4 slots, Up to 32 GB max.	2 x SODIMM DDR4 2133 slots, Up to 32 GB max.	2 x SODIMM DDR4 slots
Supported OS	• Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Linux Debian 9 (Linux kernel 4.9)	• Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Linux Debian 9 (Linux kernel 4.9)	• Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Linux Debian 11 (Linux kernel 5.1)	• Windows 10 IoT Enterprise 2016 LTSB • Linux Debian 9
Storage Slot	All models: 1 x CFast MC-1111/1121 models: 1 x SD	External: 1 x mSATA slot, SATA 3.0 Internal: 1 x mPCIe socket	External: 1 x 2.5-inch HDD/SSD slot Internal: 1 x M.2 B key socket 1 x mPCIe socket	2 x 2.5-inch HDD/SSD slots
Computer Interface				
Ethernet Ports	MC-1111/1112 models: 2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) MC-1121/1122 models: 4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	5 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	MC-1121/1112 models: 2 x RS-232/422/485 ports (software-selectable, DB9 male connector) MC-1122 models: 4 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232 ports (DB9 male connector) 2 x RS-232/422/485 ports (software-selectable, DB9 male connector)
USB 3.0	–	3 x USB 3.0 hosts (type-A connector)	2 x USB 3.0 hosts (type-A connector)	4 x USB 3.0 hosts (type-A connector)
USB 2.0	2 x USB 2.0 hosts (type-A connector)	–	4 x USB 2.0 hosts (type-A connector)	5 x USB 2.0 hosts (type-A connector)
Digital Input	MC-1121/1122 models: 4 x DIs	–	M-S models: 4 x DIs	MC-7420 models: 4 x DIs
Digital Output	MC-1121/1122 models: 4 x DOs	–	M-S models: 4 x DOs	MC-7420 models: 4 x DOs
Expansion Slots	1 x mPCIe slot		–	
TPM	MC-1122-E4-TPM-T models: TPM v1.2	–	TPM v2.0	–
Video Output	All models: 1 x VGA (15-pin D-sub female connector) MC-1111/1121 models: 1 x DisplayPort	1 x HDMI Up to 3840 x 2160 @ 30 Hz	2 x DisplayPort Up to 3840 x 2160 @ 60 Hz	1 x DisplayPort
Power Parameters				
Input Voltage	11.4 to 36 VDC	9 to 36 VDC	M-S models: 24 VDC S-S models: 9 to 36 VDC	100 to 240 VAC 24 VDC
Physical Characteristics				
Dimensions	MC-1111/1112 models: 132 x 122 x 68 mm (5.2 x 4.81 x 2.68 in) MC-1121/1122 models: 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)	220 x 80 x 170 mm (8.66 x 3.15 x 6.69 in)	MC-7410 models: 240 x 209 x 125 mm (9.45 x 8.23 x 4.92 in) MC-7420 models: 240 x 209 x 160 mm (9.45 x 8.23 x 6.3 in)
Installation	DIN-rail mounting Wall mounting (with optional kit)	Wall mounting (with optional kit) DIN-rail mounting	Wall mounting	–
Environmental Limits				
Operating Temperature	-40 to 70°C (-40 to 158°F)		-20 to 55°C (-4 to 131°F)	-25 to 55°C (-13 to 131°F)
Standards and Certifications				
Hazardous Locations	ATEX Zone 2, CID2, IECEx Zone 2		–	
Maritime	IEC 60945, DNV	–	M-S models: IEC 60945, IACS E10	IEC 60945

x86 Computers


Product Series	V2403C	V2201
Computer		
CPU	• V2403C-KL1-T models: Intel® Celeron® 3965U (2M cache, 2.2 GHz) • V2403C-KL3-T models: Intel® Core™ i3-7100U (3M cache, 2.4 GHz) • V2403C-KL5-T models: Intel® Core™ i5-7300U (3M cache, 2.6 GHz) • V2403C-KL7-T models: Intel® Core™ i7-7600U (4M cache, 2.8 GHz)	• E1 models: Intel Atom® E3815 (single-core, 512K cache, 1.46 GHz) • E2 models: Intel Atom® E3826 (dual-core, 1M cache, 1.46 GHz) • E4 models: Intel Atom® E3845 (quad-core, 2M cache, 1.91 GHz)
Storage Slot	2 x 2.5-inch HDD/SSD, 1 x mSATA	1 x SD 3.0 (SDHC/SDXC), 1 x mSATA (16 GB mSATA preinstalled)
Supported OS	• Windows 10 IoT Enterprise 2019 LTSC (64-bit) • Windows 10 IoT Enterprise 2021 LTSC (64-bit) • Linux Debian 9 (image) • Linux Debian 11/Ubuntu 20.04/CentOS 7.9 (drivers)	• Windows Embedded Standard 7 (64-bit) • Windows 10 IoT Enterprise 2016 LTSB Entry (64-bit) • Windows 10 IoT Enterprise 2019 LTSC Entry (64-bit) • Windows 10 IoT Enterprise 2021 LTSC Entry (64-bit) • Linux Debian 9 OS image (kernel 4.9) • Linux Debian 11/Ubuntu 20.04/CentOS 7.9 (drivers)
System Memory Slot	2 x SODIMM DDR4 (32 GB max.)	1 x SODIMM DDR3/DDR3L
System Memory Preinstalled	–	4 GB DDR3L
Computer Interface		
Ethernet Ports	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
Serial Ports	4 x RS-232/422/485 ports (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)
Digital Output	4 x DOs	
Digital Input	4 x DIs	
USB 3.0	4 x USB 3.0 hosts (type-A connector)	1 x USB 3.0 host (type-A connector)
USB 2.0	–	2 x USB 2.0 hosts (type-A connector)
Audio Input/Output	1 x Line-in, 1 x Line-out, 3.5 mm phone jack	–
Video Output	1 x HDMI (standard connector) 1 x DisplayPort (standard connector)	1 x HDMI (type-A connector)
Expansion Slots	2 x mPCIe slots	
SIM Format	Micro	Mini
Number of SIMs	4	1
Power Parameters		
Input Voltage	12 to 48 VDC	9 to 36 VDC
Physical Characteristics		
Dimensions (Without Ears)	250 x 75 x 150 mm (9.84 x 2.95 x 5.91 in)	150 x 48.8 x 120.2 mm (5.91 x 1.92 x 4.73 in)
Installation	Wall mounting	V2201-E4-W-T-LX models: DIN-rail mounting All other models: Wall mounting
Environmental Limits		
Operating Temperature	-40 to 70°C (-40 to 158°F)	E1/E2 models: -40 to 85°C (-40 to 185°F) E4 models: -40 to 70°C (-40 to 158°F)
Standards and Certifications		
Railway	EN 50121-4	–

Arm-based Computers

Product Series	UC-1222A	UC-2222A-T	UC-2222A-T-CN	UC-2222A-T-US	UC-2222A-T-EU	UC-2222A-T-AP
Computer						
CPU	Armv8 Cortex-A53 dual-core 1 GHz					
DRAM	2 GB DDR4					
Supported OS	Moxa Industrial Linux 3 (Debain 11, kernel 5.10)					
Storage Preinstalled	16 GB eMMC					
Storage Slot	1 x microSD slot					
Computer Interface						
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)					
Serial Ports	2 x RS-232/422/485 ports (software-selectable, terminal block connector)					
USB 2.0	1 x USB 2.0 host (type-A connector)					
Expansion Slots	1 x mPCIe slot			–		
Cellular Connectivity	–			Built-in LTE Cat. 4		
Number of SIMs	1					
SIM Format	Nano					
TPM	TPM v2.0					
Power Parameters						
Input Voltage	12 to 24 VDC					
Input Current	0.6 A @ 12 VDC 0.3 A @ 24 VDC					
Power Consumption	7.2 W			10.5 W		
Physical Characteristics						
Dimensions	101 x 27 x 128 mm (3.98 x 1.06 x 5.04 in)	102 x 32 x 128 mm (4.20 x 1.26 x 5.04 in)				
Environmental Limits						
Operating Temperature	-40 to 60°C (-40 to 140°F)	-40 to 75°C (-40 to 167°F)	-40 to 70°C (-40 to 158°F)			
Standards and Certifications						
Safety/EMC/RF	CE, FCC, UL, NCC, BSMI, RCM, KC, IC					
Carrier Approvals	–			AT&T, Verizon		
Hazardous Locations	ATEX, CID2					

Arm-based Computers

Product Series	UC-2101-LX	UC-2102-LX	UC-2104-LX	UC-2111-LX	UC-2112-LX	UC-2112-T-LX
Computer						
CPU	Armv7 Cortex-A8 600 MHz				Armv7 Cortex-A8 1 GHz	
DRAM	256 MB DDR3			512 MB DDR3		
Supported OS	Moxa Industrial Linux 1 (Debian 9, kernel 4.4)					
Storage Preinstalled	8 GB eMMC					
Storage Slot	–			1 x microSD slot		
Computer Interface						
Ethernet Ports	1 x Auto-sensing 10/100 Mbps port (RJ45 connector)	2 x Auto-sensing 10/100 Mbps ports (RJ45 connector)	1 x Auto-sensing 10/100 Mbps port (RJ45 connector)	2 x Auto-sensing 10/100 Mbps ports (RJ45 connector)	1 x Auto-sensing 10/100 Mbps port (RJ45 connector) 1 x Auto-sensing 10/100/1000 Mbps port (RJ45 connector)	
Serial Ports	1 x RS-232/422/485 port (software-selectable, DB9 male connector)	–		2 x RS-232/422/485 ports (software-selectable, DB9 male connector)		
Expansion Slots	–		1 x mPCIe slot	–		
Number of SIMs	–		1	–		
SIM Format	–		Standard	–		
Power Parameters						
Input Voltage	9 to 48 VDC					
Input Current	0.45 A @ 9 VDC, 0.084 A @ 48 VDC					
Power Consumption	4 W					
Physical Characteristics						
Dimensions (With Ears)	73 x 80 x 28 mm (2.87 x 3.15 x 1.10 in)		80 x 80 x 30.8 mm (3.15 x 3.15 x 1.21 in)	99 x 111 x 25.5 mm (3.90 x 4.37 x 1.00 in)		
Dimensions (Without Ears)	50 x 80 x 28 mm (1.97 x 3.15 x 1.10 in)		57 x 80 x 30.8 mm (2.24 x 3.15 x 1.21 in)	77 x 111 x 25.5 mm (3.03 x 4.37 x 1.00 in)		
Environmental Limits						
Operating Temperature	-10 to 60°C (14 to 140°F)					-40 to 75°C (-40 to 167°F)
Standards and Certifications						
Safety/EMC/RF	CE, FCC, UL, UKCA, BIS					
Hazardous Locations	–				ATEX, CID2	

Arm-based Computers

Product Series	UC-3101-T-(EU/AP/US)-LX	UC-3111-T-(EU/AP/US)-LX	UC-3121-T-(EU/AP/US)-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	1 GB DDR3			2 GB DDR3L				
Supported OS	Moxa Industrial Linux 1 (Debain 9, kernel 4.4)			Moxa Industrial Linux 1 (Debain 9, kernel 4.4) Moxa Industrial Linux 3 (Debian 11, kernel 5.10)				
Storage Preinstalled	8 GB eMMC							
Storage Slot	–	1 x SD slot		1 x microSD slot				
Computer Interface								
Ethernet Ports	2 x Auto-sensing 10/100 Mbps ports (RJ45 connector)			2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)				
Serial Ports	1 x RS-232/422/485 port (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	1 x RS-232/422/485 port (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)				
USB 2.0	1 x USB 2.0 host (type-A connector)							
Expansion Slots	–				2 x mPCIe slots	1 x mPCIe slot		
Cellular Connectivity	Built-in LTE Cat. 1			–	–	Built-in LTE Cat. 4		
Wi-Fi	–	Built-in Wi-Fi 4 (except -NW models)		–	Wi-Fi 6 (optional)			
Number of SIMs	2			–	2			
SIM Format	Nano			–	Nano			
TPM	TPM 2.0							
Digital Input	–			4 x DIs				
Digital Output	–			4 x DOs				
CAN Interface								
No. of Ports	–		1					
Power Parameters								
Input Voltage	9 to 36 VDC			12 to 48 VDC				
Input Current	0.5 A @ 12 VDC			0.8 A @ 12 VDC				
Power Consumption	6 W (max.)	8 W (max.)		10 W				
Physical Characteristics								
Dimensions (With Ears)	–				141.5 x 120 x 39 mm (5.7 x 4.72 x 1.54 in)	141.5 x 120 x 39 mm (5.7 x 4.72 x 1.54 in)		
Dimensions (Without Ears)	128.5 x 89.1 x 26 mm (5.06 x 3.51 x 1.02 in)	128.5 x 89.1 x 41 mm (5.06 x 3.51 x 1.61 in)	128.5 x 89.1 x 41 mm (5.06 x 3.51 x 1.61 in)	–				
Environmental Limits								
Operating Temperature	-40 to 70°C (-40 to 158°F)							
Standards and Certifications								
Safety/EMC/RF	CE, FCC, UL, RCM, UKCA, NCC	CE, FCC, UL, RCM, UKCA, IFETEL, ENACOM, NBTC, SUBTEL, WPC, ANATEL, NCC	CE, FCC, UL, RCM, UKCA, NCC	CE, FCC, UL, RCM, KC, UKCA	CE, FCC, UL, RCM, KC, UKCA, IC			
Carrier Approvals	Verizon, AT&T							
Hazardous Locations	ATEX, CID2							
Industrial Cybersecurity	–			IEC 62443-4-1, IEC 62443-4-2 Level 2				

Arm-based Computers

Product Series	UC-8131-LX	UC-8132-LX	UC-8162-LX	UC-8112-LX
Computer				
CPU	Armv7 Cortex-A8 300 MHz		Armv7 Cortex-A8 600 MHz	Armv7 Cortex-A8 1 GHz
DRAM	256 MB DDR3		512 MB DDR3	
Supported OS	Moxa Industrial Linux 1 (Debain 9, kernel 4.4)			
Storage Preinstalled	8 GB eMMC			
Storage Slot	1 x SD slot			
Computer Interface				
Ethernet Ports	2 x Auto-sensing 10/100 Mbps ports (RJ45 connector)			
Serial Ports	1 x RS-232/422/485 port (software-selectable, terminal block connector)	2 x RS-232/422/485 ports (software-selectable, terminal block connector)		
USB 2.0	1 x USB 2.0 host (type-A connector)			
Expansion Slots	1 x mPCIe slot			
Number of SIMs	1			
SIM Format	Mini			
Power Parameters				
Input Voltage	12 to 24 VDC			
Input Current	0.48 A @ 12 VDC 0.225 A @ 24 VDC			
Power Consumption	5.4 W			
Physical Characteristics				
Dimensions	101 x 27 x 128 mm (3.98 x 1.06 x 5.04 in)			
Environmental Limits				
Operating Temperature	-10 to 60°C (14 to 140°F)			
Standards and Certifications				
Safety/EMC/RF	CE, FCC, UL, UKCA, BIS		CE, FCC, UL, UKCA, KC, BIS	CE, FCC, UL, UKCA, BIS, BSMI

Arm-based Computers

Product Series	UC-8410A-LX	UC-5101-LX	UC-5102-LX	UC-5111-LX	UC-5112-LX
Computer					
CPU	Armv7 Cortex-A7 dual-core 1 GHz	Armv7 Cortex-A8 1 GHz			
DRAM	1 GB DDR3L	512 MB DDR3			
Supported OS	Linux Debian 8 (kernel 4.1) Moxa Industrial Linux 1 (Debain 9, kernel 4.4)	Moxa Industrial Linux 1 (Debain 9, kernel 4.4)			
Storage Preinstalled	8 GB eMMC				
Storage Slot	1 x SD slot 1 x mSATA slot, internal mPCIe socket	1 x SD slot			
Computer Interface					
Ethernet Ports	3 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	2 x Auto-sensing 10/100 Mbps ports (RJ45 connector)			
Serial Ports	8 x RS-232/422/485 ports (software-selectable, RJ45 connector)	4 x RS-232/422/485 ports (software-selectable, RJ45 connector)			
USB 2.0	2 x USB 2.0 hosts (type-A connector)	1 x USB 2.0 host (type-A connector)			
Expansion Slots	1 x mPCIe slot (excluding -NW models)	–	1 x mPCIe slot	–	1 x mPCIe slot
Number of SIMs	1	–	2	–	2
SIM Format	Mini	–	Micro	–	Micro
Digital Input	4 x DIs				
Digital Output	4 x DOs				
CAN Interface					
No. of Ports	–			2	
Power Parameters					
Input Voltage	12 to 48 VDC	9 to 48 VDC			
Input Current	1.57 A @ 12 VDC	0.95 A @ 9 VDC, 0.23 A @ 48 VDC			
Power Consumption	19 W	11 W			
Physical Characteristics					
Dimensions	200 x 120 x 48.6 mm (7.87 x 4.72 x 1.91 in)	57 x 136 x 100 mm (2.24 x 5.35 x 3.94 in)			
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) Wide temp. models with LTE/Wi-Fi: -40 to 70°C (-40 to 158°F)	Standard models: -10 to 60°C (14 to 140°F) Wide temp. models: -40 to 85°C (-40 to 185°F) Wide temp. models with LTE/Wi-Fi: -40 to 70°C (-40 to 158°F)			
Standards and Certifications					
Safety/EMC/RF	CE, FCC, UL, UKCA				

EN 50155 Computers

Product Series	V3200	V2406C	UC-8540	UC-8580
Computer				
CPU	• TL1-4L/-8L models: Intel® Celeron® 6305E • TL3-4L/-8L models: Intel® Core™ i3-1115G4E • TL5-4L/-8L models: Intel® Core™ i5-1145G7E • TL7-4L/-8L models: Intel® Core™ i7-1185G7E • TL7-4L-TSN/-8L-TSN models: Intel® Core™ i7-1185GRE	• KL1 models: Intel® Celeron® 3965U • KL3 models: Intel® Core™ i3-7100U • KL5 models: Intel® Core™ i5-7300U • KL7 models: Intel® Core™ i7-7600U • WL1 models: Intel® Celeron® 4305UE • WL3 models: Intel® Core™ i3-8145UE • WL5 models: Intel® Core™ i5-8365UE • WL7 models: Intel® Core™ i7-8665UE	Armv7 Cortex-A7 dual-core 1 GHz	
System Memory Slot	2 x SODIMM DDR4 slots (64 GB max.)	2 x SODIMM DDR4 slots (32 GB max.)	–	
System Memory Preinstalled	16 GB DDR4	–	1 GB DDR3L	
Storage Slot	2 x 2.5-inch SSD slots 1 x M.2 M key 2280 slot (NVMe)	2 x 2.5-inch HDD/SSD slots 1 x mSATA slot	1 x mSATA slot, 1 x mPCIe slot (internal socket)	
Supported OS	• Windows 10 IoT Enterprise 2021 LTSC (64-bit) • Linux Debian 11/Ubuntu 20.04/ CentOS 7.9 (driver)[1]	• Windows 10 IoT Enterprise 2019 LTSC (64-bit) • Windows 10 IoT Enterprise 2021 LTSC (64-bit) • WL models: Moxa Industrial Linux 2.x (Debian 10, kernel 4.19) • KL models: Debian 9 (kernel 4.9) • Linux Debian 11/Ubuntu 20.04/CentOS 7.9 (drivers)	Linux Debian 8 (Linux kernel v4.1)	
Storage Preinstalled	128 GB M.2 M Key SSD	–	8 GB eMMC	
Computer Interface				
Ethernet Ports	1 x Auto-sensing 1000/2500 Mbps port, 3 or 7 x Auto-sensing 10/100/1000 Mbps ports (M12 X-coded connector) LAN1: Intel® Ethernet Network Adapter I225 with Intel® AMT support	2 x Auto-sensing 10/100/1000 Mbps ports (M12 X-coded connector)		
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)	4 x RS-232/422/485 ports (software-selectable, DB9 male connector)	1 x RS-232/422/485 port (software-selectable, DB9 male connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)
Digital Input	2 x DIs	6 x DIs	–	3 x DIs
Digital Output	2 x DOs	2 x DOs	–	3 x DOs
USB 3.0	2 x USB 3.0 hosts (type-A connector)	4 x USB 3.0 hosts (type-A connector)	1 x USB 3.0 host (type-A connector)	
Video Output	1 x VGA (15-pin D-sub female connector) 1 x HDMI (type-A connector)		–	
Audio Input/Output	–	1 x Line-in, 1 x Line-out, 3.5 mm phone jack	–	
Expansion Slots	2 x M.2 B key 3052/3050 slots 1 x M.2 E key slot 1 x mPCIe slot	2 x mPCIe slots		4 x mPCIe slots
Number of SIMs	6 (micro)	–	2 (micro)	6 (mini)
TPM	TPM v2.0 (default)	TPM 2.0 (sold separately)	TPM v2.0 (HW V1.1.0 and later)	–
GPS Interface				
Heading Accuracy	–		0.3 degrees	
Industrial Protocols	–		NMEA 0183 V4.0 (V2.3 and 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	
Power Parameters				
Input Voltage	24 to 110 VDC			
Power Connector	M12 A-coded male connector		M12 A-coded 4-pin male connector	
Physical Characteristics				
Dimensions (Without Ears)	250 x 96.7 x 180 mm (9.84 x 3.81 x 7.09 in)	250 x 75 x 150 mm (9.84 x 2.95 x 5.91 in)	160 x 120 x 120 mm (6.30 x 4.72 x 4.72 in)	220 x 134 x 88 mm (8.66 x 5.28 x 3.46 in)
Installation	Wall mounting			
Environmental Limits				
Operating Temperature	-40 to 70°C (-40 to 158°F)		Standard models: -25 to 55°C (-13 to 131°F) Wide temp. models: -40 to 70°C (-40 to 158°F)	
Standards and Certifications				
Railway Fire Protection	EN 45545-2			
Railway	EN 50121-4, EN 50121-3-2, EN 50155		EN 50121-4, EN 50155	

[1] Q2, 2024 update to support Debian 12 and Ubuntu 22.04.3 (driver).
Q4, 2024 support for Moxa Industrial Linux 3.0.

IEC 61850-3 Computers

Product Series	DA-680	DA-681C	DA-720	DA-682C	DA-820C
Computer					
CPU	• Intel® Core™ i3-8145UE	• Intel® Core™ i3-7100U • Intel® Celeron® 3965U	• Intel® Core™ i7-6600U • Intel® Core™ i5-6300U	• Intel® Core™ i7-7600U • Intel® Core™ i5-7300U • Intel® Core™ i3-7100U • Intel® Celeron® 3965U	• Intel® Xeon® E3-1505M v6 • Intel® Xeon® E3-1505L v6 • Intel® Core™ i7-7820EQ • Intel® Core™ i5-7442EQ • Intel® Core™ i3-7102E
System Memory Slot	1 x SODIMM DDR4 slot (16 GB max.)	2 x SODIMM DDR4 slots (32 GB max.)			2 x SODIMM DDR4 slots (64 GB max.)
Storage Slot	1 x 2.5-inch HDD/SSD slot 1 x mSATA slot			2 x 2.5-inch HDD/SSD slots 1 x mSATA slot	4 x 2.5-inch HDD/SSD slots 1 x mSATA slot
Supported OS	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) Linux SDK supported: • Debian 12 (kernel 6.1) • Ubuntu 22.04.3 LTS (kernel 5.15)	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2019 (64-bit) • Windows 10 IoT Enterprise LTSC 2021 (64-bit) Linux SDK supported: • Debian 12 (kernel 6.1) • Ubuntu 22.04.3 LTS (kernel 5.15)	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2021 (64-bit) Linux drivers supported: • Debian 8 (kernel 4.1)	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2019 (64-bit) • Windows 10 IoT Enterprise LTSC 2021 (64-bit) Linux SDK supported: • Debian 12 (kernel 6.1) • Ubuntu 22.04.3 LTS (kernel 5.15)	Windows images and drivers supported: • Windows 10 IoT Enterprise LTSC 2019 (64-bit) • Windows 10 IoT Enterprise LTSC 2021 (64-bit) • Windows Server 2019 Linux SDK supported: • Debian 12 (kernel 6.1) • Ubuntu 22.04.3 LTS (kernel 5.15)
Computer Interface					
Ethernet Ports	8 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	6 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	14 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	6 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)
USB 3.0	3 x USB 3.0 hosts (type-A connector, rear)		2 x USB 3.0 hosts (type-A connector, rear)	3 x USB 3.0 hosts (type-A connector, rear)	
USB 2.0	3 x USB 2.0 hosts (type-A connector) 2 ports on the front panel, 1 port inside the computer		2 x USB 2.0 hosts (type-A connector, front)	3 x USB 2.0 hosts (type-A connector) 2 ports on the front panel, 1 port inside the computer	
Video Output	1 x VGA (15-pin D-sub female connector)	2 x HDMI (type-A connector)	1 x DVI-D (29-pin DVI-D female connector) 1 x VGA (15-pin D-sub female connector)	2 x HDMI (type-A connector)	2 x HDMI (type-A connector) 1 x VGA (15-pin D-sub female connector)
TPM	TPM v2.0			TPM v2.0 (on request)	TPM v2.0
Serial Ports	8/16 x 2-wire RS-485/ 4-wire RS-485 (terminal block connector)	2 x RS-232/422/485 ports (software-selectable, DB9 male connector) 10 x 2-wire RS-485 ports (terminal block connector)	2 x RS-232/422/485 ports (software-selectable, terminal block connector)		2 x RS-232/422/485 ports (software-selectable, DB9 male connector)
Expansion Slots	–		3 x Proprietary PCIe slots	2 x Proprietary PCIe slots	1 x PCIe x16 slot 1 x PCIe x4 slot 2 x PCIe x1 slots 1 x PCI slot x 1 1 x Proprietary PCIe slot
Digital Input	–	6 x DIs	–	6 x DIs	6 x DIs
Digital Output	2 x DOs	2 x DOs	–	2 x DOs	2 x DOs
Power Parameters					
Input Voltage	100 to 240 VAC, 100 to 240 VDC				
Redundant Power Supply	-HH models	-HH models	-DPP models	-HH models	-HH models
Physical Characteristics					
Dimensions (Without Ears)	440 x 335.5 x 44 mm (17.32 x 13.21 x 1.73 in)	440 x 316 x 44 mm (17.32 x 12.44 x 1.73 in)	440 x 301 x 90 mm (17.32 x 12.20 x 3.54 in)	440 x 282 x 88 mm (17.32 x 11.08 x 3.46 in)	440 x 132.8 x 281.4 mm (17.3 x 5.2 x 11.1 in)
Weight	4,659.5 g (10.27 lb)	9,000 g (21.82 lb)	6,500 g (14.33 lb)	9,900 g (21.82 lb)	14,000 g (31.11 lb)
Installation	19-inch rack mounting				
Environmental Limits					
Operating Temperature	-25 to 55°C (-13 to 131°F)	-40 to 70°C (-40 to 158°F)	-25 to 55°C (-13 to 131°F)	-40 to 70°C (-40 to 158°F)	Standard models: -25 to 55°C (-13 to 131°F) Wide temp. models: -40 to 70°C (-40 to 158°F)
Standards and Certifications					
Certifications	CE, FCC, UL 62368-1, IEC 62368-1, IEC 61850-3, IEEE 1613, IEC 60255	CE, FCC, UL 62368-1, IEC 62368-1, IEC 61850-3, IEEE 1613, IEC 60255, EN 50121-4			
Substation Features					
PRP/HSR	–	–	With an expansion module		
MMS	–	–	–	–	IEC 61850-90-4 MMS Server for power SCADA IEC 61850-90-4 MMS ICD file
Time Synchronization	IRIG-B (terminal block)	–	–	–	PTP, IRIG-B (with an expansion module)

IIoT Gateways



Product Series	AIG-101	AIG-301	AIG-501
Computer			
CPU	Armv7 Cortex-A8 1 GHz	Armv7 Cortex-A7 dual-core 1 GHz	Intel Atom® E3845 (2M cache, 1.91 GHz)
DRAM	1 GB DDR3	2 GB DDR3L	4 GB DDR3L
Storage Preinstalled	8 GB eMMC	16 GB eMMC	32 GB CFast eMMC
OS Preinstalled	Moxa Industrial Linux (Debian 9, kernel 4.4)	Moxa Industrial Linux (Debian 9, kernel 4.4)	Moxa Industrial Linux (Debian 9, kernel 4.9)
No. of Tags Supported	1500	2048	2048
Graphics Controller	–	–	Intel® HD Graphics
Computer Interface			
Wi-Fi Antenna Connector	–	2 x RP-SMA (excluding AIG-301-AZU-LX/T-AZU-LX models)	2 x RP-SMA (AIG-501-T-AZU-LX models only)
Digital Input	–	4 x DIs	
Digital Output	–	4 x DOs	
Cellular Interface			
Cellular Standards	LTE Cat. 1	LTE Cat. 4	LTE Cat. 4
Cellular Antenna Connectors	2 x SMA (excluding AIG-101-T models)	2 x SMA (excluding AIG-301-AZU-LX/T-AZU-LX models)	2 x SMA (excluding AIG-501-T-AZU-LX models)
SIM Format	Nano	Nano	Mini
No. of SIMs	2	2	1
GPS Antenna Connectors	1 x SMA (excluding AIG-101-T models)	1 x SMA (excluding AIG-301-AZU-LX/T-AZU-LX models)	1 x SMA (excluding AIG-501-T-AZU-LX models)
Ethernet Interface			
10/100BaseT(X) Ports (RJ45 Connector)	2	–	–
10/100/1000BaseT(X) Ports (RJ45 Connector)	–	2	4
Ethernet Software Features			
Industrial Protocols	Modbus TCP Client (Master), Modbus TCP Server (Slave), Generic MQTT, Azure IoT Device, AWS IoT Core	Modbus TCP Client (Master), Generic MQTT, Azure IoT Device, AWS IoT Core, Azure IoT Edge, OPC UA Server, Sparkplug B Client	Modbus TCP Client (Master), Modbus TCP Server (Slave), Generic MQTT, Azure IoT Device, AWS IoT Core, Azure IoT Edge, OPC UA Server, Sparkplug B Client
Configuration Options	Web Console (HTTP/HTTPS), AIG QuickON	Web Console (HTTP/HTTPS), ThingsPro Proxy Utility	
Time Management	NTP Client, GPS	NTP Server/Client, GPS	
Serial Interface			
No. of Ports	2	2	4
Serial Software Features			
Industrial Protocols	Modbus RTU/ASCII Master		
CAN Interface			
No. of Ports	–	1	–
Connector	–	DB9 male	–
Environmental Limits			
Operating Temperature	-40 to 70°C (-40 to 158°F)	Standard models: -20 to 70°C (-4 to 158°F) Wide temp. models: -40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)
Standards and Certifications			
Hazardous Locations	–	CID2, ATEX	CID2, ATEX
Warranty			
Warranty Period	5 years	5 years	3 years

Panel Computers and Displays


Product Series	EXPC-F2120W	EXPC-F2150W
Computer		
CPU	TL1 models: Intel® Celeron® 6305E TL3 models: Intel® Core™ i3-1115G4E TL7 models: Intel® Core™ i7-1185G7E	TL3 models: Intel® Core™ i3-1115G4E TL5 models: Intel® Core™ i5-1145G7E TL7 models: Intel® Core™ i7-1185G7E
Graphics Controller	Intel® Core™ i7 models: Intel® Iris® Xe Graphics Intel® Celeron®, Core™ i3 models: Intel® UHD Graphics	Intel® Core™ i7 models: Intel® Iris® Xe Graphics Intel® Core™ i5/i3 models: Intel® UHD Graphics
System Memory Preinstalled	16 GB	
System Memory Slot	2 x SODIMM DDR4 slots (64 GB max.)	
Supported OS	Windows 10 IoT Enterprise LTSC 2021 (64-bit), Windows 11 Professional 2023 (64-bit), Debian 11 (driver)	
Storage Slot	1 x M.2 B key for SSD (internal, optional) 1 x CFexpress slot (external, default)	
Computer Interface		
Ethernet Ports	4 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)	
Serial Ports	3 x RS-232/422/485 ports (software-selectable, DB9 male connector)	
USB 3.0	2 x USB 3.0 hosts (type-A connector)	
USB 2.0	2 x USB 2.0 hosts (type-A connector)	
Audio Input/Output	1 x Mic-in, 1 x Line-out, 3.5 mm phone jack	
Video Output	1 x DisplayPort 1 x VGA (15-pin D-sub female connector)	
Display		
Active Display Area	304.128 (H) x 228.096 (V) mm	344.16 (H) x 193.59 (V) mm
Aspect Ratio	16:10	16:9
Contrast Ratio	750:1	
Light Intensity (Brightness)	1200 nits	
Panel Size	12.1 in	15.6 in
Pixels	1280 x 800	1920 x 1080
Viewing Angles	Horizontal: 85°/85°, Vertical: 85°/85°	Horizontal: 88°/88°, Vertical: 88°/88°
Touch Function		
Touch Type	Projective capacitive (PCAP) touchscreen GGG sensor with optical bonding	
Glove Support	Yes	
Power Parameters		
Input Voltage	DC models: 9 to 36 VDC AC models: 100 to 240 VAC	
Physical Characteristics		
Housing	Aluminum	
IP Rating	IP66 (front), IP42 (rear; with all IOs plugged in)	
Dimensions	336.69 x 255.17 x 94.05 mm (13.25 x 10.05 x 3.70 in)	403.99 x 274.48 x 99 mm (15.91 x 10.81 x 3.90 in)
Weight	6,200 g (13.67 lb)	6,900 g (15.21 lb)
Environmental Limits		
Operating Temperature	-40 to 70°C (-40 to 158°F)	
Storage Temperature (Package Included)	-45 to 75°C (-49 to 167°F)	
Ambient Relative Humidity	5 to 95% (non-condensing)	
Altitude	3000 m	
Standards and Certifications		
Hazardous Locations	EN 60079-0, IEC 60079-0, EN 60079-7, IEC 60079-7, EN 60079-15, IEC 60079-15, EN 60079-31, IEC 60079-31	
UV Protection	IEC 60068-2-5 CIE85: 300 to 3000 nm (included UV, visible, IR); 1000 hrs (procedure C; continuously for 24 hrs)	
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 (1M cache, 1.46 GHz)	MPC-2120-E2-T models: Intel Atom® E3826 (1M cache, 1.46 GHz) MPC-2120-E4-T models: Intel Atom® E3845 (2M cache, 1.91 GHz)	Intel Atom® E3845 (2M cache, 1.91 GHz)	
Graphics Controller	Intel® HD Graphics			
System Memory Preinstalled	4 GB DDR3L			
System Memory Slot	1 x SODIMM DDR3/DDR3L slot (8 GB max.)			
Supported OS	Windows Embedded Standard 7 (64-bit) Windows 10 IoT Enterprise LTSC 2019 Value (64-bit) Windows 10 IoT Enterprise LTSC 2021 Entry (64-bit) Linux Debain 9			
Storage Slot	1 x CFast, 1 x SD (SD 3.0, SDHC/SDXC socket)			
Computer Interface				
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)		2 x Auto-sensing 10/100 Mbps ports (M12 D-coded 4P connector)	
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)		1 x RS-232/422/485 port (M12 A-coded 12P connector)	
USB 2.0	2 x USB 2.0 hosts (type-A connector)		1 x USB 2.0 host (M12 A-coded 5P connector)	
Display				
Active Display Area	152.4 (H) x 91.44 (V) mm	245.76 (H) x 184.32 (V) mm	210.4 (H) x 157.8 (V) mm	245.76 (H) x 184.32 (V) mm
Aspect Ratio	–	4:3		
Contrast Ratio	600:1	700:1	1000:1	
Light Intensity (Brightness)	350 / 1000 nits	500 / 1000 nits		
Panel Size	7 in	12 in	10.4 in	12 in
Pixels	800 x 480	1024 x 768		
Viewing Angles	140°/120°	160°/140°	176°/176°	178°/178°
Touch Function				
Touch Type	Projective capacitive (PCAP) touchscreen			
Glove Support	Yes			
Power Parameters				
Input Voltage	10 to 36 VDC		24 to 110 VDC	
Physical Characteristics				
Housing	Metal			
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)			
Hazardous Locations	CID2, ATEX Zone 2, IECEx Zone 2		–	
Maritime	DNV-CG-0339, IEC 60945, IACS E10		–	
Railway	–		EN 50155	
Warranty				
Warranty Period	LCD: 1 year, System: 3 years			

Panel Computers and Displays

Preliminary | Preliminary | Preliminary | Preliminary | Preliminary | Preliminary

Product Series	MPC-3070W	MPC-3100	MPC-3120	MPC-3120W	MPC-3150	MPC-3150W
Computer						
CPU	E2 models: Intel Atom® x6211E Elkhart Lake (dual-core, 1.30 GHz) E4 models: Intel Atom® x6425E Elkhart Lake (quad-core, 2.0 GHz)					
System Memory Preinstalled	8 GB DDR4-2400 (32 GB max)					
Supported OS	Windows 10 IoT Enterprise LTSC 2021 (64-bit) Windows 11 Professional (64-bit) Debian 11 (kernel 5.10) Ubuntu 22.04 LTS (kernel 5.1x) RHEL 9 (kernel 5.14)					
Storage Slot	1 x CFast, 1 x SD					
Computer Interface						
Ethernet Ports	2 x Auto-sensing 10/100/1000 Mbps ports (RJ45 connector)					
Serial Ports	2 x RS-232/422/485 ports (software-selectable, DB9 male connector)					
USB 3.0	2 x USB 3.0 hosts (type-A connector)					
Display						
Light Intensity (Brightness)	400 / 1000 nits					
Panel Size	7 in (5:4)	10.4 in (4:3)	12.1 in (4:3)	12.1 in (16:10)	15 in (4:3)	15.6 in (16:9)
Pixels	800 x 480	1024 x 768	1024 x 768	1280 x 800	1024 x 768	1920 x 1080
Touch Function						
Touch Type	Projective capacitive (PCAP) touchscreen					
Glove Support	Yes					
Power Parameters						
Input Voltage	12/24 VDC					
Physical Characteristics						
Housing	Aluminum					
IP Rating	IP66 (front), IP20 (rear)					
Environmental Limits						
Operating Temperature	-30 to 60°C (-22 to 140°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	CID2, ATEX Zone 2, IECEx Zone 2					
Maritime	DNV-CG-0339, IEC 60945, IACS E10					
Safety	IEC 62368-1, UL 62368-1					
Shock	IEC 60068-2-27					
Vibration	IEC 60068-2-64, IEC 60068-2-6					
Warranty						
Warranty Period	LCD: 1 year, System: 3 years					

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Moxa Industrial Linux (MIL)

Moxa Industrial Linux (MIL) is a robust, Debian-based Linux distribution tailor-made to provide security, reliability, and ease of deployment for a variety of industrial applications. MIL provides 10-year extensive support, including security patches and bug fixes, ensuring long-term stability for smart city and industrial sectors like power, water, oil and gas, transportation, and factory automation.

MIL Product Page

Moxa Industrial Linux

- **Secure Boot with Hardware Root of Trust**
- **Overlay filesystem that prevents system crashes**
- **Automatic system recovery to maintain data integrity during failures**
- **Unified command line interface (CLI) to manage I/O interfaces on Moxa computers**
- **Extensive 10-year support including critical security patches**
- **Automated network failover and connection keep alive functions**

Building Secure Systems With Moxa's Arm-based Computers

Moxa computers with MIL3 provide a secure and dependable foundation for developing your industrial applications.

Customer-developed Applications

Utilities & Libraries
- Network connection and management tool
- Middleware for I/O communication and control
- Security tools (HIDS, diagnostic tool, and firewall)
- Backup and recovery tool

Secure Operating System
- Secure Boot with Hardware Root of Trust
- Secure by default
- Crash-proof encrypted filesystem
- 10-year life-cycle support

Hardware
- Trusted platform module (TPM)
- Secure screws and seal
- 5-year warranty
- -40°C to 70°C operating temperature with wireless
- CID2 and ATEX Zone 2 certifications

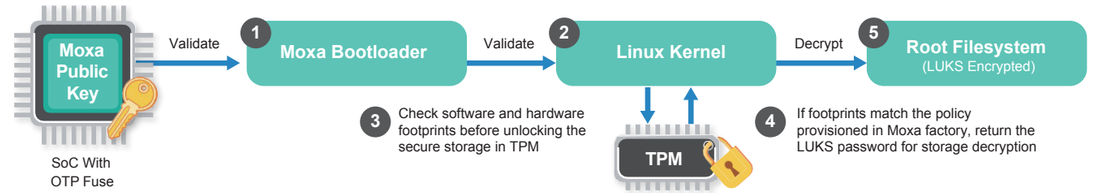
Save Time and Reduce Costs With Moxa

Save 6 months

worth of security validation costs and reduce certification costs for add-on software.

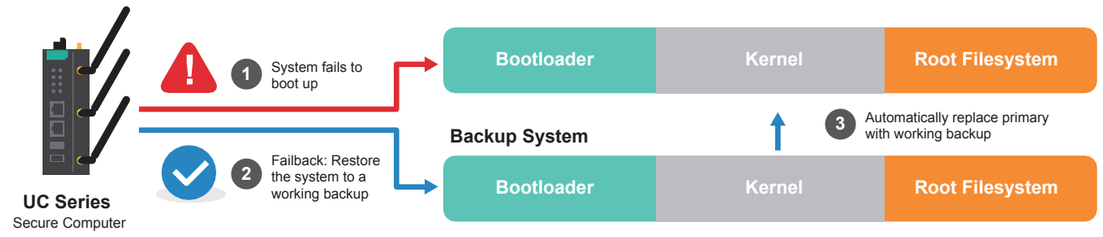
Secure Boot

A one-time programmable (OTP) fuse in the CPU establishes a Hardware Root of Trust to authenticate the bootloader and kernel during boot-up before granting access to the root filesystem.



Automatic System Failback

The system is automatically restored to the last-known secure working state when it fails to boot up.



Product Series	Moxa Industrial Linux
Security Functions	
Hardware-based Security	TPM 2.0 Secure Boot with Hardware Root of Trust
Intrusion Detection	Host-based Intrusion Detection
Security Tools	Security Diagnostic Tool Security Event Auditing Secure Update
Disk Protection	LUKS Disk Encryption
Recovery	One-step recovery to the last-known secure state Dual-system design with automatic failback
Reliability	Network Keep Alive Network Failover and Failback

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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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.

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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.

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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.

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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).

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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.

168

SFP Modules

These small form-factor pluggable transceiver (SFP) Ethernet fiber modules support Fast Ethernet, Gigabit Ethernet, 2.5 Gigabit Ethernet, or 10 Gigabit Ethernet. They 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.

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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 and pin options to ensure compatibility for a wide range of applications.

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Other Accessories

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

Wireless Antennas and Cables

Cellular Antennas

Model Name	ANT-LTEUS-ASM-01	ANT-LTE-ASM-02	ANT-5G-ASM-03	ANT-5G-ASM-02	ANT-5G-ASM-07	ANT-5G-OSM-03	MAT-5G-PA-SM-2-06-3m	MAT-5G-PA-SM-3-06-3m	MAT-5G-PA-SM-4-05-1m
Antenna Characteristics									
Frequency	700/850/900/1700/1900/2600 MHz	800/900/1800/2100/2600 MHz	617 to 960 MHz 1420 to 1561 MHz 1710 to 2170 MHz 2300 to 2690 MHz	617 to 960 MHz 1452 to 1575.412 MHz 1710 to 2690 MHz 3300 to 4200 MHz 4400 to 5000 MHz 5150 to 7150 MHz	617 to 960 MHz 1710 to 2170 MHz 2300 to 2690 MHz 3300 to 3800 MHz 4200 to 4700 MHz 5000 to 5925 MHz	617 to 960 MHz 1452 to 2690 MHz 3300 to 5850 MHz 5850 to 7150 MHz	617 to 960 MHz 1427 to 1510 MHz 1710 to 2170 MHz 2300 to 2690 MHz	Cellular: 617 to 960 MHz 1427 to 1510 MHz 1710 to 2170 MHz 2300 to 2690 MHz GNSS: 1561.00/1575.42/1602.00 MHz	698 to 960 MHz 1710 to 2700 MHz 3300 to 5925 MHz
Antenna Type	Omnidirectional	Omnidirectional	Omnidirectional	Omnidirectional	Omnidirectional	Omnidirectional	Panel	Panel	Panel
Typical Antenna Gain	1 dBi @ 698 to 960 MHz 2 dBi @ 1710 to 1990 MHz 2 dBi @ 2300 to 2400 MHz 2 dBi @ 2500 to 2700 MHz	2 dBi	3.02 dBi @ 617 to 698 MHz 0.70 dBi @ 698 to 824 MHz 0.63 dBi @ 824 to 960 MHz 2.50 dBi @ 1420 to 1561 MHz 2.83 dBi @ 1710 to 1880 MHz 2.91 dBi @ 1850 to 1990 MHz 3.65 dBi @ 1920 to 2170 MHz 3.67 dBi @ 2300 to 2690 MHz	1 dBi @ 617 to 960 MHz 2.5 dBi @ 1452 to 1575.412 MHz 2.5 dBi @ 1710 to 2690 MHz 2.5 dBi @ 3300 to 4200 MHz 2.5 dBi @ 4400 to 5000 MHz 2.5 dBi @ 5150 to 7150 MHz	1.29 dBi @ 617 to 698 MHz 2.00 dBi @ 698 to 824 MHz 1.29 dBi @ 824 to 960 MHz 3.77 dBi @ 1710 to 1880 MHz 4.55 dBi @ 1850 to 1990 MHz 5.49 dBi @ 1920 to 2170 MHz 5.21 dBi @ 2300 to 2690 MHz 5.14 dBi @ 3300 to 3800 MHz 6.57 dBi @ 4200 to 4700 MHz 7.72 dBi @ 5000 to 5925 MHz	1.5 dBi @ 617 to 960 MHz 4 dBi @ 1452 to 2690 MHz 4 dBi @ 3300 to 5850 MHz 4 dBi @ 5850 to 7150 MHz	1.55 dBi @ 617 to 698 MHz 4.32 dBi @ 698 to 824 MHz 5.18 dBi @ 824 to 960 MHz 6.69 dBi @ 1427 to 1510 MHz 6.80 dBi @ 1710 to 1880 MHz 7.10 dBi @ 1850 to 1990 MHz 7.10 dBi @ 1920 to 2170 MHz 5.41 dBi @ 2300 to 2690 MHz	Cellular: 2.64 dBi @ 617 to 698 MHz 5.23 dBi @ 698 to 824 MHz 4.73 dBi @ 824 to 960 MHz 6.66 dBi @ 1427 to 1510 MHz 6.14 dBi @ 1710 to 1880 MHz 5.92 dBi @ 1850 to 1990 MHz 5.92 dBi @ 1920 to 2170 MHz 5.54 dBi @ 2300 to 2690 MHz GNSS: 1.21 dBi @ 1561.00 MHz 1.29 dBi @ 1575.42 MHz 1.44 dBi @ 1602.00 MHz With low-noise amplifier: 30 dB	3 dBi @ 698 to 960 MHz 4 dBi @ 1710 to 2700 MHz 5 dBi @ 3300 to 5925 MHz
Connector	1 x SMA (male)	1 x SMA (male)	1 x SMA (male)	1 x SMA (male)	1 x SMA (male)	1 x SMA (male)	2 x SMA (male)	3 x SMA (male)	4 x SMA (male)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Linear, Vertical	Linear, Vertical	Linear, Vertical	Linear, Vertical	Linear, Vertical	Linear, Vertical	Linear, Vertical	Linear, Vertical	Linear, Vertical
V.S.W.R.	< 3	< 3	< 5.85 @ 617 to 960 MHz < 2 @ 1420 to 1561 MHz < 3 @ 1710 to 2690 MHz	< 3 @ 617 to 960 MHz < 3 @ 1452 to 1575.412 MHz < 3 @ 1710 to 2690 MHz < 3 @ 3300 to 4200 MHz < 3 @ 4400 to 5000 MHz < 3 @ 5150 to 7150 MHz	< 7.5 @ 617 to 698 MHz < 4.5 @ 698 to 824 MHz < 4.4 @ 824 to 960 MHz < 1.9 @ 1710 to 1880 MHz < 2.7 @ 1850 to 1990 MHz < 4.1 @ 1920 to 2170 MHz < 2.1 @ 2300 to 2690 MHz < 2.5 @ 3300 to 3800 MHz < 1.9 @ 4200 to 4700 MHz < 2.0 @ 5000 to 5925 MHz	≤ 2.5 @ 617 to 960 MHz ≤ 2 @ 1452 to 2690 MHz ≤ 2 @ 3300 to 5850 MHz ≤ 2.5 @ 5850 to 7150 MHz	-	-	-
Physical Characteristics									
Installation	Straight mount	Straight mount	Straight mount	Straight mount	Straight mount	Adhesive mount	Screw mount	Screw mount	Screw mount, Pole mount
Dimensions	205 mm (8.07 in)	161 mm (6.34 in)	157.5 mm (6.2 in)	205 mm (8.07 in)	220 mm (8.66 in)	110 x 20 x 5.4 mm (4.33 x 0.79 x 0.21 in)	135.95 x 135.95 x 47.44 mm (5.35 x 5.35 x 1.87 in)	135.95 x 135.95 x 47.44 mm (5.35 x 5.35 x 1.87 in)	141.3 x 50 mm (5.56 x 1.97 in)
Cable	–	–	–	–	–	RG174	SNC200	SNC200	J195
Cable Length	–	–	–	–	–	1, 1.5, 2 m	3 m	3 m	1 m
IP Rating	–	–	–	–	–	–	IPx9K	IPx9K	IP67
Environmental Limits									
Operating Temperature	-30 to 75°C (-22 to 167°F)	-20 to 65°C (-4 to 149°F)	-40 to 85°C (-40 to 185°F)	-20 to 65°C (-4 to 149°F)	-40 to 85°C (-40 to 185°F)	-30 to 70°C (-22 to 158°F)	-40 to 85°C (-40 to 185°F)	-40 to 85°C (-40 to 185°F)	-30 to 70°C (-22 to 158°F)

WLAN Antennas

Model Name	ANT-WDB-ANM-0306	ANT-WDB-ANM-0502	ANT-WDB-ONF-0709	ANT-WDB-ONM-0707	ANT-WDB-PNF-1011	ANT-WSB5-PNF-16	ANT-WSB-PNF-12-02	MAT-WDB-PA-NF-2-0708
Antenna Characteristics								
Frequency	2.4 to 2.5 GHz 4.9 to 5.825 GHz	2.4 to 2.5 GHz 5.1 to 5.9 GHz	2.4 to 2.4835 GHz 5.15 to 5.85 GHz	2.4 to 2.4835 GHz 5.15 to 5.85 GHz	2.4 to 2.4835 GHz 5.15 to 5.85 GHz	5.15 to 5.85 GHz	2.4 to 2.4835 GHz	2.4 to 2.5 GHz 4.9 to 5.9 GHz
Antenna Type	Omnidirectional	Omnidirectional	Omnidirectional	Omnidirectional	Directional, Panel	Directional, Panel	Directional, Panel	MIMO 2x2, Directional, Panel
Typical Antenna Gain	3.5/6 dBi	5/2 dBi	7/9 dBi	7/7 dBi	10/11 dBi	16 dBi	12 dBi	7/8 dBi
Connector	N-type (male)	N-type (male)	N-type (female)	N-type (male)	N-type (female)	N-type (female)	N-type (female)	N-type (female)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Linear	Linear	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
HPBW/Horizontal	360°	360°	360°	360°	40°	30°	30°	90°
V.S.W.R.	2:1 (max.)	1:2 (max.)	1:2.5 (max.)	1:2.5 (max.)	1:3.0 (max.)	1:2.0 (max.)	1:2.0 (max.)	2:1 (max.)
Power Handling	1 W (max.)	2 W (max.)	10 W (max.)	10 W (max.)	10 W (max.)	10 W (max.)	10 W (max.)	2 W (max.)
HPBW/Vertical	–	65°	–	–	30°	23°	30°	50°
Physical Characteristics								
IP Rating	IP67	IP67	IP65	IP65	IP65	IP65	IP65	–
Length (Including RF Cable)	215 mm (8.46 in)	189.4 mm (7.46 in)	610 mm (24.0 in)	528 mm (20.79 in)	260 x 260 x 44 mm (10.27 x 10.27 x 1.73 in)	260 x 260 x 44 mm (10.27 x 10.27 x 1.73 in)	260 x 260 x 44 mm (10.27 x 10.27 x 1.73 in)	206 x 177 x 45 mm (8.11 x 6.97 x 1.77 in)
Weight	68.9 g (0.15 lb)	72 g (0.16 lb)	461 g (1.02 lb)	152 g (0.34 lb)	767 g (1.69 lb)	807 g (1.78 lb)	796 g (1.75 lb)	935 g (2.06 lb)
Installation	Straight mount	Straight mount	Pole mount	Straight mount	Pole mount	Pole mount	Pole mount	Pole mount
Environmental Limits								
Operating Temperature	-40 to 75°C (-40 to 167°F)	-40 to 80°C (-40 to 176°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)	-40 to 85°C (-40 to 185°F)	-40 to 85°C (-40 to 185°F)	-40 to 75°C (-40 to 167°F)

Model Name	ANT-WDB-ARM-02	ANT-WDB-ARM-0202	ANT-WSB-AHRM-05-1.5m	MAT-WDB-CA-RM-2-0205	MAT-WDB-DA-RM-2-0203-1m
Antenna Characteristics					
Frequency	2.4 to 2.5 GHz 5.2 to 5.8 GHz	2.4 to 2.5 GHz 4.9 to 5.825 GHz	2.4 to 2.5 GHz	2.4 to 2.5 GHz 4.9 to 5.9 GHz	2.4 to 2.5 GHz 4.9 to 5.85 GHz
Antenna Type	Omnidirectional	Omnidirectional	Omnidirectional, Rubber antenna	MIMO 2x2, Omnidirectional	MIMO 2x2, Omnidirectional
Typical Antenna Gain	2/2 dBi	2/2 dBi	5 dBi	2/5 dBi	2/3 dBi
Connector	RP-SMA (male)	RP-SMA (male)	RP-SMA (male)	RP-SMA (male)	RP-SMA (male)
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Polarization	Vertical	Linear	Linear	Linear	Linear, Vertical
HPBW/Horizontal	360°	360°	360°	360°	360°/114°
HPBW/Vertical	80°	–	80°	–	75°/54°
V.S.W.R.	2:1 (max.)	2:1 (max.)	2:1 (max.)	2:1 (max.)	2:1 (max.)
Power Handling	–	1 W (max.)	–	10 W (max.)	2 W (max.)
Physical Characteristics					
Weight	10 g (0.02 lb)	9.65 g (0.02 lb)	300 g (0.66 lb)	115 g (0.25 lb)	156 g (0.34 lb)
Length	108 mm (4.25 in)	136 mm (5.35 in)	–	–	–
Installation	Straight mount	Straight mount	Magnetic mount	Ceiling mount	Desktop mount
Cable Length	–	–	1.5 m	250 mm (9.84 in)	1 m
IP Rating	–	–	–	–	IP55
Environmental Limits					
Operating Temperature	-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 75°C (-40 to 167°F)	-40 to 75°C (-40 to 167°F)

Wireless Antenna Cables

Model Name	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	A-CRF-RMNM-L1-900
Physical Characteristics						
Cable Type	LMR-400 Lite			LMR-195 Lite		
Connector Type	N-type (male) to N-type (male)			N-type (male) to RP-SMA (male)		
Cable Length	3 m	6 m	9 m	3 m	6 m	9 m

Model Name	A-CRF-RFRM-C2-300	A-CRF-RFRM-C2-500	A-CRF-RFRM-J1-60	A-CRF-RFRM-R4-150	A-CRF-SMSF-R3-100	A-CRF-SMSF-L1-300	A-CRF-SMSF-C2-300	A-CRF-SMSF-C2-500
Physical Characteristics								
Cable Type	CFD-200	CFD-200	JSF-141	RG-174	RG-174	LMR195	CFD-200	CFD-200
Connector Type	SMA jack (female) to SMA plug (male)							
Cable Length	3 m	5 m	0.6 m	1.5 m	1 m	3 m	3 m	5 m

Terminating Resistors

Model Name	A-TRM-50-NM	A-TRM-50-RM
Physical Characteristics		
Connector Type	N-type (male)	RP-SMA (male)
Impedance	50 ohms	

Surge Arresters

Model Name	A-SA-NFNF-02	A-SA-NMNF-02
Physical Characteristics		
Frequency	0 to 6 GHz	
Connector Type	N-type (female) to N-type (female)	N-type (male) to N-type (female)

Low-noise Amplifiers

Model Name	LNA-1000
Cellular Interface	
Cellular Antenna Connectors	2 x SMA(J) signal inputs (including one power input) 2 x SMA(J) signal outputs
Frequency Bands Supported	Cellular broadband LTE and NR frequencies
LED Indicators	
System	Power
Power Parameters	
Source of Input Power	Powered by 5G user equipment (UE) via RF cable
Physical Characteristics	
Dimensions	75.4 x 60.4 x 15.5 mm (2.97 x 2.38 x 0.61 in)
Housing	Metal
IP Rating	IP30
Weight	73 g (0.16 lb)
Installation	Wall mounting
Environmental Limits	
Operating Temperature	-40 to 70°C (-40 to 158°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Signal Boosters

Preliminary

Model Name	BST-1000
Cellular Interface	
Cellular Antenna Connectors	1 x SMA(J) signal input 2 x SMA(J) signal outputs
Frequency Bands Supported	n78, n48
LED Indicators	
System	Power (red), Ready (green), TRX (yellow)
Power Parameters	
Source of Input Power	Power adapter, 9 to 24 VDC
Physical Characteristics	
Dimensions	100 x 125 x 35.2 mm (3.94 x 4.92 x 1.39 in)
Housing	Metal
IP Rating	IP30
Weight	370 g
Installation	DIN-rail mounting, Wall mounting
Environmental Limits	
Operating Temperature	-40 to 70°C (-40 to 158°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

GNSS Antennas

Model Name	ANT-GNSS-CSM-02-3m
Antenna Characteristics	
Frequency	1561 to 1606 MHz
Antenna Type	Omnidirectional
Typical Antenna Gain	Without low-noise amplifier: -0.5 dBic @ 1561 MHz (BDS) 2 dBic @ 1575.42 MHz (GPS) 0.6 dBic @ 1598 to 1606 MHz (GLONASS) With low-noise amplifier: 35 dB
Connector	SMA (male)
Impedance	50 ohms
Polarization	Vertical, Linear
V.S.W.R.	< 2.0 (max.)
Physical Characteristics	
Weight	Without cable and connector: 125 g (0.28 lb)
Dimensions	Ø 60.5 (D) x 79.2 (H) mm
Installation	Screw mount
Cable	RG-174
Cable Length	3 m
IP Rating	IP67
Environmental Limits	
Operating Temperature	-40 to 85°C (-40 to 185°F)

Backup Configurators

Model Name	ABC-01	ABC-02-USB	ABC-02-USB-T	ABC-03-microSD-T	ABC-01-M12	ABC-01-P-M12-CT-T	ABC-02-P-USB-M12-CT-T
Interface							
Connector	RJ45	USB 2.0 Type A		microSD card	Serial interface, M12 A-coded (female)		USB Type 2.0 Type A, M12 A-coded (female)
Basic Operation							
Storage Capacity	128 KB flash	1 GB SLC type NAND flash		8 GB TLC type NAND flash	64 KB	64 KB	128 MB

Fiber Optic Adapters and Fiber Bypass Units

Fiber Optic Adapters

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

Optical Fiber Bypass Units

Model Name	OBU-102-SS-SC	OBU-102-SS-ST	OBU-102-SS-LC
Ethernet Interface			
Description	2-channel optical fiber bypass units		
Single-mode Fiber, SC Female Connector	4	–	–
Single-mode Fiber, ST Female Connector	–	4	–
Single-mode Fiber, LC Female Connector	–	–	4

PoE Injectors and Splitters

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

Power Supplies and Adapters

24/48 VDC DIN-rail Power Supplies

Model Name	HDR-60-24	NDR-120-24	NDR-120-48	NDR-240-48	MDR-40-24	MDR-60-24
Output Power Parameters						
Wattage	60 W	120 W		240 W	40 W	60 W
Voltage	24 VDC		48 VDC		24 VDC	
Current Rating	0 to 2.5 A	0 to 5 A	0 to 2.5 A	0 to 5 A	0 to 1.7 A	0 to 2.5 A
Ripple and Noise	150 mVp-p	120 mVp-p	150 mVp-p			
Voltage Adjustment Range	21.6 to 29 VDC	24 to 28 VDC	48 to 55 VDC		24 to 30 VDC	
Setup/Rise Time at Full Load	500 ms, 50 ms at 230 VAC 500 ms, 50 ms at 115 VAC	2500 ms, 60 ms at 115 VAC 1200 ms, 60 ms at 230 VAC		3000 ms, 100 ms at 115 VAC 1500 ms, 100 ms at 230 VAC	500 ms, 30 ms at 115 VAC 500 ms, 30 ms at 230 VAC	
Typical Hold Up Time at Full Load	30 ms at 230 VAC 12 ms at 115 VAC	10 ms at 115 VAC 16 ms at 230 VAC		22 ms at 115 VAC 28 ms at 230 VAC	20 ms at 115 VAC 50 ms at 230 VAC	
Input Power Parameters						
Voltage Range	100 to 240 VAC (50 to 60 Hz) 120 to 370 VDC	90 to 264 VAC (47 to 63 Hz) 127 to 370 VDC			85 to 264 VAC (47 to 63 Hz) 120 to 370 VDC	
Typical Efficiency	90%	88%	89%	90%	88%	
Typical Current	0.8 A @ 230 VAC, 1.2 A @ 115 VAC	1.3 A @ 230 VAC, 2.25 A @ 115 VAC		1.3 A @ 230 VAC, 2.5 A @ 115 VAC	0.7 A @ 230 VAC, 1.1 A @ 115 VAC	1.0 A @ 230 VAC, 1.8 A @ 115 VAC
Inrush Current (Cold Start)	60 A @ 230 VAC, 30 A @ 115 VAC	35 A @ 230 VAC, 20 A @ 115 VAC			60 A @ 230 VAC, 30 A @ 115 VAC	
Overload Protection						
Rated Output Power	105 to 160%				105 to 150%	
Protection Type	Constant current limiting, recovers automatically after fault condition is removed					
Overvoltage Protection						
Overvoltage Range	30 to 36 V	29 to 33 V	56 to 65 V		31.2 to 36 V	
Protection Type	Shut down operating voltage, repower on to recover					
Physical Characteristics						
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)		127.81 x 123.75 x 63 mm (5.03 x 4.87 x 2.48 in)	40 x 90 x 100 mm (1.57 x 3.54 x 3.94 in)	
Weight	230 g (0.5 lb)	500 g (1.10 lb)		900 g (1.98 lb)	260 g (0.57 lb)	280 g (0.62 lb)
Environmental Limits						
Operating Temperature	-30 to 70°C (-22 to 158°F)	-20 to 65°C (-4 to 149°F)		-20 to 70°C (-4 to 158°F)		
Max. Operating Temperature at Full Load	45°C (113°F)			50°C (122°F)	60°C	55°C
Ambient Relative Humidity	20 to 90% (non-condensing)	20 to 95% (non-condensing)			20 to 90% (non-condensing)	
Standards and Certifications						
Safety	UL 508, EN 62368-1, UL 62368-1, IEC 62368-1	UL 508, EN 62368-1, IEC 62368-1				
EMC	EN 55032/35, EN 61000-3-2 Class A, EN 61000-3-3, EN 61204-3, IEC 61204-3, EN 6100-6-2, IEC 61000-6-2					
Warranty						
Warranty Period	3 years					

AC Power Supplies

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

Model Name	PWR-12050-USJP-S1	PWR-12050-EU-S1	PWR-12050-UK-S1	PWR-12050-AU-S1	PWR-12050-CN-S1
Input Power Parameters					
Voltage Range	100 to 240 VAC (50 to 60 Hz)				
Power Parameters					
Input Plug Type	US/JP	EU	UK	AU	CN
Output Power Rating	0.5 A @ 12 VDC				
Output Plug Type	Connector type: S-Type 5.5/2.1/7.5				
Physical Characteristics					
Dimensions	67.8 x 33.0 x 39.0 mm (2.67 x 1.30 x 1.54 in)	68.0 x 33.0 x 55.0 mm (2.68 x 1.30 x 2.17 in)	67.8 x 50.3 x 43.0 mm (2.67 x 1.98 x 1.69 in)	67.9 x 33.5 x 39.4 mm (2.67 x 1.32 x 1.55 in)	67.8 x 33.0 x 39.0 mm (2.67 x 1.30 x 1.54 in)
Weight	71 g (0.16 lb)	77 g (0.17 lb)	80 g (0.18 lb)	75 g (0.17 lb)	71 g (0.16 lb)
Cord Length	1500±100 mm (59.06±3.94 in)				
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)				
Storage Temperature	-20 to 70°C (-4 to 158°F)				
Standards and Certifications					
Safety	FCC, UL, PSE	CE, GS	CE	RCM	CCC

AC Power Supplies

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

Model Name	PWR-12300-WPUSJP-S2	PWR-12300-WPEU-S2	PWR-12300-WPUK-S2	PWR-12300-WPAU-S2	PWR-12300-WPCN-S2
Input Power Parameters					
Voltage Range	100 to 240 VAC (50 to 60 Hz)				
Power Parameters					
Input Plug Type	US/JP	EU	UK	AU	CN
Output Power Rating	3 A @ 12 VDC				
Output Plug Type	Connector type: S-Type 5.5/2.1/7.5				
Physical Characteristics					
Dimensions	93.0 x 50.0 x 39.6 mm (3.66 x 1.97 x 1.56 in)				
Weight	195 g (0.43 lb)				
Cord Length	1500±100 mm (59.06±3.94 in)				
Environmental Limits					
Operating Temperature	0 to 40°C (32 to 104°F)				
Storage Temperature	-20 to 70°C (-4 to 158°F)				
Standards and Certifications					
Safety	CE, FCC, UL, RCM, PSE, CCC, GS				

DC Power Cord

Locking barrel plug to bare wires

Model Name	CBL-PJ21NOPEN-BK-30 w/ Nut
Physical Characteristics	
Cable Length	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-USJP-S2	PWR-12050-EU-S2	PWR-12050-UK-S2	PWR-12050-AU-S2	PWR-12050-CN-S2	PWR-12050-IN-S2
Input Power Parameters						
Voltage Range	100 to 240 VAC (50 to 60 Hz)					
Power Parameters						
Input Plug Type	US/JP	EU	UK	AU	CN	IN
Output Power Rating	0.5 A @ 12 VDC					
Output Plug Type	Connector type: S-Type 5.5/2.1/9.5					
Physical Characteristics						
Dimensions	67.8 x 33.0 x 39.0 mm (2.67 x 1.30 x 1.54 in)	68.0 x 33.0 x 55.0 mm (2.68 x 1.30 x 2.17 in)	67.9 x 50.3 x 43.0 mm (2.67 x 1.98 x 1.69 in)	67.9 x 39.4 x 42.5 mm (2.67 x 1.55 x 1.67 in)	67.8 x 33.0 x 39.0 mm (2.67 x 1.30 x 1.54 in)	67.8 x 33.0 x 39.0 mm (2.67 x 1.30 x 1.54 in)
Weight	78 g (0.17 lb)	83 g (0.18 lb)	85 g (0.19 lb)	81 g (0.18 lb)	77 g (0.17 lb)	90 g (0.19 lb)
Cord Length	1500±100 mm (59.06±3.94 in)					
Environmental Limits						
Operating Temperature	0 to 40°C (32 to 104°F)					
Storage Temperature	-20 to 70°C (-4 to 158°F)					
Standards and Certifications						
Safety	FCC, UL, PSE	CE, GS	CE	RCM	CCC	BIS

AC Power Supplies

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

Model Name	PWR-12150-WPUSJP-S2	PWR-12150-WPEU-S2	PWR-12150-WPUK-S2	PWR-12150-WPAU-S2	PWR-12150-WPCN-S2	PWR-12150-WPIN-S2
Input Power Parameters						
Voltage Range	100 to 240 VAC (50 to 60 Hz)					
Power Parameters						
Input Plug Type	US/JP	EU	UK	AU	CN	IN
Output Power Rating	1.5 A @ 12 VDC					
Output Plug Type	Connector type: S-Type 5.5/2.1/9.5					
Physical Characteristics						
Dimensions	80.5 x 39.1 x 56.4 mm (3.17 x 1.54 x 2.22 in)					
Weight	113 g (0.25 lb)					
Cord Length	1500±100 mm (59.06±3.94 in)					
Environmental Limits						
Operating Temperature	0 to 40°C (32 to 104°F)					
Storage Temperature	-20 to 70°C (-4 to 158°F)					
Standards and Certifications						
Safety	CE, FCC, UL, RCM, PSE, CCC, GS					BIS

DC Power Cord

Non-locking barrel plug to bare wires

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

AC Power Supplies

Locking barrel plug, 12 VDC, 1.5 A, 100 to 240 AC (switch mode)

Model Name	PWR-12150-WPUSJP-S4	PWR-12150-WPEU-S4	PWR-12150-WPUK-S4	PWR-12150-WPAU-S4	PWR-12150-WPCN-S4	PWR-12150-WPIN-S4
Input Power Parameters						
Voltage Range	100 to 240 VAC (50 to 60 Hz)					
Power Parameters						
Input Plug Type	US/JP	EU	UK	AU	CN	IN
Output Power Rating	1.5 A @ 12 VDC					
Output Plug Type	Connector type: S-Type 5.5/2.1/7.5					
Physical Characteristics						
Dimensions	80.5 x 39.1 x 56.4 mm (3.17 x 1.54 x 2.22 in)					
Weight	113 g (0.25 lb)					
Cord Length	1500±100 mm (59.06±3.94 in)					
Environmental Limits						
Operating Temperature	0 to 40°C (32 to 104°F)					
Storage Temperature	-20 to 70°C (-4 to 158°F)					
Standards and Certifications						
Safety	CE, FCC, UL, RCM, PSE, CCC, GS					BIS

Power Cords

Model Name	PWC-C13US-3B-183	PWC-C13EU-3B-183	PWC-C13UK-3B-183	PWC-C13JP-3B-183	PWC-C13AU-3B-183	PWC-C13CN-3B-183
Power Parameters						
Input Plug Type	US	EU	UK	JP	AU	CN
Input Voltage	125 VAC	250 VAC		125 VAC	250 VAC	
Max. Current	10 A			7 A	10 A	
Physical Characteristics						
Thickness	6.7±0.2 mm (0.25±0.01 in)			7.0±0.2 mm (0.28±0.01 in)	6.3±0.2 mm (0.25±0.01 in)	
Length	1830±30 mm (72.05±1.18 in)					

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 Power Parameters					
Voltage Range	100 to 240 VAC (50 to 60 Hz)				
Power Parameters					
Input Plug Type	US/JP	EU	UK	AU	CN
Output Power Rating	1.5 A @ 12 VDC				
Output Plug Type	Connector type: L-Type 5.5/2.1/7.5				
Physical Characteristics					
Dimensions	32.5 x 53.2 x 88 mm (1.28 x 2.1 x 3.46 in)	32.5 x 66.5 x 88 mm (1.28 x 2.62 x 3.46 in)	50 x 59.7 x 91.3 mm (1.97 x 2.35 x 3.59 in)	32.5 x 56.9 x 87.7 mm (1.28 x 2.24 x 3.45 in)	32.5 x 53.2 x 88 mm (1.28 x 2.09 x 3.46 in)
Weight	123 g (0.27 lb)	148 g (0.33 lb)	152 g (0.34 lb)	145 g (0.32 lb)	141 g (0.31 lb)
Cord Length	1500±100 mm (59.06±3.94 in)				
Environmental Limits					
Operating Temperature	-40 to 75°C (-40 to 167°F)				
Storage Temperature	-40 to 75°C (-40 to 167°F)				
Standards and Certifications					
Safety	FCC, UL, PSE	TUV, CE, GS	CE	RCM	CCC

Power Cords

Preliminary

Preliminary

Preliminary

Model Name	PWC-C15US-3B-183	PWC-C15EU-3B-183	PWC-C15CN-3B-183
Power Parameters			
Input Plug Type	US	EU	CN
Input Voltage	125 VAC	250 VAC	250 VAC
Max. Current	15 A	10 A	10 A
Physical Characteristics			
Thickness	9.3±0.2 mm (0.37±0.01 in)	7.0±0.2 mm (0.28±0.01 in)	7.1±0.2 mm (0.28±0.01 in)
Length	183 cm (72 in)		
Compatibility			
Supported Products	MRX-G4064 Series, MRX-Q4064 Series		

Modular Power Supplies

Preliminary





Model Name	PWR Power Modules	PWR-A Power Modules	PWR-100 Power Modules	PWR-300-HVA-IF Power Modules	PWR-G7000A-AC Power Modules
Power Parameters					
Input Voltage	PWR-HV-P48: 110/220 VDC/VAC for the switch system 48 VDC for PoE systems (53 to 57 VDC is recommended for PoE+ devices) PWR-LV-P48: 24/48 VDC for the switch system 48 VDC for PoE systems (53 to 57 VDC is recommended for PoE+ devices) PWR-HV-NP: 110/220 VDC/VAC for the switch system PWR-LV-NP: 24/48 VDC for the switch system	PWR-HV-P48–A: 110/220 VDC/VAC for the switch system 48 VDC for PoE systems (53 to 57 VDC is recommended for PoE+ devices) PWR-LV-P48–A: 24/48 VDC for the switch system 48 VDC for PoE systems (53 to 57 VDC is recommended for PoE+ devices)	PWR-100-LV: 12/24/48 VDC PWR-105-HV-I: 110/220 VDC/VAC PWR-101-LV-BP-I: 48 VDC PWR-103-LV-VB-I: 12/24/48 VDC	230 to 240 VDC; 100 to 240 VAC, 50 to 60 Hz	100 to 250 VAC
Warranty					
Warranty Period	5 years				
Compatibility					
Supported Products	All models: MDS-G4000 Series, MDS-G4000-L3 Series, PT-G7728 Series, PT-G7828 Series PWR-HV-NP/PWR-LV-NP models: MDS-G4000-4XGS Series, MDS-G4000-L3-4XGS Series	MDS-G4000-4XGS Series, MDS-G4000-L3-4XGS Series	EDS-4000 Series, EDS-G4000 Series[1]	MRX-G4064 Series, MRX-Q4064 Series	ICS-G7748A Series, ICS-G7750A Series, ICS-G7752A Series, ICS-G7848A Series, ICS-G7850A Series, ICS-G7852A Series

[1] The PWR-100 Series modules are only supported by specific EDS-4000/G4000 Series models:
- PWR-100-LV: EDS-4000/G4000 Series -LV(-T) models
- PWR-105-HV-I: EDS-4000/G4000 Series -HV(-T) models
- PWR-101-LV-BP-I: EDS-4000/G4000 Series -LVA(-T) models (support PoE)
- PWR-103-LV-VB-I: EDS-4000/G4000 Series -LVB(-T) models (support PoE)

SFP Modules

SFP-1G Series Modules

Model Name		Gigabit Ethernet SFP								
		SFP-1GSXLC(-T)				SFP-1GLSXLC(-T)				SFP-1GLXLC(-T)
Transceiver Type		Multi-mode				Multi-mode				Single-mode
Fiber Cable Type		OM1	OM2	OM3	OM4	OM1	OM2	OM3	OM4	G.652
Typical Distance		300 m	550 m	1 km	1 km	500 m/ 2 km[1]	500 m/ 1 km[1]	500 m	500 m	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	4.5	4.5	5				1

[1] SFP-LSX OM1 and OM 2 can only reach the listed maximum distance when using fiber cables from specific vendors. When using other fiber cables, the reach is limited to 500 m.

Model Name		Gigabit Ethernet SFP				
		SFP-1GLHLC(-T)	SFP-1GLHXLC(-T)	SFP-1GZXLC(-T)	SFP-1GEZXLC	SFP-1GEZXLC-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-1FE Series Modules

Model Name		Fast Ethernet SFP			
		SFP-1FEMLC-T		SFP-1FESLC-T	SFP-1FELLC-T
Transceiver Type		Multi-mode		Single-mode	
Fiber Cable Type		OM1/OM2/OM3/OM4	62.5/125, 50/125 µm 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 Copper Module

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

SFP Modules

SFP-1G WDM-type Series Modules

Model Name		WDM Gigabit Ethernet SFP					
		SFP-1G10ALC(-T)	SFP-1G10BLC(-T)	SFP-1G20ALC(-T)	SFP-1G20BLC(-T)	SFP-1G40ALC(-T)	SFP-1G40BLC(-T)
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-2.5G Series Modules

Model Name		2.5G Ethernet SFP						
		SFP-2.5GMLC-T				SFP-2.5GSLC-T	SFP-2.5GLSLC-T	SFP-2.5GSLHLC-T
Transceiver Type		Multi-mode				Single-mode	Single-mode	Single-mode
Fiber Cable Type		OM1	OM2	OM3	OM4	G.652	G.652	G.652
Typical Distance		170 m	200 m	550 m	600 m	5 km	20 km	45 km
Wavelength	Typical (nm)	850				1310	1310	1550
	TX Range (nm)	830 to 860				1260 to 1360	1260 to 1360	1520 to 1580
	RX Range (nm)	830 to 860				1260 to 1360	1260 to 1360	1260 to 1600
Optical Power	TX Range (dBm)	-7.5 to -1				-9 to -3	-5 to 0	-4 to +1
	RX Range (dBm)	0 to -13.5				-3 to -15	0 to -16	+1 to -19
	Link Budget (dB)	6				6	11	15
	Dispersion Penalty (dB)	2.5				2	1	1.5

SFP-10G Series Modules

Model Name		10G Ethernet SFP						
		SFP-10GSRLC-T				SFP-10GLRLC-T	SFP-10GERLC-T	SFP-10GZRLC-T
Transceiver Type		Multi-mode				Single-mode	Single-mode	Single-mode
Fiber Cable Type		OM1	OM2	OM3	OM4	G.652	G.652	G.652
Typical Distance		33 m	82 m	300 m	400 m	10 km	40 km	80 km
Wavelength	Typical (nm)	850				1310	1550	1550
	TX Range (nm)	840 to 860				1260 to 1355	1530 to 1565	1530 to 1565
	RX Range (nm)	840 to 860				1260 to 1355	1530 to 1565	1530 to 1565
Optical Power	TX Range (dBm)	-1 to -5				-8.2 to +0.5	-1 to +2	0 to +4
	RX Range (dBm)	0.5				0.5	-1	-7
	Link Budget (dB)	8.3				7.4	15	23
	Dispersion Penalty (dB)	3.9				3.2	3	3

Mounting Kits

Wall-mounting Kits






Model Name	WK-25	WK-30	WK-35-01	WK-35-02	WK-44-01	WK-45-01
Physical Characteristics						
Dimensions	43 x 25 x 2 mm (1.69 x 0.98 x 0.08 in)	40 x 30 x 1 mm (1.57 x 1.18 x 0.04 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)
Supported Products	MGate 5135/5435 Series	EDS-205A Series, EDS-G205 Series, EDS-G205A-4PoE Series, ICF-1170I Series	NPort 6450, UPort 1410, UPort 1450, UPort 1450I AWK-1137C Series	NPort 6150/6250 Series, UPort 404/407 Series	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

Model Name	WK-46	WK-51-01	WK-55	WK-60-01	UC-3100 Wall-mount Kit	V2400 Isolated Wall-mount Kit	MC-1100 Wall-mount Kit
Physical Characteristics							
Dimensions	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)	WK-60-01: 60 x 70 x 2 mm (2.36 x 2.76 x 0.08 in)	17.5 x 22 x 2.5 mm (0.69 x 0.87 x 0.98 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)
Supported Products	EDS-300 Series, EDS-500A Series, EDS-G308 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 S8455IMM-SC-T, NPort S8455I-SS-SC, NPort S8455ISS-SC-T, NPort S8458-4S-SC-T	AWK-4131A Series, AWK-3131A Series, AWK-1131A Series, EDS-510E Series, EDS-518E Series, EDS-G500E Series	AWK-4131A Series	EDS-528E Series	UC-3100 Series	V2403 Series, V2406A Series, V2416A Series, V2426A Series	MC-1100 Series

Mounting Kits

Wall-mounting Kits

Model Name	WK-112-01	WK-75
Physical Characteristics		
Dimensions	112 x 87 x 4.5 mm (4.41 x 3.43 x 0.18 in)	90 x 75 x 2.5 mm (3.54 x 2.95 x 0.1 in)
Supported Products	MDS-G4000 Series, MDS-G4000-4XGS Series	EDS-600 Series

DIN-rail / Pole-mounting Kits

Model Name	DK-DC50131	DK-TN-5308	DK-M12-305	DK-25-01	DK35A	UC-3100 DIN-rail Kit	MC-1100 DIN-rail Kit	PK-DC2D0F	DK-UP-42A
Physical Characteristics									
Dimensions	120 x 50 x 9.8 mm (4.72 x 1.97 x 0.39 in)	187.7 x 59.7 x 4 mm (7.38 x 2.35 x 0.15 in)	125 x 60 x 4 mm (4.92 x 2.36 x 0.15 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)	90 x 45 x 9.8 mm (3.54 x 1.77 x 0.39 in)	–	107 x 29 mm (4.21 x 1.14 in)
Package Contents									
Installation Kit	–							3 x PK-DC2D0F components 2 x M8 screws (length: 80 mm) 1 x M8 screws (length: 90 mm) 1 x M8 nut 3 x M8 washers 3 x M8 spring washers 4 x M5 screws 4 x M5 washers 4 x M5 spring washers	–

Rack-mounting Kits

Model Name	RK-3U-02
Physical Characteristics	
Dimensions	482.6 x 120 x 185 mm (19 x 4.72 x 7.28 in)
Supported Products	MDS-G4000 Series, MDS-G4000-4XGS Series

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-M12FF4 POPEN-150 IP67	CBL-M12FF4 POPEN-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-installable 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-installable M30 plug	Field-installable RJ-type plug	Field-installable A-coded M12 screw-in 5-pin (female) connector, IP68	Field-installable A-coded M12 screw-in 8-pin (male) connector, IP68	Field-installable 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-installable 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-installable 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

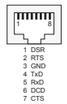
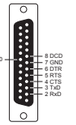
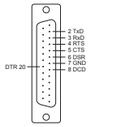
Serial Connection Options

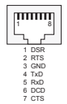
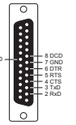
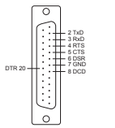
Serial board connection box/cable usage chart

	Connection Boxes						Connection Cables													
	8-port						8-port						4-port					2-port		
Serial Board Model Name	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	OPT 8B
Connector				
Pin Assignment				
Board-side Connector	1 x DB62 (male)			1 x DB62(male)
Device-side Connector	8 x DB9 (male)	8 x 8-pin RJ45	8 x DB25 (female)	8 x DB25 (male)
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	DB62 (male) to DB62 (male) 1.5 m connection cable for connecting to the serial board
LED Interface				
LED Indicators	TxD, RxD indicators for each device-side port	–	TxD, RxD indicators for each device-side port	TxD, RxD indicators for each device-side port
Physical Characteristics				
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)	247 x 108 x 35 mm (9.72 x 4.25 x 1.38 in)
Surge Protection	–	–	25 kV ESD, 2 kV EFT surge protection (OPT8S only)	–

Model Name	OPT8-M9+	OPT8-RJ45+	OPT 8A+/S+	OPT 8B+
Connector				
Pin Assignment				
Board-side Connector	1 x VHDCI 68			
Device-side Connector	8 x DB9 (male)	8 x 8-pin RJ45	8 x DB25 (male)	8 x DB25 (male)
Connection Cable	VHDCI 68 to DB62 (female) 1.5 m connection cable for connecting to the serial board	–	VHDCI 68 to DB62 (male) 1.5 m connection cable for connecting to the serial board	VHDCI 68 to DB62 (male) 1.5 m connection cable for connecting to the serial board
LED Interface				
LED Indicators	TxD, RxD indicators for each device-side port	–	TxD, RxD indicators for each device-side port	TxD, RxD indicators for each device-side port
Physical Characteristics				
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)	247 x 108 x 35 mm (9.72 x 4.25 x 1.38 in)
Surge Protection	–	–	25 kV ESD, 2 kV EFT surge protection (OPT8S+ only)	–

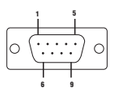
8-port RS-232 Connection Boxes





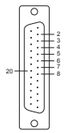

Model Name	CBL-M62M25x8-100	CBL-M62M9x8-100	CBL-M68M25x8-100	CBL-M68M9x8-100	CBL-M78M25x8-100	CBL-M78M9x8-100
Connector						
Board-side Connector	1 x DB62 (male)		1 x VHDCI 68		1 x DB78 (male)	
Device-side Connector	8 x DB25 (male)	8 x DB9 (male)	8 x DB25 (male)	8 x DB9 (male)	8 x DB25 (male)	8 x DB9 (male)
Physical Characteristics						
Cable Length	100 cm (3.3 ft)					

2-port Connection Cables

Model Name	CBL-M25M9x2-50
Connector	
Pin Assignment	
Board-side Connector	1 x DB25 (male)
Device-side Connector	2 x DB9 (male)
Physical Characteristics	
Cable Length	50 cm (19.69 in)

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

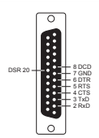
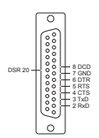
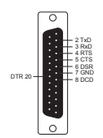
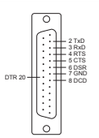
4-port Connection Cables

Model Name	CBL-M44M9x4-50	CBL-M44M25x4-50
Connector		
Pin Assignment		
Board-side Connector	1 x DB44 (male)	
Device-side Connector	4 x DB9 (male)	4 x DB25 (male)
Physical Characteristics		
Cable Length	50 cm (19.69 in)	

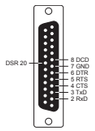
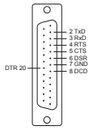
PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD-(A)	TxD-(A)	–
2	RxD	TxD+(B)	TxD+(B)	–
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data-(A)
5	GND	GND	GND	GND
6	DSR	–	–	–
7	RTS	–	–	–
8	CTS	–	–	–
9	–	–	–	–

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

8-pin RJ45-to-DB9/DB25 Connection Cables

Model Name	CBL-RJ45F25-150	CBL-RJ45F9-150	CBL-RJ45M25-150	CBL-RJ45M9-150	CBL-RJ45SF25-150	CBL-RJ45SF9-150	CBL-RJ45SM25-150	CBL-RJ45SM9-150
Connector								
Pin Assignment								
Cable Type	-				Shielded			
Board-side Connector	1 x 8-pin RJ45							
Device-side Connector	1 x DB25 (female)	1 x DB9 (female)	1 x DB25 (male)	1 x DB9 (male)	1 x DB25 (female)	1 x DB9 (female)	1 x DB25 (male)	1 x DB9 (male)
Physical Characteristics								
Cable Length	150 cm (4.9 ft)							
Supported 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
Connector				
Pin Assignment				
Board-side Connector	1 x 10-pin RJ45			
Device-side Connector	1 x DB25 (female)	1 x DB25 (male)	1 x DB9 (male)	1 x DB9 (female)
Physical Characteristics				
Cable Length	150 cm (4.9 ft)			

Wiring Kits

Model Name	TB-M9	TB-F9	TB-M25	TB-F25	Mini DB9F-to-TB	ADP-RJ458P-DB9M	ADP-RJ458P-DB9F	A-ADP-RJ458P-DB9F-ABC01
Physical Characteristics								
Description	DB9 (male) DIN-rail wiring terminal	DB9 (female) DIN-rail wiring terminal	DB25 (male) DIN-rail wiring terminal	DB9 (female) DIN-rail wiring terminal	DB9 (female) to terminal block adapter	RJ45 to DB9 (male) adapter	RJ45 to DB9 (female) adapter	
Wiring	Serial cable, 24 to 12 AWG							
Input/Output Interface								
Connector	DB9 (male)	DB9 (female)	DB25 (male)	DB25 (female)	DB9 (female)	DB9 (male)	DB9 (female)	
Environmental Limits								
Operating Temperature	-40 to 105°C (-40 to 221°F)				0 to 70°C (32 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-720 HDD Kit	DA-720 HDD/SSD kit
DE-2-SATA	2 x 2.5” SATA III SSD/HDD socket module
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)
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

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