MOXA®

Embrace Digital Transformation in Your Substation for a Sustainable Future

IEEE 1588 PRP HSR Zero Recovery Time IEC 61850-3 Edition 2 IEC 60255 Embedded Computer EN 50121-4

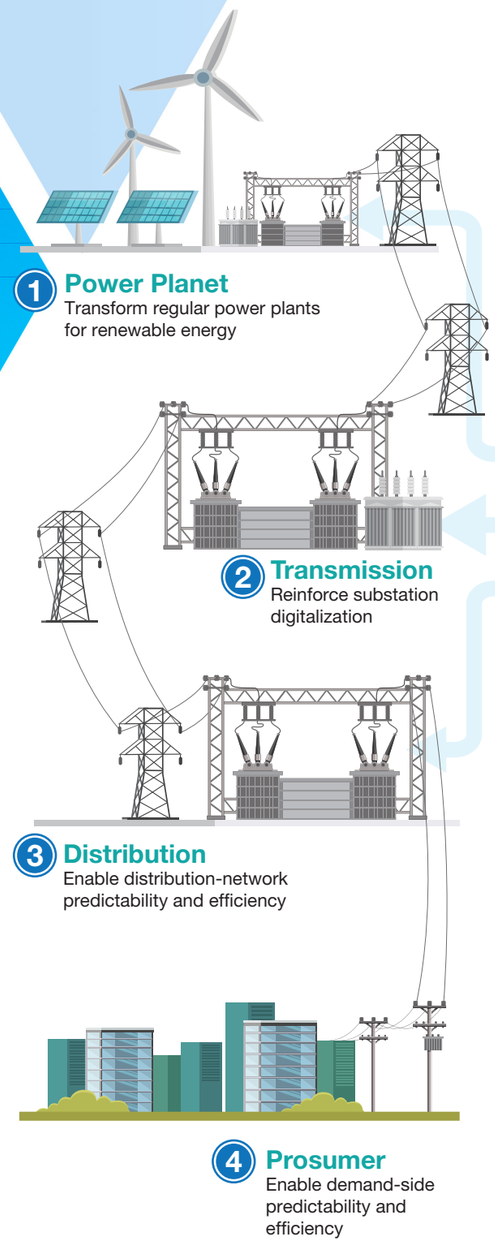
intel IoT Solutions Alliance

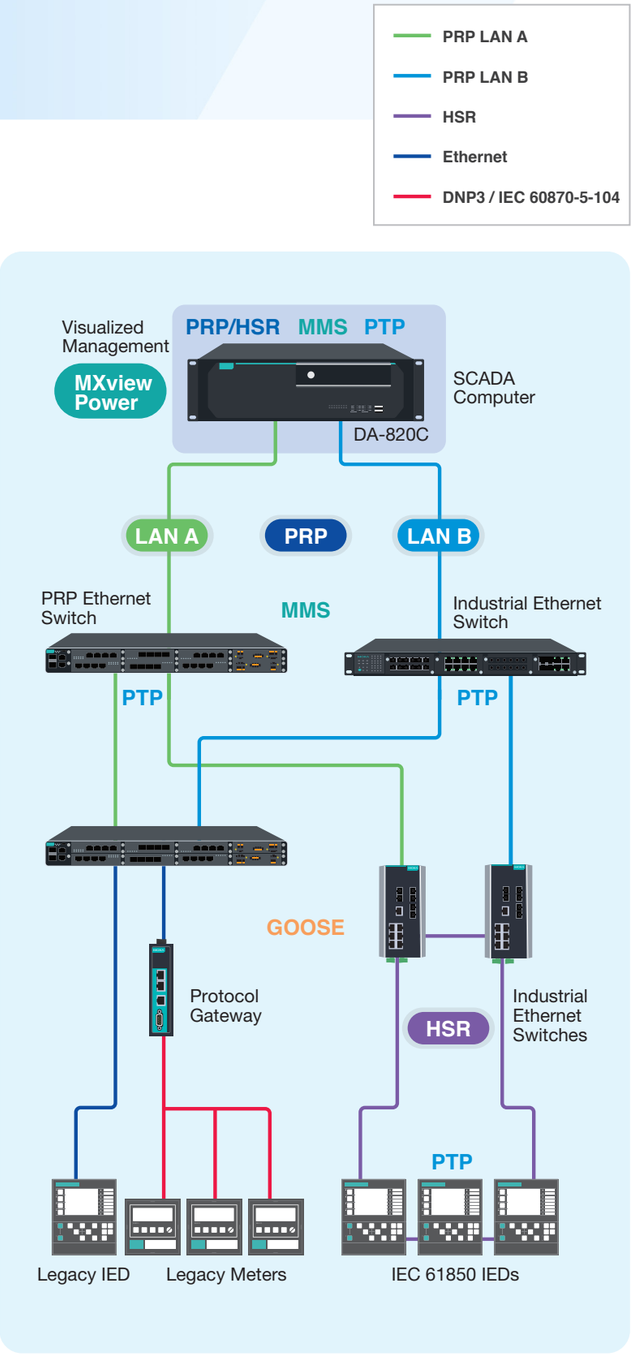
www.moxa.com

IEC 61850 Substation Automation

Renewable energy is fast taking over the future of the energy sector. Renewable energy can not only reduce our dependency on fossil fuels but also provide energy security. Substation operators need to prepare their substations and distribution infrastructure to integrate energy from renewable sources by digitalizing their substations for efficient and secure aggregation and distribution of power from different sources. With a digital substation, operators can use real-time data to make smarter and safer decisions faster.

To help our customers embrace digital transformation in their substations, Moxa, based on its successful experience of helping 7,500 substations go digital around the world, has developed and integrated a PRP/HSR, PTP, and MMS solution with visualized management in our computing platforms.





Digitalize Your Substation With Our

Tailor-made High-performance Highly Available Robust Computing Platforms

Both greenfield and retrofit substation projects require high-speed high-volume communication that can withstand high EMI/EMC interference. The DA series computers are IEC 61850-3 substation computers that feature a powerful Intel® processor and multiple expansion interfaces to enable robust connectivity to smart grids.

Let us help you embrace digital transformation in your substation for a brighter future

Industry-proven Reliable Design

- Substation: IEC 61850-3, IEEE 1613
- Protection Relay: IEC 60255
- Wayside Traction Power: EN 50121-4

Fanless With Wide Operating Temperature Range

- Designed for efficient heat dissipation without a fan
- -40 to 70°C operating temperature range

Ready-to-use MMS Server and ICD File

MMS service package for Windows-based DA series computing platforms

Virtualization Support

Powerful Intel® Xeon® or Core™ i7 processor and up to 64 GB RAM enable the reduction of hardware in the substation and adoption of virtualization technology

Time Synchronization for Precision

- PTP (IEEE 1588)
- IRIG-B

Ethernet Redundancy

PRP/HSR redundancy and zero-time recovery solution

Enhanced Hardware Security

- UEFI Secure Boot
- Built-in TPM 2.0
- USB port protection
- Power button protected against accidental activation

Visualized PRP/HSR Management

Visualized PRP/HSR networking status via MXview Power network management solution

Versatile and Resilient Expansion Capabilities

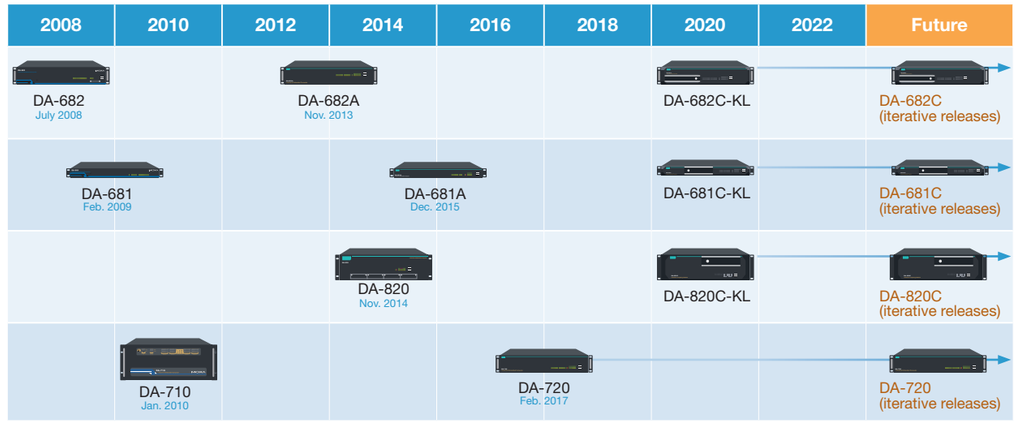
Expansion modules for PRP/HSR, IRIG-B, Fiber SFP, Gigabit Ethernet, and Serial connectivity

Predictive Maintenance Tool

Moxa Proactive Monitoring, a built-in tool, helps operators monitor the computer KPIs and trigger alerts based on preset thresholds

Tailor-made for Power Applications

Our portfolio consists of products with long and iterative life cycles for system longevity in the power industry.



Choose a
Substation Automation Computer

Tailor-made for power applications, the DA series computers have passed rigorous EMI/EMC tests and strictly adhere to IEC 61850-3, IEEE 1613, IEC 60255, and EN 50121-4 industrial standards to ensure long-lasting reliable operations in substation SCADA, protection and control applications, EMS/PCS in energy storage systems, and rail wayside traction power systems.




	Datasheet	Datasheet	Datasheet	Datasheet
Series	**DA-681C**	**DA-682C**	**DA-720**	**DA-820C**
CPU	• Intel® Core™ i3-7100U • Intel® Celeron® 3965U	• Intel® Core™ i7-7600U • Intel® Core™ i5-7300U • Intel® Core™ i3-7100U • Intel® Celeron® 3965U	• Intel® Core™ i7-6600U • Intel® Core™ i5-6300U	• 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	SODIMM DDR4 slots x 2 (max. 32 GB)	SODIMM DDR4 slots x 2 (max. 32 GB)	SODIMM DDR4 slots x 2 (max. 32 GB)	SODIMM DDR4 slots x 2 (max. 64 GB)
Supported OS	• Windows 10 IoT Ent 2021 LTSC, version 21H2 • Linux Debian 11	• Windows 10 IoT Ent 2021 LTSC, version 21H2 • Linux Debian 11	• Windows 10 IoT Ent 2021 LTSC, version 21H2 • Linux Debian 11	• Windows 10 IoT Ent 2021 LTSC, version 21H2 • Linux Debian 11
MMS Server & ICD file	Available in October 2022	Available in October 2022	Available in October 2022	✓
Storage Slot	2.5-inch HDD/SSD slots x 1 mSATA x 1	2.5-inch HDD/SSD slots x 2 mSATA x 1	mSATA slot x 1	2.5-inch HDD/SSD slots x 4 mSATA x 1
PTP (IEEE 1588)	Available in October 2022	Available in October 2022	Available in October 2022	✓
Ethernet Ports	GbE (RJ45) x 6	GbE (RJ45) x 6	GbE (RJ45) x 14	GbE (RJ45) x 4
Serial Ports	RS-232/422/485 ports x 2, software selectable (DB9 male) and RS-485 ports x 10 (terminal block)	RS-232/422/485 ports x 2, software selectable (terminal block)	RS-232/422/485 ports x 2, software selectable (terminal block)	RS-232/422/485 ports x 2, software selectable (DB9 male)
USB 2.0	USB 2.0 x 3	USB 2.0 x 3	USB 2.0 x 2	USB 2.0 x 3
USB 3.0	USB 3.0 x 3	USB 3.0 x 3	USB 3.0 x 2	USB 3.0 x 3
Digital Input	DIs x 6	DIs x 6	DIs x 4 (via DE-2-IRIG-4-DI/DO)	DIs x 6
Digital Output	DOs x 2	DOs x 2	DOs x 4 (via DE-2-IRIG-4-DI/DO)	DOs x 2
Expansion Slots	–	Proprietary[1] PCIe slots x 2	Proprietary[1] PCIe slots x 3	PCIe x1 slots x 2, PCIe x4 slot x 1, PCIe x16 slot x 1, PCI slot x 1
TPM 2.0	✓	✓	✓	✓
UEFI Secure Boot	Available in October 2022	Available in October 2022	Available in October 2022	✓
Video Output	HDMI x 2	HDMI x 2	DVI-D x 1 VGA x 1	HDMI x 2 VGA x 1
Input Voltage	100 to 240 VDC, 100 to 240 VAC	100 to 240 VDC, 100 to 240 VAC	100 to 240 VDC, 100 to 240 VAC	100 to 240 VDC, 100 to 240 VAC
Dimensions (without ears)	440 x 316 x 44 mm (17.32 x 12.44 x 1.73 in)	440 x 282 x 88 mm (17.32 x 11.08 x 3.46 in)	440 x 301 x 90 mm (17.32 x 12.20 x 3.54 in)	440 x 281.4 x 132.8 mm (17.32 x 11.08 x 5.23 in)
Installation	19-inch rack mounting	19-inch rack mounting	19-inch rack mounting	19-inch rack mounting
Operating Temperature	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-25 to 55°C (-13 to 131°F)	• Standard Models: -25 to 55°C (-13 to 131°F) • Wide Temp. Models: -40 to 70°C (-40 to 158°F)
Industrial Standards	IEC 61850-3, IEC 60255, IEEE 1613, EN 50121-4	IEC 61850-3, IEC 60255, IEEE 1613, EN 50121-4	IEC 61850-3, IEC 60255, IEEE 1613, EN 50121-4	IEC 61850-3, IEC 60255, IEEE 1613, EN 50121-4

1. Non-standard PCIe slot

DA-820C / DA-682C / DA-720
Versatile and Resilient Expansion Capabilities

DA-820C




Standard PCI and PCIe Interfaces	DA-IRIG-B-S-02-T	DE-FX02-SFP-T	DA-PRP-HSR-I210
	Time-sync Module	**LAN Module**	**PRP/HSR Module**
	2-port IRIG-B time-synchronization module	2-port 100 Mbps SFP fiber module	2-port Giga LAN PRP/HSR module (RJ45 & SPF combo)

SFP module not included

DA-682C






Moxa Proprietary Interface	DN-SP08-I-TB	DN-SP08-I-DB	DN-LN04-RJ	DN-FX04	DA-PRP-HSR-I210
	Serial Module	**Serial Module**	**LAN Module**	**Fiber Module**	**PRP/HSR Module**
	8-port RS-232/422/485 serial module (terminal block, software selectable)	8-port RS-232/422/485 serial module (DB9 connector, software selectable)	4-port 10/100/1000 Mbps LAN module (RJ45 connectors)	4-port SFP fiber card	2-port Giga LAN PRP/HSR module (RJ45 & SPF combo)

SFP module not included

DA-720







Moxa Proprietary Interface	DE-2-SATA	DE-SP08-I-TB	DE-2-IRIGB-4-DI/DO	DE-LN04-RJ	DE-LN08-RJ	DE-PRP-HSR-EF
	SATA Storage	**Serial Module**	**Time-sync Module**	**LAN Module**	**LAN Module**	**PRP/HSR Module**
	2 x SATA-III 2.5" storage kit	8-port RS-232/422/485 serial module (terminal block, software selectable)	2 IRIG-B signal input port, 4 digital inputs, 4 digital outputs	4-port 10/100/1000 Mbps LAN module (RJ45 connectors)	8-port 10/100/1000 Mbps LAN module (RJ45 connectors)	2-port Giga LAN PRP/HSR module (RJ45 & SPF combo)

SFP module not included

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 82 million devices worldwide and has a distribution and service network that reaches customers in more than 80 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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