

*Intel® 7th Gen Xeon® and Core™ processor, IEC-61850, 3U rackmount computers with PRP/HSR card support*



## Features and Benefits

- IEC 61850-3, IEEE 1613, and IEC 60255 compliant power-automation computer
- EN 50121-4 compliant for railway wayside applications
- 7th Generation Intel® Xeon® and Core™ Processor
- Up to 64 GB RAM (two built-in SODIMM ECC DDR4 memory slots)
- 4 SSD slots, supports Intel® RST RAID 0/1/5/10
- PRP/HSR technology for network redundancy (with a PRP/HSR expansion module)
- MMS server based on IEC 61850-90-4 for integration with Power SCADA
- PTP (IEEE 1588) and IRIG-B time synchronization (with an IRIG-B expansion module)
- Security options such as TPM 2.0, UEFI Secure Boot, and physical security
- 1 PCIe x16, 1 PCIe x4, 2 PCIe x1, and 1 PCI slots for expansion modules
- Redundant power supply (100 to 240 VAC/VDC)

## Certifications



EN 50121-4



## Introduction

The DA-820C Series is a high-performance 3U rackmount industrial computer built around a 7th Gen Intel® Core™ i3/i5/i7 or Intel® Xeon® processor and comes with 3 display ports (HDMI x 2, VGA x 1), 6 USB ports, 4 gigabit LAN ports, two 3-in-1 RS-232/422/485 serial ports, 6 DI ports, and 2 DO ports. The DA-820C is also equipped with 4 hot swappable 2.5" HDD/SSD slots that support Intel® RST RAID 0/1/5/10 functionality and PTP/IRIG-B time synchronization.

The DA-820C complies with IEC-61850-3, IEEE 1613, IEC 60255, and EN50121-4 standards to deliver stable and reliable system operations for power applications.

IEC 60255 is one of the most widely used standards for the protection of electrical relays in a smart substation. Compliance with the standard ensures that the DA-820C will work reliably and seamlessly with IEDs as part of a robust substation automation system.

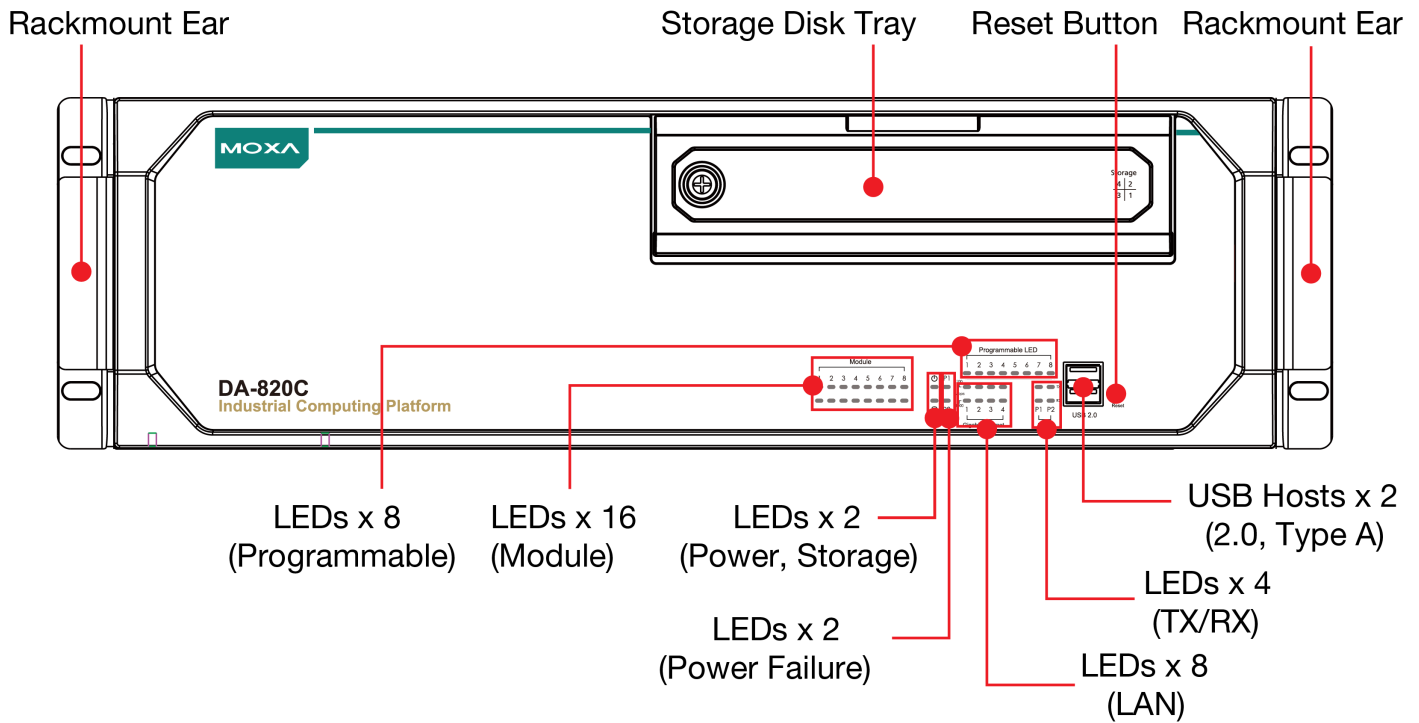
EN 50121-4 compliance confirms that the DA-820C can deliver stable and reliable system operations in rail wayside applications, such as station SCADA systems, wayside disaster prevention, traction power, and signaling and safety systems, to provide an integrated view of your smart rail setup.

## Proactive Monitoring Function

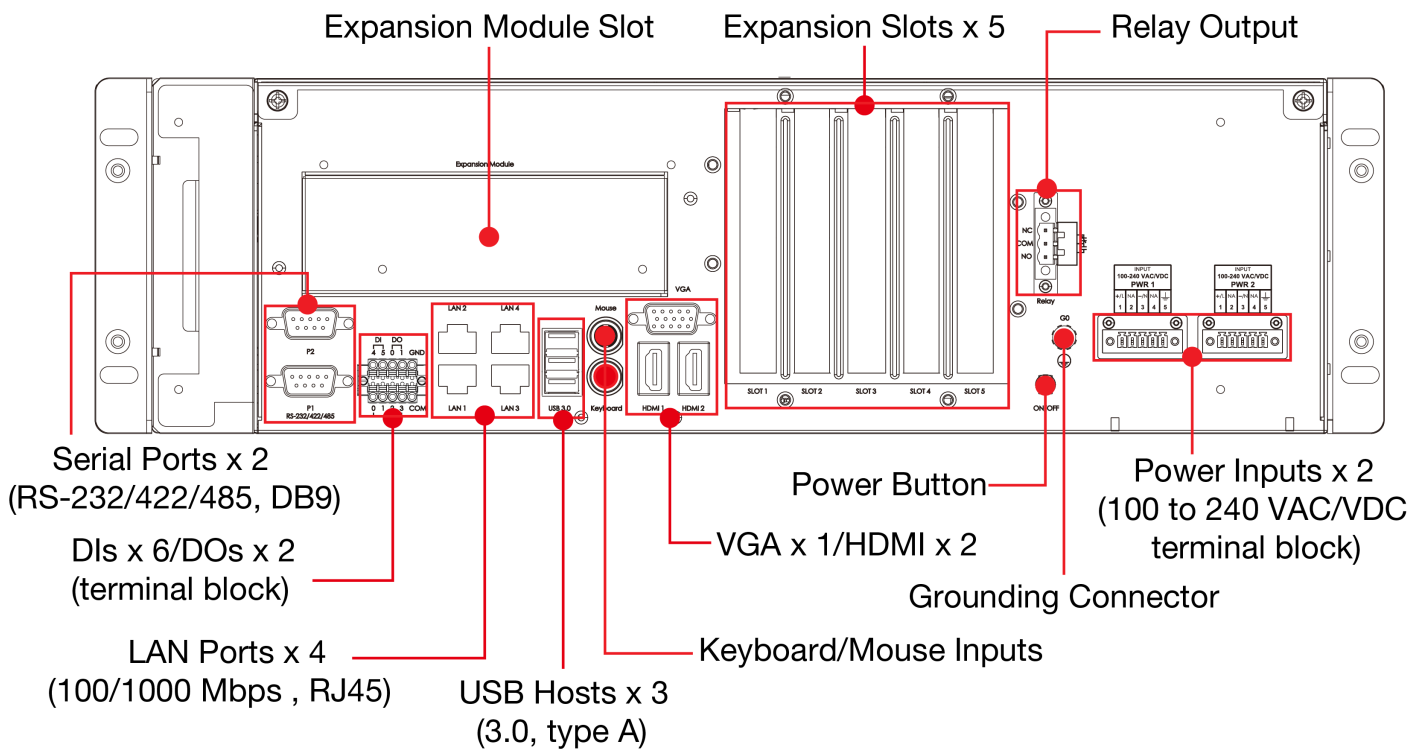
Moxa Proactive Monitoring is a small-footprint, resource-friendly, easy-to-use utility available with some Moxa computers to track a number of system parameters. You can view the current values for key parts by simply clicking on the icons corresponding to the parameters in a Windows-based user interface. User-defined key part indicators (KPIs) are used to monitor the computer's key parts. Visible and/or audio alerts are triggered automatically via relays and SNMP traps when these KPIs exceed their preset threshold values, making it extremely convenient for operators to avoid system downtime by setting up predictive maintenance tasks well in advance.

## Appearance

### Front View



### Rear View



## Specifications

### Computer

CPU	Intel® Xeon® Processor E3-1505M v6 (8M Cache, 3.00 GHz) Intel® Xeon® Processor E3-1505L v6 (8M Cache, 2.20 GHz) Intel® Core™ i7-7820EQ Processor (8M Cache, up to 3.70 GHz) Intel® Core™ i5-7442EQ Processor (6M Cache, up to 2.90 GHz) Intel® Core™ i3-7102E Processor (3M Cache, 2.10 GHz)
System Memory Slot	SODIMM DDR4 slots x 2
DRAM	64 GB max. capacity (SODIMM x 2, each supporting 2400 MHz and 32 GB maximum per module) ECC RAM only supports i3 CPU and Xeon CPU models
Graphics Controller	Intel® Xeon® E3-1505MV6: Intel® HD Graphics P630 Intel® Xeon® E3-1505LV6: Intel® HD Graphics P630 Intel® Core™ i7-7820EQ: Intel® HD Graphics 630 Intel® Core™ i5-7442EQ: Intel® HD Graphics 630 Intel® Core™ i3-7102E: Intel® HD Graphics 630
Storage Slot	2.5-inch HDD/SSD slots x 4 mSATA slots x 1, internal mini-PCIe socket
Supported OS	Windows 10 IoT Enterprise LTSC 2021 64-bit Windows 10 IoT Enterprise LTSC 2019 64-bit Linux Debian 11 Linux Debian 9 Linux drivers can be downloaded from <a href="https://docs.moxa.online/mil/manuals/">https://docs.moxa.online/mil/manuals/</a>
MMS	IEC 61850-90-4 MMS Server for power SCADA IEC 61850-90-4 MMS ICD file

### Computer Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 4
Serial Ports	RS-232/422/485 ports x 2, software selectable (DB9 male)
Digital Input	DIs x 6
Digital Output	DOs x 2
USB 2.0	USB 2.0 hosts x 3, type-A connectors 2 ports on the front panel, 1 port inside the computer
USB 3.0	USB 3.0 hosts x 3, type-A connectors 3 ports on the rear panel
Expansion Slots	PCIe x16 slot x 1 PCIe x4 slots x 1 PCIe x1 slots x 2 PCI slots x 1
Video Output	HDMI x 2, HDMI connector (type A) VGA x 1, 15-pin D-sub connector (female)
Time Synchronization	PTP, IRIG-B (with an expansion module)
TPM	TPM v2.0
Secure Boot	UEFI

## LED Indicators

System	Power x 1 Storage x 1 Programmable x 8
Serial	2 per port (Tx, Rx)
LAN	8 per port (10/100/1000 Mbps)

## Serial Interface

Baudrate	300 bps to 115.2 kbps
Connector	DB9 male
ESD	8 kV (level 4)
Isolation	2 kV
Serial Standards	RS-232/422/485
Surge	2 kV

## Serial Signals

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

## Digital Inputs

Digital Input Channels	DIs x 6
Voltage	0 to 30 VDC at 25 Hz
Wet Contact (DI to COM)	On: 10 to 30 VDC

## Digital Outputs

Digital Output Channels	DOs x 2
Current Rating	Max. 200 mA per channel
Voltage	24 to 30 VDC
I/O Type	Sink

## Power Parameters

Input Current	100 to 240 VAC, 50/60 Hz, 1.15 A (max) 100 to 240 VDC, 1.15 A (max)
Input Voltage	100 to 240 VAC 100 to 240 VDC
Power Button	Reset button (front panel) ON/OFF (rear panel)

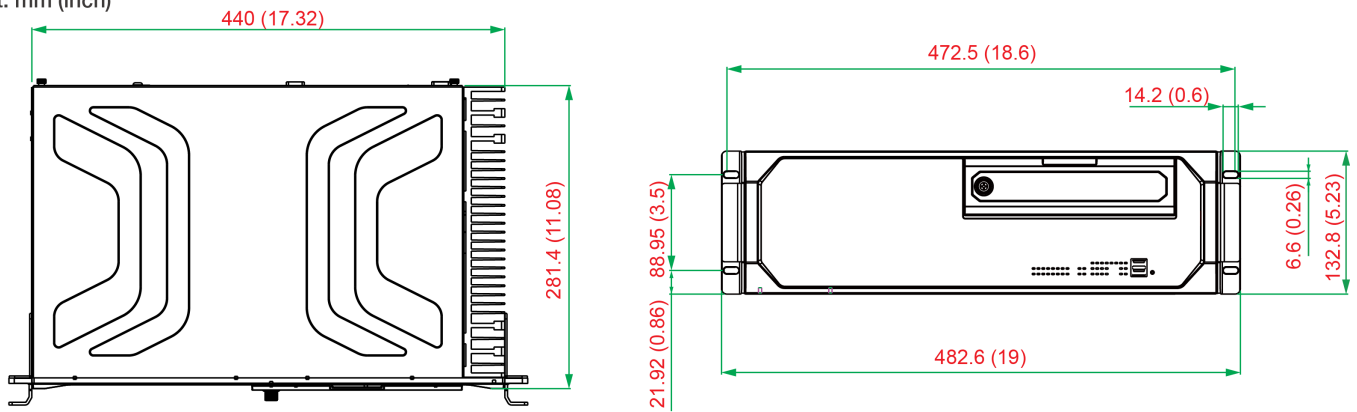
## Physical Characteristics

Housing	Metal
Dimensions (without ears)	440 x 132.8 x 281.4 mm (17.3 x 5.2 x 11.1 in)

Weight	14,000 g (31.11 lb)
Installation	19-inch rack mounting
<b>Environmental Limits</b>	
Operating Temperature	Standard Models: -25 to 55°C (-13 to 131°F) Wide Temp. Models: -40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
<b>Standards and Certifications</b>	
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: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8: 20 A/m IEC 61000-4-11
Power Substation	IEC 61850-3 IEEE 1613
Protection Relay	IEC 60255
Safety	IEC 60950-1 IEC 62368-1 UL 62368-1
Shock	IEC 61850-3 Edition 2.0, IEC 60068-2-27, IEC 60255-21-2
<b>Declaration</b>	
Green Product	RoHS, CRoHS, WEEE
<b>MTBF</b>	
Time	325,730 hrs
Standards	Telcordia SR332
<b>Warranty</b>	
Warranty Period	3 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>
<b>Package Contents</b>	
Device	1 x DA-820C Series computer
Installation Kit	1 x rack-mounting ear
Documentation	1 x quick installation guide 1 x warranty card
Note	This product requires additional modules (sold separately) to function.

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	CPU	Power Input 100-240 VAC/VDC	Operating Temp.
DA-820C-KL3-H-T	i3-7102E	Single Power	-40 to 70°C
DA-820C-KL3-HH-T	i3-7102E	Dual Power	-40 to 70°C
DA-820C-KL5-H-T	i5-7442EQ	Single Power	-40 to 70°C
DA-820C-KL5-HH-T	i5-7442EQ	Dual Power	-40 to 70°C
DA-820C-KLXL-H-T	Xeon E3-1505L v6	Single Power	-40 to 70°C
DA-820C-KLXL-HH-T	Xeon E3-1505L v6	Dual Power	-40 to 70°C
DA-820C-KL7-H	i7-7820EQ	Single Power	-25 to 55°C
DA-820C-KL7-HH	i7-7820EQ	Dual Power	-25 to 55°C
DA-820C-KLXM-H	Xeon E3-1505M v6	Single Power	-25 to 55°C
DA-820C-KLXM-HH	Xeon E3-1505M v6	Dual Power	-25 to 55°C

## Accessories (sold separately)

### Expansion Modules

DA-PRP-HSR-I210	PRP/HSR expansion card with RJ45 and SFP combo port
DN-FX04	4-port 100M/1000M SFP Ethernet module
DN-LN04-RJ	4-port 10/100/1000 Mbps PCIe LAN module with RJ45 connectors
DN-SP08-I-DB	8-port software-selectable RS-232/422/485 PCIe serial module with DB9 connector
DN-SP08-I-TB	8-port software-selectable RS-232/422/485 PCIe serial module with terminal-block connector
DN-PRP-HSR-I210	PRP/HSR expansion module with RJ45 and SFP combo port
DA-IRIG-B-S-02-T	IRIG-B expansion module, PCI interface, 1 fiber IRIG-B in, 1 DB9M in/out, 1 DB9M out
DE-FX02-SFP-T	2-port 100 Mbps fiber card, SFP slot x 2, PCIe interface (SFP module excluded)

### Connectors

Mini DB9F-to-TB	DB9 female to terminal block connector
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### Cables

CBL-RG58AUBNCMF9-150	DB9 female to BNC male cable for the DA-IRIG-B-S-02-T and DA-IRIG-B-S-04-T, 1.5 m
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