DA-820E Series

IEC 61850-3 3U rackmount computers with 13th Gen Intel® Core™ processor, hot-swappable power module, -40 to 70°C operating temperature



Features and Benefits

- IEC 61850-3, IEEE 1613, and IEC 60255 compliant power-automation computer
- EN 50121-4 compliant for railway wayside applications
- 13th Gen Intel® Core™ processor
- 4 SSD slots with Intel® RST RAID 0/1 support for SSD slot 1 and 2
- Up to 64 GB RAM (two built-in SODIMM DDR4 memory slots)
- PRP/HSR technology for network redundancy (with a PRP/HSR expansion module)
- Security options such as TPM 2.0, UEFI Secure Boot and physical security
- 1 PCIe x8 (4-lane) and 3 PCIe x1 for expansion modules
- Redundant power supplies (100 to 240 VAC/VDC and 48 VDC) with hot-swappable power module design

Certifications

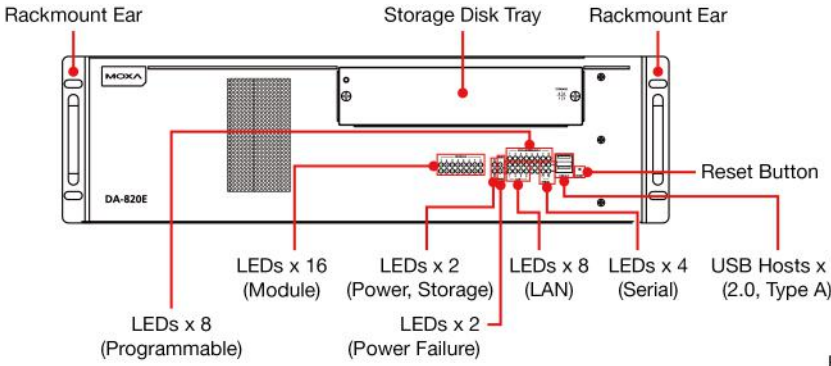
IEC 61850-3 IEEE 1613 EN 50121-4 CE cULus

Introduction

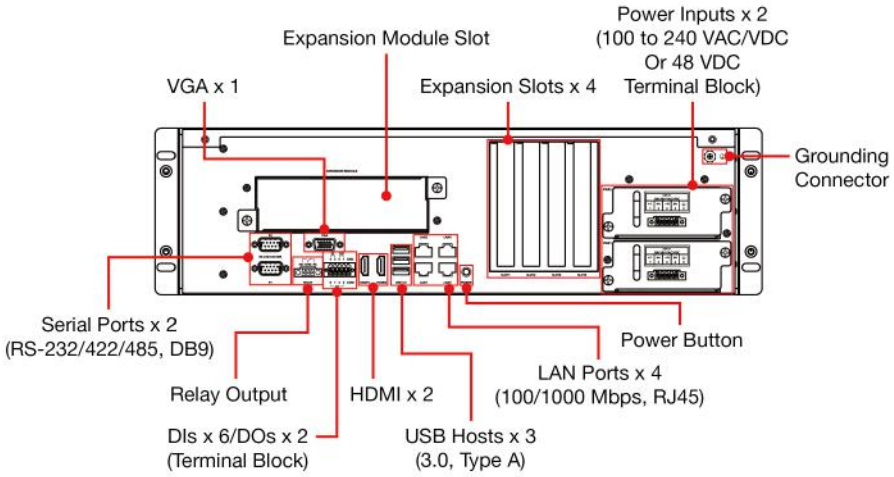
The DA-820E Series is a high-performance fanless 3U rackmount industrial computer powered by 13th Gen Intel® Core™ i3/i5/i7 processors, offering exceptional computing capabilities. It features a versatile I/O design, including 3 display ports (2 HDMI and 1 VGA), 6 USB ports, 4 Gigabit Ethernet ports, two 3-in-1 RS-232/422/485 serial ports, 6 DI ports, 2 DO ports, 4 standard PCIe expansion slots, and 1 proprietary expansion slot. Additionally, it is equipped with 4 hot-swappable 2.5” SSD slots, supporting Intel® RST RAID 0/1 functionality on SSD slots 1 and 2 for enhanced storage performance and reliability.

Engineered specifically for substation applications, the DA-820E complies with IEC 61850-3, IEEE 1613, and IEC 60255 standards, guaranteeing ruggedness, reliability, and seamless integration with Intelligent Electronic Devices (IEDs) in demanding substation automation systems. Leveraging its 13th Gen Intel® processor, the DA-820E delivers the high computing power required for modern, complex software applications, such as virtualization, in addition to traditional OT SCADA functionalities.

Appearance



Front View



Rear View

Specifications

Computer

CPU	Intel® Core™ i3-1320PE Intel® Core™ i5-1340PE Intel® Core™ i7-1370PE
System Memory Slot	SODIMM DDR4 slots x 2
DRAM	64 GB max. (SODIMM x 2, each supporting 3200 MHz and 32 GB max. per module)
Graphics Controller	Intel® Core™ i3-1320PE: Intel® UHD Graphics Intel® Core™ i5-1340PE: Intel® Iris® Xe Graphics eligible Intel® Core™ i7-1370PE: Intel® Iris® Xe Graphics eligible
Storage Slot	2.5-inch HDD/SSD slots x 4 M.2 M-key 2280 slot x 1
Supported OS	Windows 10 IoT Enterprise LTSC 2021 Windows 11 IoT Enterprise LTSC 2024 Windows Server 2022 Ubuntu 22.04.3 LTS Debian 12 RHEL 9.4

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 connector)
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 for USB dongle-based security
USB 3.0	USB 3.0 hosts x 3, type-A connectors 3 ports on the rear panel
Expansion Slots	PCIe x8 (4-lane) slot x 1 PCIe x1 slots x 3 Proprietary slot x 1
Video Output	HDMI x 2, HDMI connector (type A) (up to 3840 x 2160 resolution at 60Hz) VGA x 1, 15-pin D-sub connector (female) (up to 1920 x 1200 resolution at 60 Hz)
TPM	TPM v2.0
Secure Boot	UEFI

LED Indicators

System	Power x 1 Storage x 1 Power failure detection x 2 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
Isolation	2 kV
Serial Standards	RS-232/422/485

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
Connector	Screw-fastened Euroblock terminal
I/O Mode	DI
Isolation	3k VDC
Sensor Type	Dry contact Wet contact (NPN)
Dry Contact	Logic 0: Close to GND Logic 1: Open
Wet Contact (COM to DI)	Logic 0: 10 to 30 VDC Logic 1: 0 to 3 VDC

Digital Outputs

Digital Output Channels	DOs x 2
Connector	Screw-fastened Euroblock terminal
Current Rating	200 mA per channel
I/O Type	Sink
Voltage	0 to 30 VDC
Isolation	3k VDC

Power Parameters

Input Current	100 to 240 VAC, 50/60 Hz, 1.75 to 0.66 A (max) 100 to 240 VDC, 1.65 to 0.66 A (max) 48 VDC, 3.12 A
Input Voltage	100 to 240 VAC 100 to 240 VDC 48 VDC
Power Consumption	DA-PWR-150-HV: 140 W (max.) DA-PWR-120-LV: 130 W (max.)
Power Button	Reset button (front panel) ON/OFF (rear panel)

Physical Characteristics

Housing	Metal
IP Rating	IP30
Dimensions (without ears)	440 x 301 x 132.55 mm (17.32 x 11.85 x 5.22 in)
Weight	11,860 g (26.15 lb)
Installation	19-inch rack mounting

Environmental Limits

Operating Temperature	-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)

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: 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 62368-1 UL 62368-1
Shock	IEC 61850-3 Edition 2.0, IEC 60068-2-27, IEC 60255-21-2

Declaration

Green Product	RoHS, CRoHS, WEEE

MTBF

Time	293,786 hrs
Standards	Telcordia Standard SR-332

Warranty

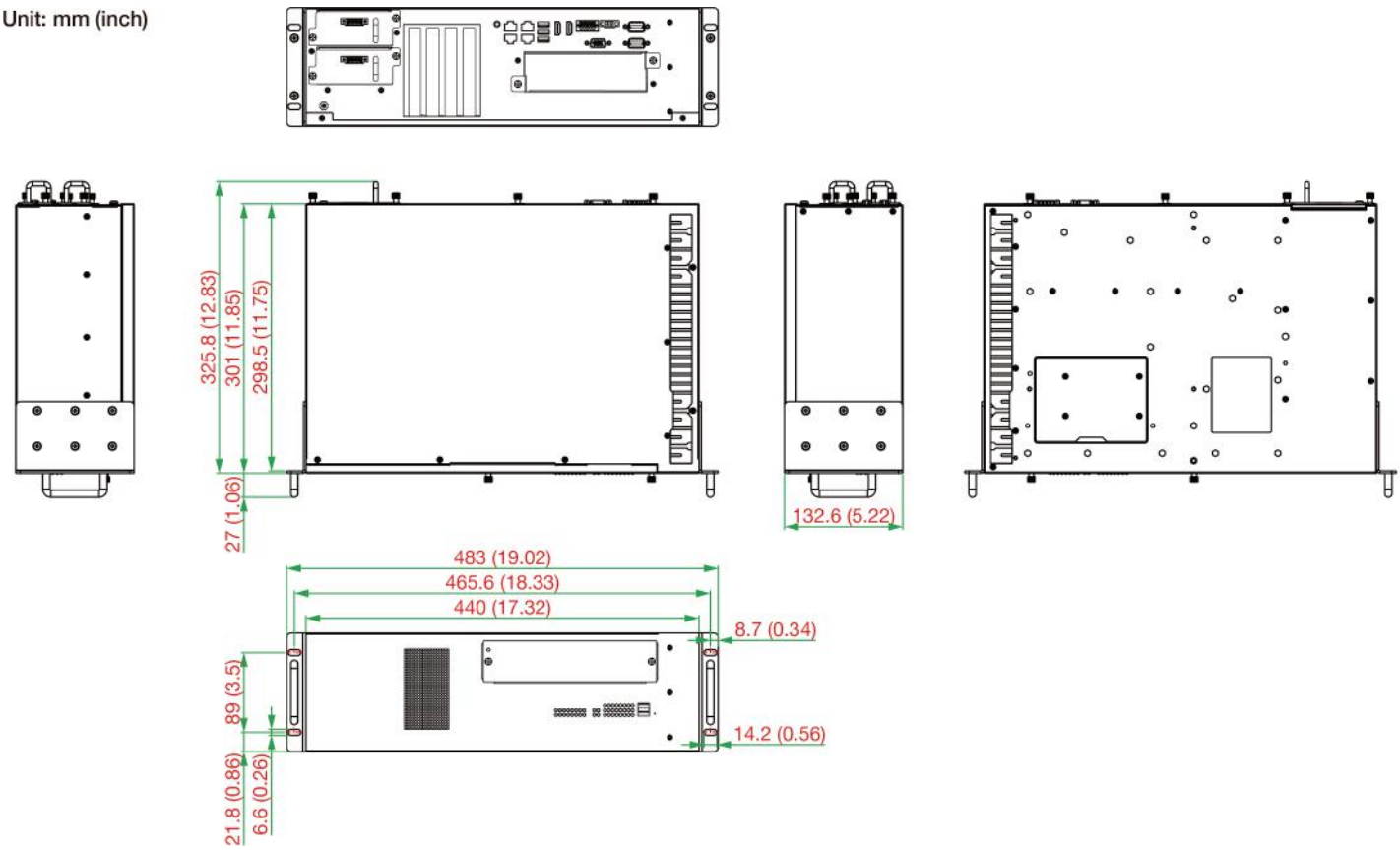
Warranty Period	3 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x DA-820E Series computer
Installation Kit	1 x rack-mounting kit 1 x pack of thermal pads for optional M.2 storage and memory modules 1 x pack of 16 screws for mounting the SSD 1 x pack of 4 backup screws for M.2 storage and memory modules 1 x USB dongle kit
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 Modules Included	Operating Temperature
DA-820E-C3-H-T	Intel® Core™ i3-1320PE	1 x DA-PWR-150-HV	-40 to 70°C
DA-820E-C3-HH-T	Intel® Core™ i3-1320PE	2 x DA-PWR-150-HV	-40 to 70°C
DA-820E-C5-H-T	Intel® Core™ i5-1340PE	1 x DA-PWR-150-HV	-40 to 70°C
DA-820E-C5-HH-T	Intel® Core™ i5-1340PE	2 x DA-PWR-150-HV	-40 to 70°C
DA-820E-C7-H-T	Intel® Core™ i7-1370PE	1 x DA-PWR-150-HV	-40 to 70°C
DA-820E-C7-HH-T	Intel® Core™ i7-1370PE	2 x DA-PWR-150-HV	-40 to 70°C
DA-820E-C3-L-T	Intel® Core™ i3-1320PE	1 x DA-PWR-120-LV	-40 to 70°C
DA-820E-C3-LL-T	Intel® Core™ i3-1320PE	2 x DA-PWR-120-LV	-40 to 70°C
DA-820E-C5-L-T	Intel® Core™ i5-1340PE	1 x DA-PWR-120-LV	-40 to 70°C
DA-820E-C5-LL-T	Intel® Core™ i5-1340PE	2 x DA-PWR-120-LV	-40 to 70°C
DA-820E-C7-L-T	Intel® Core™ i7-1370PE	1 x DA-PWR-120-LV	-40 to 70°C
DA-820E-C7-LL-T	Intel® Core™ i7-1370PE	2 x DA-PWR-120-LV	-40 to 70°C

Accessories (sold separately)

Power Modules

DA-PWR-150-HV	Hot-swappable power-supply module (100 to 240 VAC/VDC) with system power input and terminal block for DA-820E computers
DA-PWR-120-LV	Hot-swappable power-supply module (48 VDC) with system power input and terminal block for DA-820E computers

Expansion Modules

DA-GX02-SFP-T	2-port 100/1000 Mbps fiber card with 2 SFP slots, 1 PCIe interface
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

Connectors

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

© Moxa Inc. All rights reserved. Updated Jun 23, 2025.

This document and any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of Moxa Inc. Product specifications subject to change without notice. Visit our website for the most up-to-date product information.