DA-681C Series

Intel® 7th Gen Core™ CPU, IEC-61850, 1U rackmount computers with 6 Gigabit Ethernet ports, 12 isolated serial ports

Features and Benefits

- IEC 61850-3, IEEE 1613, and IEC 60255 compliant for power substation automation systems

- EN 50121-4 compliant for railway wayside applications

- 7th Generation Intel® Core™ Processor

- DDR4 memory slot; up to 32 GB capacity

- Redundant power supply (100 to 240 VAC/VDC)

Certifications

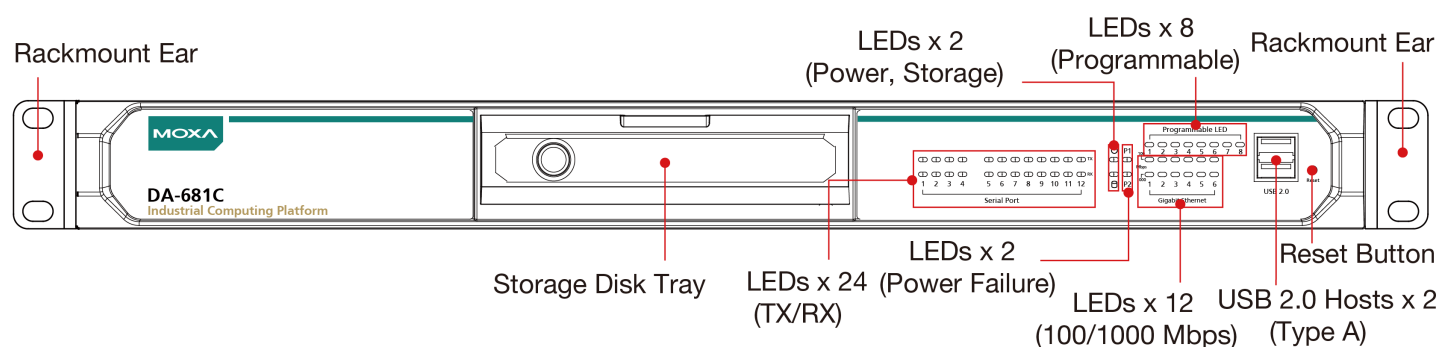IEC 61850-3 / IEEE 1613   EN 50121-4   CE   c UL US

Introduction

The DA-681C computer is built around an Intel® Celeron® or Intel® Core™ i3 CPU and comes with dual display ports (2 x HDMI), 5 USB ports, 6 Gigabit LAN ports, two 3-in-1 RS-232/422/485 serial ports, 10 RS-485 (2–wire) serial ports, 6 digital input ports, and 2 digital output ports. Additionally, one 2.5" HDD/SSD slot and one mSATA slot are included to enable storage expansion for industrial applications that require large storage space for edge data acquisition.
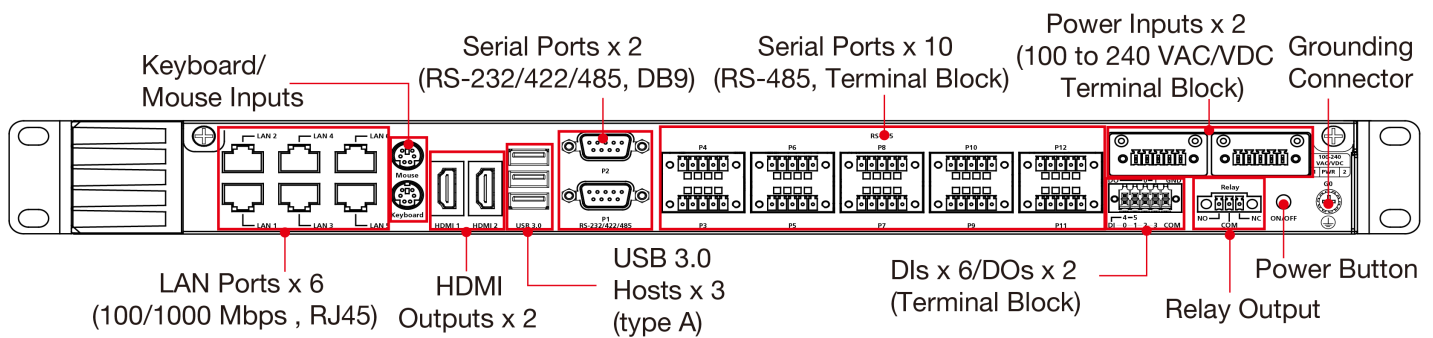
With IEC 61850-3 and IEEE 1613 compliance, the DA-681C is sure to deliver stable and reliable system operation for power applications. EN 50121-4 compliance confirms that the DA-681C can deliver stable and reliable system operations in rail wayside applications, such as station SCADA systems, wayside disaster prevention, traction power, and signaling and safety systems, to provide an integrated view of your smart rail setup.

Appearance

Front View

Rear View

Keyboard/Mouse Inputs

Serial Ports x 2 (RS-232/422/485, DB9)

Serial Ports x 10 (RS-485, Terminal Block)

Power Inputs x 2 (100 to 240 VAC/VDC Terminal Block)

Grounding Connector

LAN Ports x 6 (100/1000 Mbps , RJ45)

HDMI Outputs x 2

USB 3.0 Hosts x 3 (type A)

DIs x 6/DOs x 2 (Terminal Block)

Relay Output

Power Button

Specifications

Computer

CPU	Intel® Core™ i3-7100U Processor (2M Cache, 2.4 GHz) Intel® Celeron® 3965U Processor (2M Cache, 2.2 GHz
System Memory Slot	SODIMM DDR4 slots x 2
DRAM	32 GB max. capacity (SODIMM x 2, each supporting 2400 MHz and 16 GB maximum per module)
Storage Slot	2.5-inch HDD/SSD slots x 1 mSATA slots x 1
Graphics Controller	Intel® HD Graphics 630
Supported OS	Windows 10 IoT Enterprise LTSC 2019 Value (64-bit) Linux Debian 9 Linux SDKs supported: Debian 12 Ubuntu 22.04 (LTS & HWE) RedHat 9 CentOS 7.9

Computer Interface

Ethernet Ports	Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 6
Serial Ports	RS-232/422/485 ports x 2 (software-selectable, DB9 male connector) RS-485 (2-wire) ports x 10 (terminal-block connector)
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
Video Output	HDMI x 2, HDMI connector (type A)
Secure Boot	UEFI
TPM	TPM v2.0

Digital Inputs

Connector	Screw-fastened Euroblock terminal
I/O Mode	DI
Isolation	3k VDC
Sensor Type	Dry contact Wet contact (NPN)

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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

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

Serial Interface

Baudrate	50 bps to 115.2 kbps
Connector	Terminal block
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

LED Indicators

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

Power Parameters

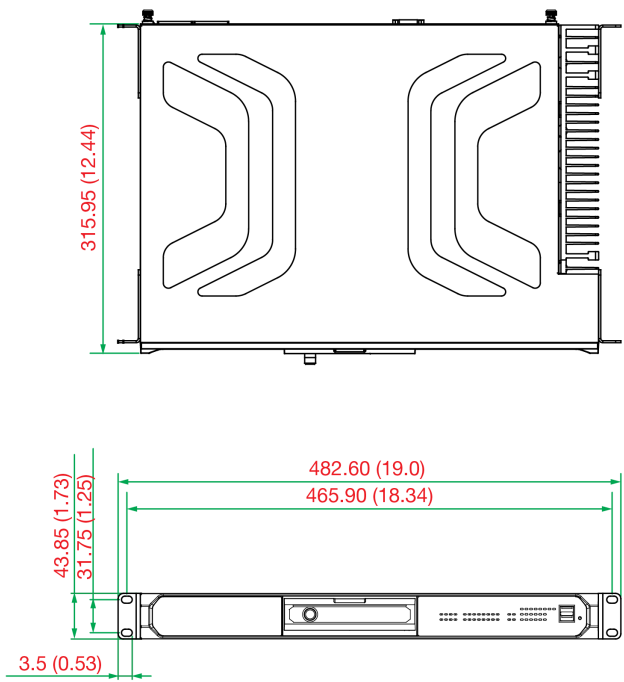| Input Current	100 to 240 VAC, 50/60 Hz, 1.6 A (max) 100 to 240 VDC, 0.8 A (max)
Power Button	Reset button (front panel) ON/OFF (rear panel)

Physical Characteristics

Housing	Metal
Dimensions (without ears)	440 x 316 x 44 mm (17.32 x 12.44 x 1.73 in)
Weight	9,000 g (21.82 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 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
Shock	IEC 61850-3 Edition 2.0, IEC 60068-2-27, IEC 60255-21-2
Safety	UL 62368-1

Declaration

Green Product	RoHS, CRoHS, WEEE

MTBF

Time	285,419 hrs
Standards	Telcordia Standard SR-332

Warranty

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

Package Contents

Device	1 x DA-681C 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-681C-KL1-H-T	Intel® Celeron® 3965U	Single	-40 to 70°C
DA-681C-KL1-HH-T	Intel® Celeron® 3965U	Dual	-40 to 70°C
DA-681C-KL3-HH-T	Intel® Core™ i3-7100U	Dual	-40 to 70°C

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