

# DA-681C Series

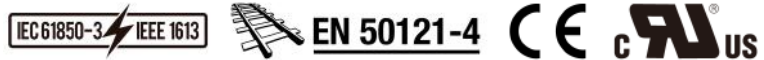
Intel® 7th Gen Core™ CPU, IEC-61850, 1U rackmount computers with 6 Gigabit Ethernet ports, 12 isolated serial ports



## 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



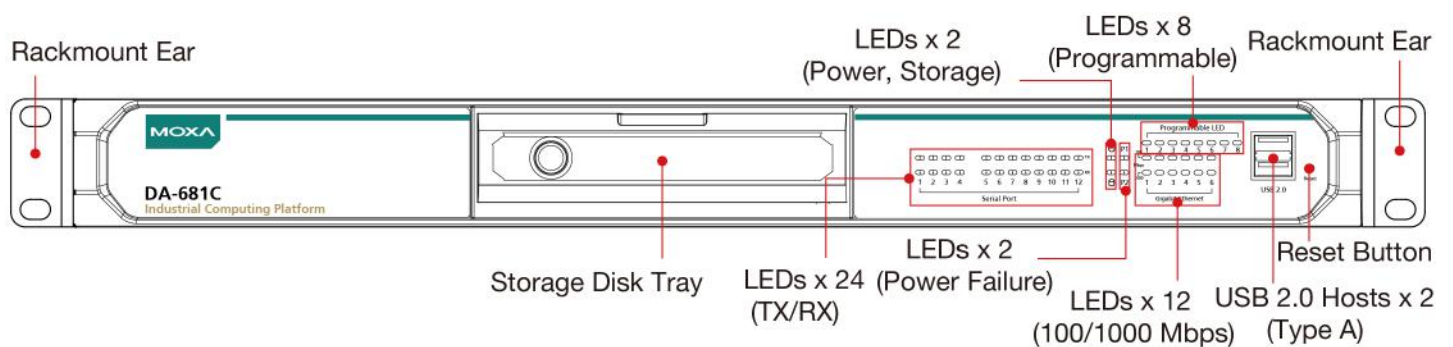
## Introduction

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 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.

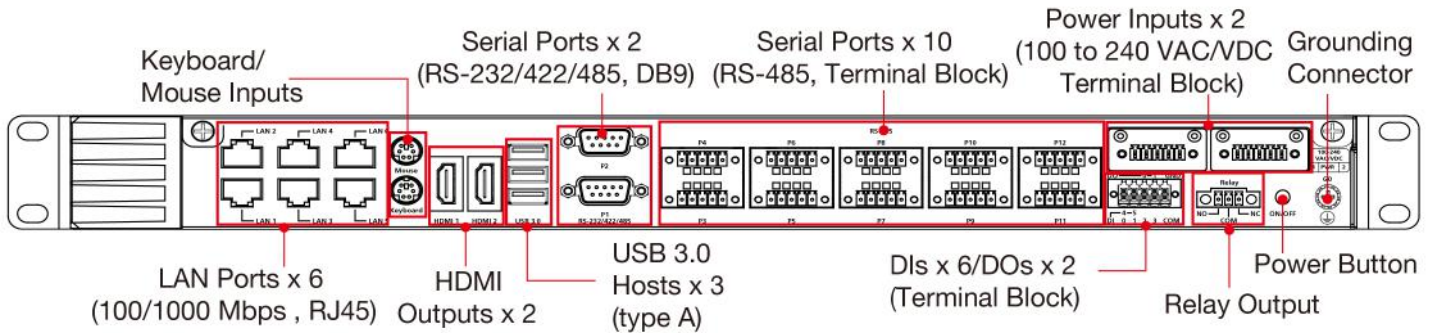
With IEC 61850-3 and IEEE 1613 compliance, the DA-681C is sure to deliver stable and reliable system operation for power applications. EN 50121-4 compliance confirms that the DA-681C can deliver stable and reliable system operations in rail wayside applications, such as station SCADA systems, wayside disaster prevention, traction power, and signaling and safety systems, to provide an integrated view of your smart rail setup.

## Appearance

### Front View



## Rear View



## Specifications

### Computer

|                     |  |
|---------------------|--|
| CPU                 | Intel® Core™ i3-7100U Processor (2M Cache, 2.4 GHz)<br>Intel® Celeron® 3965U Processor (2M Cache, 2.2 GHz) |
| System Memory Slot  | SODIMM DDR4 slot x 2   |
| DRAM                | 32 GB max. capacity (SODIMM x 2, each supporting 2400 MHz and 16 GB maximum per module)                    |
| Graphics Controller | Intel® HD Graphics 630   |
| Storage Slot        | 2.5-inch HDD/SSD slots x 1<br>mSATA slots x 1  |
| Supported OS        | Windows 10 Embedded IoT Ent 2019 LTSC 64-bit<br>Linux Debian 9<br>Note: OS available by CTOS               |

### Computer Interface

|                |   |
|----------------|---|
| USB 2.0        | USB 2.0 hosts x 3, type-A connectors<br>2 ports on the front panel, 1 port inside the computer                      |
| USB 3.0        | USB 3.0 hosts x 3, type-A connectors<br>3 ports on the rear panel   |
| Video Output   | HDMI x 2, HDMI connector (type A)   |
| Serial Ports   | RS-232/422/485 ports x 2, software selectable (DB9 male)<br>RS-485 ports x 10, software selectable (terminal block) |
| Ethernet Ports | Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 6  |
| 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<br>Wet contact (NPN)  |

|                         |  |
|-------------------------|--|
| Dry Contact             | Logic 0: Close to GND<br>Logic 1: Open       |
| Wet Contact (COM to DI) | Logic 0: 10 to 30 VDC<br>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                            |

#### LED Indicators

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

#### 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                      |

#### Power Parameters

|               |  |
|---------------|--|
| Input Current | 100 to 240 VAC, 50/60 Hz, 1.6 A (max)<br>100 to 240 VDC, 0.8 A (max) |
| Power Button  | Reset button (front panel)<br>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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8: 20 A/m<br>IEC 61000-4-11 |
| Power Substation | IEC 61850-3<br>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 SR332 |

## Warranty

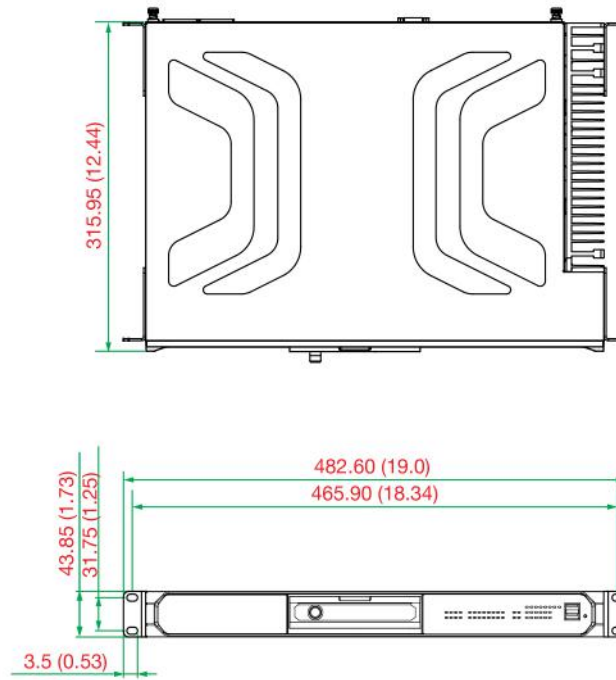
|                 |  |
|-----------------|--|
| Warranty Period | 3 years  |
| Details         | See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a> |

## Package Contents

|                  |   |
|------------------|---|
| Device           | 1 x DA-681C Series computer   |
| Installation Kit | 1 x rack-mounting ear   |
| Documentation    | 1 x quick installation guide<br>1 x warranty card                       |
| Note             | This product requires additional modules (sold separately) to function. |

## Dimensions

Unit: mm (inch)



## Ordering Information

| Model Name       | CPU                     | Power Input10100-240 VAC/VDC | Operating Temp. |
|------------------|-------------------------|------------------------------|-----------------|
| DA-681C-KL1-H-T  | Intel® Celeron® R 3965U | Single                       | -40 to 70°C     |
| DA-681C-KL1-HH-T | Intel® Celeron® R 3965U | Dual                         | -40 to 70°C     |
| DA-681C-KL3-HH-T | Intel® Core™ i3-7100U   | Dual                         | -40 to 70°C     |

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