

# DA-681C Series Quick Installation Guide

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**x86 Rackmount Embedded Computers**

**Version 1.0, November 2019**

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**P/N: 1802006811010**



## Overview

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, 2 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.

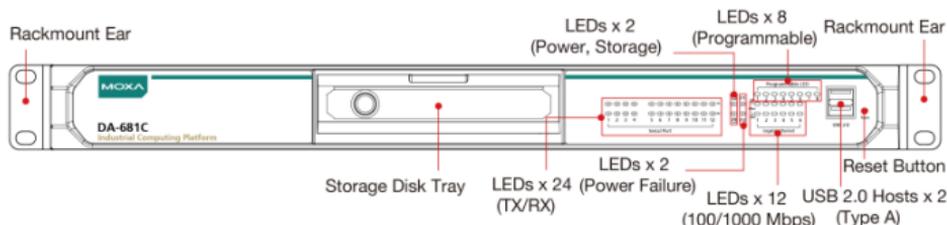
## Package Checklist

Each basic system model is shipped with the following standard items:

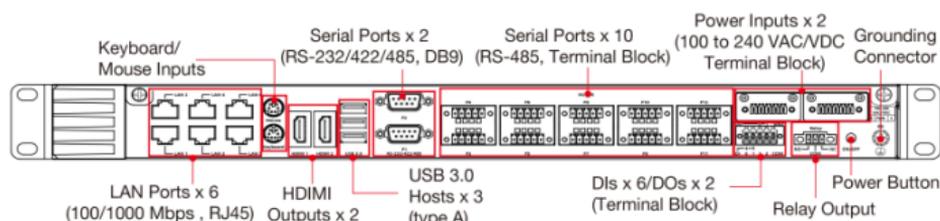
- DA-681C rackmount computer
- Rack-mounting kit
- Quick Installation Guide
- Warranty card

## Hardware Installation

### Front View



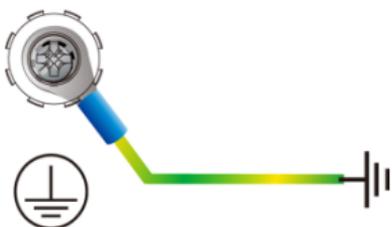
### Rear View



## **Connecting the Power**

The DA-681C provides single or dual power inputs using a terminal block, which is located on the rear panel. A grounding connector is also provided for power surge protection.

### **G0**



In addition, a power button on the rear panel allows users to power on the computer when it is in the sleep or hibernate mode.

Connect the power cord wires to the screws on the power input of the DA-681C and then tighten the screws. The **Power** LED will light up to indicate that power is being supplied to the DA-681C, after which the BIOS will initialize the flash disk module, causing the **Storage** LED to blink. It should then take about 30 to 60 seconds for the operating system to complete the boot-up process.

For a detailed power connection and surge protection information, refer to the *DA-681C Hardware User's Manual*.

## **Front-panel LEDs**

There are 42 LED indicators on the front panel, which are described in the following table:

<b>LED</b>	<b>Color</b>	<b>Description</b>
Power	Green	Power is on
	Off	No power input
Storage	Yellow/ Blinking	Data is being written to or read from the storage unit
	Off	Storage unit is idle
Power 1 Failure	Off	The 1 <sup>st</sup> power supply is on
	Red	Error in the 1 <sup>st</sup> power supply
Power 2 Failure	Off	The 2 <sup>nd</sup> power supply is on
	Red	Error in the 2 <sup>nd</sup> power supply
Gigabit LAN LEDs 1 to 6	Green	100 Mbps Ethernet mode
	Orange	1000 Mbps (Gigabit) Ethernet mode
Serial Port P1 to P12 (TX/RX)	Green	Tx: Serial data is being transmitted
	Yellow	Rx: Serial data is being received
Programmable LEDs 1 to 8	Green/ Blinking	Can be used to indicate statuses or for debugging, as defined by users.

## **Connecting to Displays**

The DA-681C comes with 2 HDMI interfaces on the rear panel, allowing users to connect two displays

**NOTE** For highly reliable video streaming, use premium, certified HDMI cables.

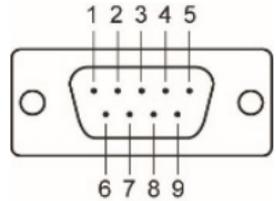
## Connecting to a Keyboard and Mouse

Connectors for a keyboard and mouse are located on the rear panel of the computer. Both connectors are PS/2 interfaces; you can directly connect a keyboard and a mouse using these connectors.

## Serial Ports

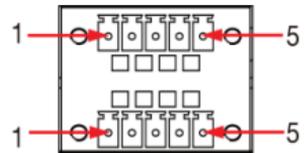
The DA-681C comes with 2 software-selectable RS-232/422/485 serial ports (P1 and P2) on the rear panel with DB9 connector.

Pin	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	DCD	TxDA(-)	TxDA(-)	-
2	RxD	TxDB(+)	TxDB(+)	-
3	TxD	RxDB(+)	RxDB(+)	DataB(+)
4	DTR	RxDA(-)	RxDA(-)	DataA(-)
5	GND	GND	GND	GND
6	DSR	-	-	-
7	RTS	-	-	-
8	CTS	-	-	-



In addition, there are 10 serial ports (P3 to P12) that use terminal blocks. Refer to the following table for the pin assignments:

Pin	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	TxD	TxD(+)	TxDA(+)	-
2	RxD	TxD(-)	TxDB(-)	-
3	RTS	RxD(+)	RxDB(+)	Data(+)
4	CTS	RxD(-)	RxDA(-)	Data(-)
5	GND	GND	GND	GND



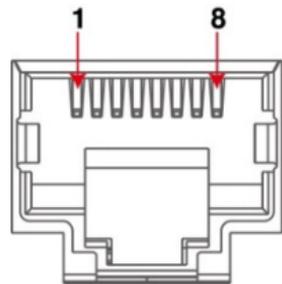
## USB Ports

The DA-681C comes with 2 USB 2.0 ports on the front panel and 3 USB 3.0 ports on the rear panel. The USB ports can be used to connect peripherals, such as flash drives, for expanding the systems storage capacity.

## Ethernet Ports

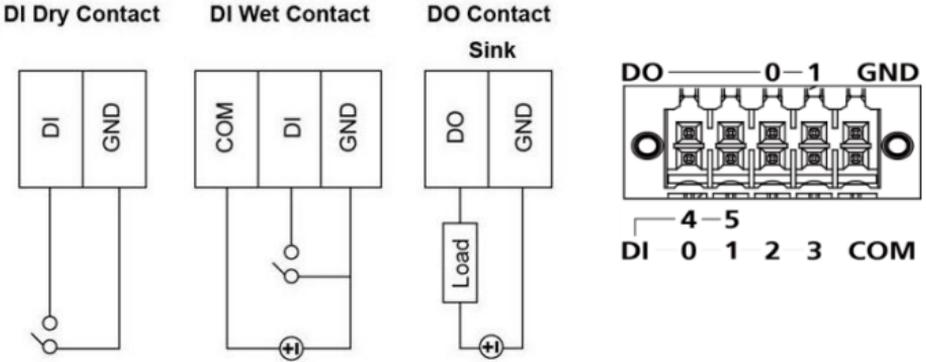
The DA-681C has 6 100/1000 Mbps RJ45 Ethernet ports on the rear panel. Refer to the following table for the pin assignments:

Pin	100 Mbps	1000 Mbps
1	Tx+	TRD(0)+
2	Tx-	TRD(0)-
3	Rx+	TRD(1)+
4	-	TRD(2)+
5	-	TRD(2)-
6	Rx-	TRD(1)-
7	-	TRD(3)+
8	-	TRD(3)-



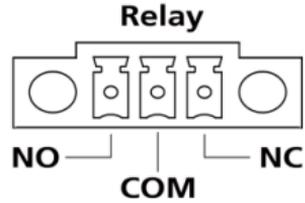
## **Digital Inputs/Digital Outputs**

The DA-681C comes with six digital inputs and two digital outputs in a terminal block. Refer to the following figures for the pin definitions and wiring methods.



## **Relay Output**

The DA-681C provides a relay output located on the rear panel of the computer. Refer to the figure on the right for a detailed pin definition of the relay output connectors.



## **Installing a Storage Drive**

The DA-681C is provided with a storage slot located on the front panel for storage expansion.

Follow these steps to install a SATA disk.

1. Unfasten the screw on the storage slot cover and pull down the cover to access the storage tray.



Storage Disk Tray Screw

2. Push the clutch on the storage tray to the left to release the storage tray and pull out the tray.



- Place the SATA disk on the tray.  
Ensure that the SATA disk aligns with the screws on the storage tray.



- Turn the storage tray and the SATA disk arrangement around to access the screws on the rear side of the tray. Fasten the four screws to secure the SATA disk to the tray, as indicated in the diagram below.



- Insert the storage tray back into the storage slot.

Ensure that the tray is inserted correctly into the rails of the storage slot and the tray slide smoothly inside the slot.



- Slide the storage slot cover back and fasten the screw to secure it.  
For details on installing other peripheral devices, refer to the *DA-681C Hardware User's Manual*.