DA-820 Series
Quick Installation Guide

x86 Rackmount Embedded Computers

Edition 2.0, January 2018

MOXA®

Overview

The DA-820's main operating system is based on the Intel® Core™ i3/i7/Celeron CPU and QM77 chipset, and supports x86 platforms. The DA-820 has 2 VGA connections, 6 USB ports, 4 Gigabit LAN ports, and 2 RS/232/422/485 3-in-1 serial ports, and is equipped with a 4 SATA disk interface and default support for RAID 0/1/5/10. In addition, the DA-820 is specifically designed for substation applications that require precise time synchronization and products meeting the IEC 61850-3 standard. The flexible design makes the DA-820 suitable for local SCADA, environmental monitoring, video surveillance, protocol conversion, and PRP/HSR redundancy applications, and the cybersecurity functionality allows you to maintain secure network communications.
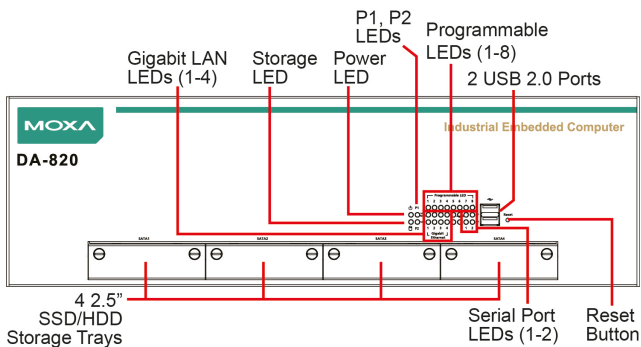
Package Checklist

Each basic system model is shipped with following standard items:

- DA-820 rackmount computer
- Rackmount kit
- Quick Installation Guide
- Documentation and software CD
- Warranty card

Hardware Installation

Front View

NOTE The power input supports two types of power supply:
HV: 100 to 240 VAC/VDC
LV: 24 to 110 VDC.

Connecting the Power

Use a screwdriver to loosen the terminal connector's clamp screws. Connect the power cord wires to the screws, and then retighten the screws. The **Power** LED will light up to indicate that power is being supplied to the DA-820, after which the BIOS will initialize the flash disk module, causing the **Storage** LED to blink. It should take about 30 to 60 seconds for the operating system to complete the boot process.

Alternating Current (AC), Single Power	Alternating Current (AC), Dual Power

INPUT 100-240VAC/VDC PWR 1				
+ / L **1**	⊥ **3**	COM **5**	**7**	**9**
− / N **2**	⏚ **4**	NO **6**	**8**	**10**

INPUT 100-240VAC/VDC PWR 1			INPUT 100-240VAC/VDC PWR 2	
+ / L **1**	⊥ **3**	COM **5**	⏚ **7**	+ / L **9**
− / N **2**	⏚ **4**	NO **6**	⊥ **8**	− / N **10**

Direct Current (DC), Single Power	Direct Current (DC), Dual Power

INPUT 24-110 VDC PWR 1				
+ **1**	⊥ **3**	COM **5**	**7**	**9**
− **2**	⏚ **4**	NO **6**	**8**	**10**

INPUT 24-110 VDC PWR 1			INPUT 24-110 VDC PWR 2	
+ **1**	⊥ **3**	COM **5**	⏚ **7**	+ **9**
− **2**	⏚ **4**	NO **6**	⊥ **8**	− **10**

Power 1 — +/L — −/N — Chassis Ground

Surge Ground — Chassis Ground — +/L — −/N — Chassis Ground — Surge Ground

Rear View

2 RS-232/422/485 Serial Ports · 4 USB 2.0 Ports · 6 Expansion Module Slots • 1 PCIe x16 • 3 PCIe x1 • 2 PCI

2 VGA Outputs · 4 Gigabit LAN Ports · Power Button · Power Input*
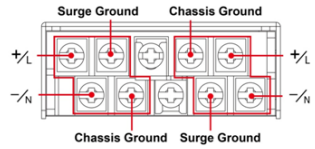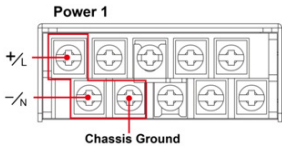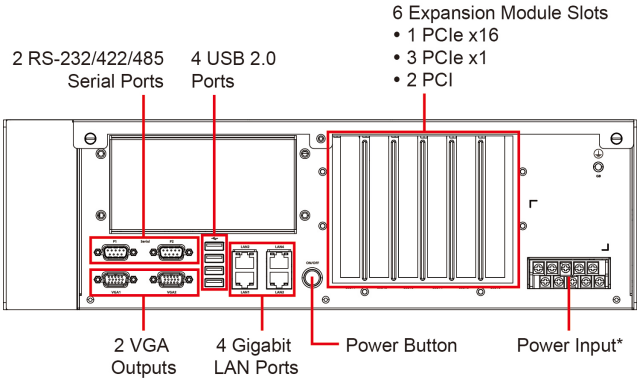
For detailed power connection and surge protection information, refer to the *DA-820 Hardware User's Manual*.

Front Panel LEDs

There are 28 LED indicators on the front panel. The LEDs are described in the following table:

| LED	Color	Description
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
P1 (Non-functional for single power supply)	Off	The 1st power supply is on
	Red	Error in the 2nd power supply
P2 (Non-functional for single power supply)	Off	The 2nd power supply is on
	Red	Error in the 1st power supply
Gigabit LAN LEDs 1-4	Green	100 Mbps Ethernet mode
	Orange	1000 Mbps (Gigabit) Ethernet mode
Serial Port 1/2	Green	Tx
	Yellow	Rx
Programmable 1-8	Green/ Blinking	The programs 1-8 that are in process

Connecting to a Display

The DA-820 comes with 2 VGA interfaces that use D-Sub 15-pin female connectors.
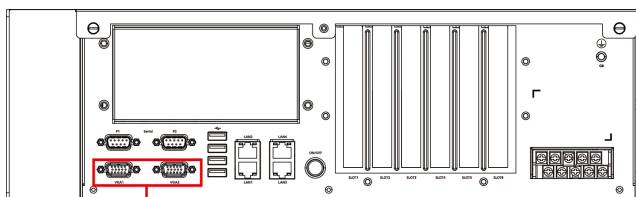
2 VGA Outputs

USB Ports

The DA-820 comes with 6 USB 2.0 ports, with 4 on the rear panel and 2 on the front panel. The USB ports can be used to connect a keyboard, mouse, or other peripherals, such as flash drives for expanding the system's storage capacity.

Serial Ports

The DA-820 comes with 2 software-selectable RS-232/422/485 serial ports on the rear panel. The ports use DB9 male connectors. Refer to the following table for pin assignments:

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	–	–	–
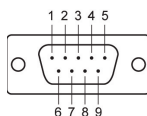
Ethernet Ports

The DA-820 has 4 100/1000 Mbps RJ45 Ethernet ports. Refer to the following table for 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)-
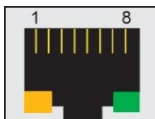
The default IP addresses and netmasks of the Ethernet ports are shown below. Note that the W7E models default to DHCP.

	Default IP Address	Netmask
LAN 1	192.168.3.127	255.255.255.0
LAN 2	192.168.4.127	255.255.255.0
LAN 3	192.168.5.127	255.255.255.0
LAN 4	192.168.6.127	255.255.255.0

Installing Removable Storage

The DA-820 has 4 hot-swappable 2.5" SSD/HDD storage trays located on the front panel for installing additional storage drives. Remove the screws on the trays to install the SSD/HDD storage drives. RAID 0, 1, 5, and 10 are supported.

Configuring the Ethernet Interface

Linux Users:

To configure the network settings on your DA-820 for the first time, use the following commands to edit the interfaces file. First, make sure all network interfaces are offline before you reconfigure the LAN settings.

```
MOXA:~# ifdown –a
```

Next, edit the network interfaces file. The default editor on the DA-820 is vi; however, you may use a text editor of your choice.

```
MOXA:~#vi /etc/network/interfaces
```

You may set the DA-820 for either dynamic IP addressing or static IP addressing. For dynamic IP addressing, enter the following lines into the network interfaces file:

```
# The primary network interface
auto eth0
iface eth0 inet dhcp
```

To configure an interface for static IP addressing, use the following configuration. Each interface must be configured with separate entries in the network/interfaces file; LAN1 corresponds to eth0, LAN 2 corresponds to eth1, and so on for the remaining interfaces.

```
# The loopback network interface
auto lo
iface lo inet loopback

# The first LAN interface, LAN 1
auto eth0
iface eth0 inet static
        address 192.168.3.127
        netmask 255.255.255.0
        broadcast 192.168.3.255

# The second LAN interface, LAN 2
auto eth1
iface eth1 inet static
        address 192.168.4.127
        netmask 255.255.255.0
        broadcast 192.168.4.255
```

Exit the vi editor by typing:

```
:wq
```

After the interfaces file has been configured, use the following commands to reinitialize the network interfaces and activate the new settings immediately:

```
Moxa:~#sync; ifup –a
```

Windows 7 Users

Step 1: Go to **Start → Control Panel → Network and Internet → Network Connections**.

Step 2: On the **Local Area Connection Properties** screen, click **Internet Protocol (TCP/IP)** and select **Properties**.

Step 3: Click **OK** after inputting the preferred IP address and netmask.