

DA-660/661/662/662-I Series

RISC 19-inch rackmount data acquisition computers with 8 or 16 serial ports, Ethernet/fiber LAN, PCMCIA, CompactFlash, USB



- > Intel XScale IXP422/425 266/533 MHz processor
- > 128 MB RAM onboard, 32 MB flash
- > 8 or 16 software-selectable RS-232/422/485 serial ports
- > 15 KV ESD protection for all serial signals
- > Dual or quad 10/100 Mbps Ethernet ports
- > PCMCIA CardBus for WLAN 802.11b/g wireless network supported
- > CompactFlash and USB slots for storage expansion supported
- > Standard 19-inch rackmount installation, 1U height
- > Wide range of power input voltages from 100 to 240 V, both AC and DC
- > LCM display and keypad for HMI
- > Ready-to-Run Linux, Windows CE 5.0 OS platform



Overview

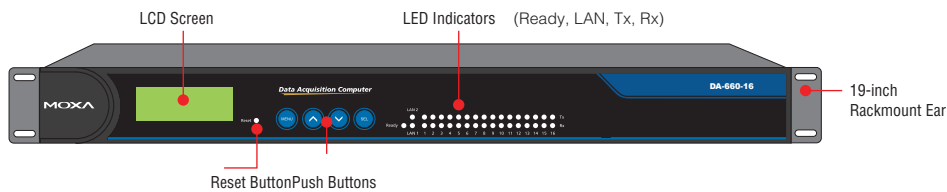
The DA-660/661/662/662-I embedded computers come with 8 or 16 software-selectable RS-232/422/485 serial ports, making them suitable for a variety of industrial applications. Models are available with either 2 or 4 10/100 Mbps Ethernet ports. Most models come with a PCMCIA socket to provide 802.11 b/g wireless LAN card expansion, and a CompactFlash socket and USB ports to make it easy to add additional

memory. The computers are designed with a standard 19-inch, rugged 1U rackmount case, and are embedded with a 100-240V AC/DC power input. This combination of features gives users a robust and reliable ready-to-run solution for applications such as data acquisition and power substations.

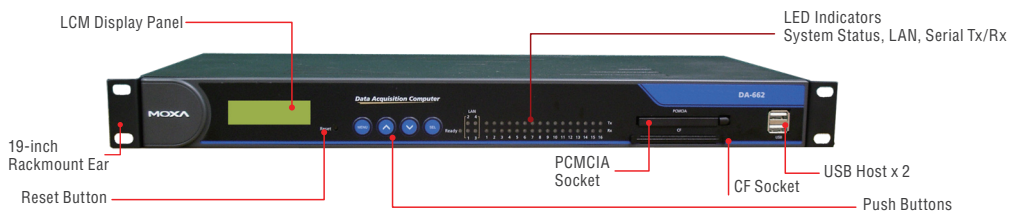
Model Name	RS-232/422/485 Serial Ports		Wired LAN		Wireless LAN	Memory Expansion	
	No. of Ports	Digital Isolation	10/100M	100BaseFX multi-mode	PCMCIA Socket	CompactFlash Socket	USB
DA-660	8 or 16	–	2 ports	–	–	–	–
DA-661	16	–	2 ports	–	✓	✓	2 ports
DA-662	16	–	4 ports	–	✓	✓	2 ports
DA-662-I	16	2 KV per port	4 ports	–	✓	✓	2 ports

Appearance

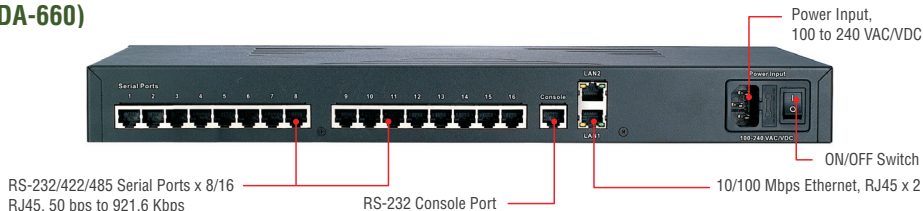
Front View (DA-660)



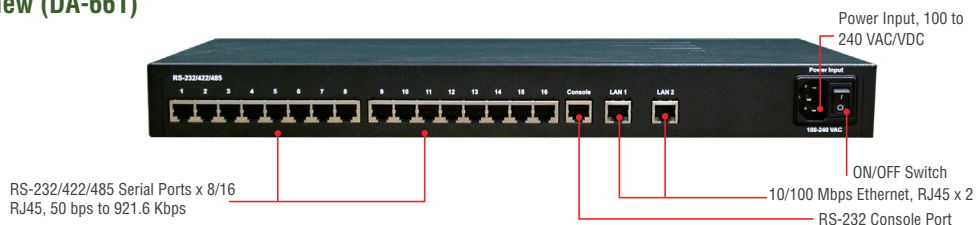
Front View (DA-661/662/662-I)



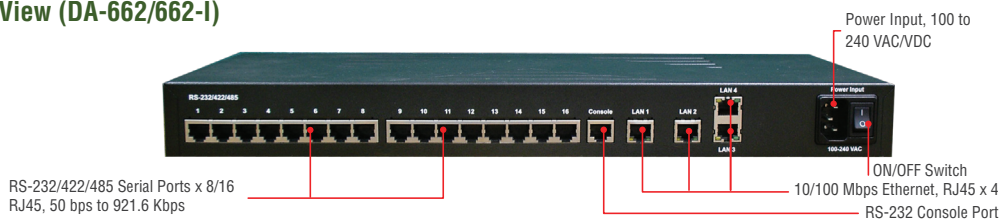
Rear View (DA-660)



Rear View (DA-661)



Rear View (DA-662/662-I)



Hardware Specifications

Computer

CPU:

DA-660: Intel XScale IXP422 266 MHz

DA-661/662/662-I: IXP425 533 MHz

OS (pre-installed): Embedded Linux or Windows CE 5.0

DRAM: 128 MB onboard

Flash: 32 MB onboard

PCMCIA: Cardbus card and 16-bit PCMCIA 2.1 or JEIDA 4.2 card (DA-661/662/662-I only)

Storage

Storage Expansion: CompactFlash Socket (DA-661/662/662-I only)

Ethernet Interface

LAN: 2 or 4 auto-sensing 10/100 Mbps ports (RJ45)

Magnetic Isolation Protection: 1.5 KV built-in

Serial Interface

Serial Standards: 8 or 16 RS-232/422/485 ports, software selectable (8-pin RJ45)

ESD Protection: 15 KV for all signals

Isolation: 2 KV digital isolation (DA-662-I only)

Console Port: RS-232 (all signals), RJ45 connector, supports PPP

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF, ADCC® (automatic data direction control) for RS-485

Baudrate: 50 bps to 921.6 Kbps (supports non-standard baudrates; see user's manual for details)

Serial Signals

RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND

RS-422: TxD+, TxD-, RxD+, RxD-, GND

RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND

RS-485-2w: Data+, Data-, GND

LEDs

System: OS Ready

LAN:

DA-660/661: 10/100M x 2

DA-662/662-I: 10/100M x 4

Serial: TxD, RxD (8 or 16 of each)

Mini Screen with Push Buttons

LCD Panel: Liquid Crystal Display on the case, 2 x 16 text mode

Push Buttons: Four membrane buttons for convenient on-site configuration

Physical Characteristics

Housing: SECC sheet metal (1 mm)

Weight:

DA-660/661/662: 2.6 kg

DA-662-I: 2.94 kg

Dimensions:

DA-660/661/662:

Without ears: 440 x 45 x 198 mm (17.32 x 1.77 x 7.80 in)

With ears: 480 x 45 x 198 mm (18.90 x 1.77 x 7.80 in)

DA-662-I:

Without ears: 440 x 45 x 228 mm (17.32 x 1.77 x 8.98 in)

With ears: 480 x 45 x 224 mm (18.90 x 1.77 x 8.82 in)

Mounting: Standard 19-inch rackmount

Environmental Limits

Operating Temperature: -10 to 60°C (14 to 140°F)

Storage Temperature: -20 to 80°C (-4 to 176°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Anti-vibration: 1 g @ IEC-68-2-6, sine wave (resonance search), 5-500 Hz, 1 Oct/min, 1 Cycle, 13 mins 17 sec per axis

Power Requirements

Input Voltage: 100 to 240 VAC/VDC auto ranging (47 to 63 Hz for AC input)

Power Consumption:

DA-660: 12 W

DA-661/662/662-I: 20 W

Standards and Certifications

Safety: UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1

EMC: EN 55022 Class A, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A

Green Product: RoHS, CRoHS, WEEE

Reliability

Alert Tools: Built-in buzzer and RTC (real-time clock)

Automatic Reboot Trigger: Built-in WDT (watchdog timer)

MTBF (mean time between failures):

DA-660: 124,323 hrs

DA-661: 89,885 hrs

DA-662: 85,193 hrs

DA-662-I: 85,193 hrs

Warranty

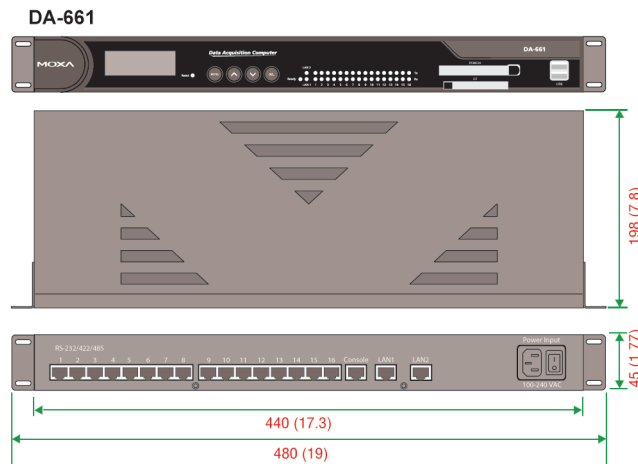
Warranty Period: 5 years

Details: See www.moxa.com/warranty

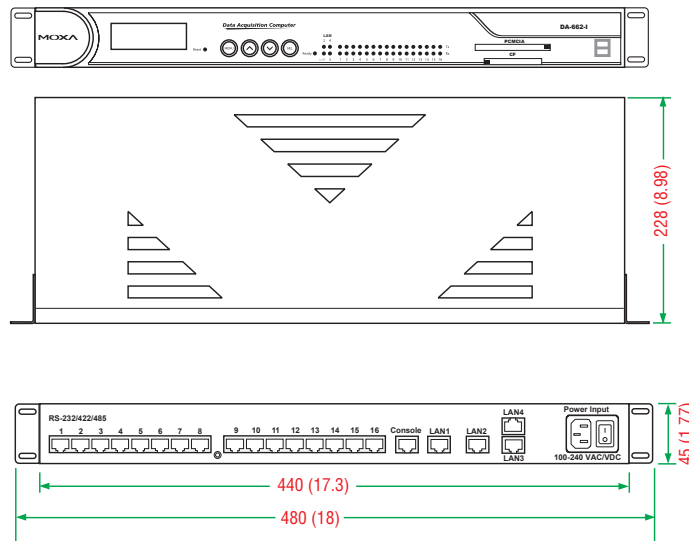
Dimensions

Unit: mm (inch)

DA-660/661/662



DA-662-I



: Software Specifications

Linux

OS:

DA-660: Linux 2.4.18

DA-661/662/662-I: Linux 2.6.10

File System: JFFS2 (on-board flash)

Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, SSH 1.0/2.0, SSL, DHCP, NTP, NFS, Telnet, FTP, TFTP, PPP, PPPoE

Terminal Security: OpenVPN, iptables firewall

Web Server (Apache): Allows you to create and manage web sites; supports PHP and XML

Terminal Server (SSH): Provides secure encrypted communications between two un-trusted hosts over an insecure network

Dial-up Networking: PPP Daemon for Linux that allows Unix machines to connect to the Internet through dialup lines, using the PPP protocol, as a PPP server or client. Works with 'chat', 'dip', and 'diald', among (many) others. Supports IP, TCP, UDP, and (for Linux) IPX (Novell).

File Server: Enables remote clients to access files and other resources over the network

Watchdog: Features a hardware function to trigger system reset in a user specified time interval (Moxa API provided)

Application Development Software:

- Moxa API Library (Watchdog timer, LCM, keypad, Moxa serial I/O control)
- GNU C/C++ cross-compiler
- GNU C library
- GDB source-level debugging server

Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

Windows Embedded CE 5.0

OS: Windows Embedded CE 5.0

File System: FAT (for on-board flash)

Internet Protocol Suite: TCP, UDP, IPv4, SNMPv2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SMTP, Telnet, FTP, PPP

Web Server (WinCE IIS): Supports ASP, ISAPI Secure Socket Layer (SSL 2/3) and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions

Dial-up Networking: Supports RAS client API and PPP, Extensible Authentication Protocol (EAP), and RAS scripting

File Server: Enables remote clients to access files and other resources over the network (DA-662-I only)

Watchdog: Features a hardware function to trigger system reset in a user specified time interval. (Moxa API provided)

Application Development Software:

- Moxa WinCE 5.0 SDK
- Moxa API Library
- C Libraries and Run-times
- Component Services (COM and DCOM)
- Microsoft® .NET Compact Framework 2.0 with SP2
- XML, including DOM, XQL, XPATH, XSLT, SAX, SAX2
- SOAP Toolkit
- Winsock 2.2

: Ordering Information

Available Models

DA-660-8-LX: RISC-based 19-inch rackmount data acquisition computer with 8 serial ports, dual LANs, Linux OS

DA-660-8-CE: RISC-based 19-inch rackmount data acquisition computer with 8 serial ports, dual LANs, WinCE 5.0 OS

DA-660-16-LX: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, dual LANs, Linux OS

DA-660-16-CE: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, dual LANs, WinCE 5.0 OS

DA-661-16-LX: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, dual LANs, PCMCIA, CompactFlash, USB, Linux OS

DA-661-16-CE: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, dual LANs, PCMCIA, CompactFlash, USB, WinCE 5.0 OS

DA-662-16-LX: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, quad LANs, PCMCIA, CompactFlash, USB, Linux OS

DA-662-16-CE: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, quad LANs, PCMCIA, CompactFlash, USB, WinCE 5.0 OS

DA-662-I-16-LX: RISC-based 19-inch rackmount data acquisition computer with 16 digitally isolated serial ports, quad LANs, PCMCIA, CompactFlash, USB, Linux 2.6

DA-662-I-16-CE: RISC-based 19-inch rackmount data acquisition computer with 16 digitally isolated serial ports, quad LANs, PCMCIA, CompactFlash, USB, WinCE 5.0



Package Checklist

- DA-660 embedded computer
- 19-inch rackmount kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-RJ45F9-150: 8-pin RJ45 to DB9 female console port cable, 150 cm
- CBL-RJ45M9-150: 8-pin RJ45 to DB9 male serial port cable, 150 cm
- Power cord
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card