DA-662A Series

RISC 19-inch rackmount data acquisition computers with 8 to 16 serial ports, 4 Ethernet ports, USB

> MoxaMacro 500 MHz processor
> 128 MB RAM onboard, 32 MB flash
> 8 to 16 software-selectable RS-232/422/485 serial ports
> 8 to 16 jumper-configurable 1/150 kΩ pull low/high and 120 ohm termination resistors
> 15 kV ESD protection for all serial signals
> Quad 10/100 Mbps Ethernet ports
> USB and CF slots for storage expansion supported
> Standard 19-inch rackmount installation, 1U height
> Wide range of power input voltages from 100 to 240 VAC
> LCM display and keypad for HMI
> Ready-to-Run Linux OS platform
> Robust, fanless design
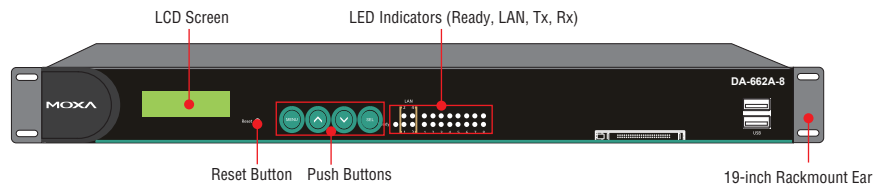> Isolated serial port protection models available

Overview

The DA-662A RISC-based, ready-to-run embedded computers are designed for industrial data acquisition applications. The computers have 8 to 16 RS-232/422/485 serial ports, 4 Ethernet ports, and 2 USB 2.0 ports, all based on the MoxaMacro communication processor. In addition, the DA-662A-I-8/16-LX's serial ports come with high level interference protection. The housing is a standard 1U, 19-inch wide rack-mounted rugged enclosure. The robust,
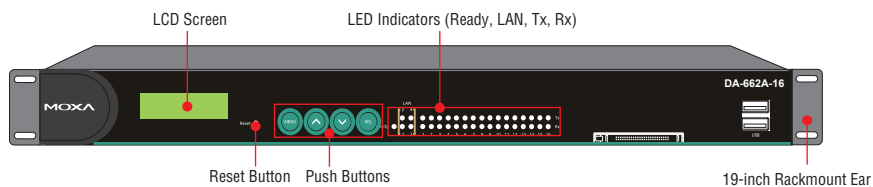
rack-mountable mechanism design provides the hardened protection needed for industrial environment applications, and makes it easy for users to install the DA-662A computers on a standard 19-inch rack. The DA-662A computers are ideal for applications that require a distributed embedded technology, such as SCADA systems, plant floor automation, and power electricity monitoring applications.
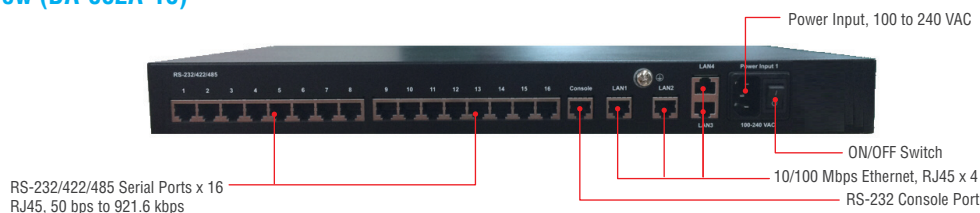
Appearance

Front View (DA-662A-8)

LCD Screen
LED Indicators (Ready, LAN, Tx, Rx)
DA-662A-8
Reset Button   Push Buttons
19-inch Rackmount Ear

Front View (DA-662A-16)

LCD Screen
LED Indicators (Ready, LAN, Tx, Rx)
DA-662A-16
Reset Button   Push Buttons
19-inch Rackmount Ear

Rear View (DA-662A-8)

Power Input, 100 to 240 VAC

ON/OFF Switch

10/100 Mbps Ethernet, RJ45 x 2

RS-232/422/485 Serial Ports x 8
RJ45, 50 bps to 921.6 kbps

RS-232 Console Port

Rear View (DA-662A-16)

Power Input, 100 to 240 VAC

ON/OFF Switch

10/100 Mbps Ethernet, RJ45 x 4

RS-232 Console Port

RS-232/422/485 Serial Ports x 16
RJ45, 50 bps to 921.6 kbps

⋮ Hardware Specifications

Computer
CPU: MoxaMacro 500 MHz
OS: Embedded Linux (pre-installed)
DRAM: 128 MB onboard
Flash: 32 MB onboard

Ethernet Interface
LAN: 4 auto-sensing 10/100 Mbps ports (RJ45)
Magnetic Isolation Protection: 1.5 kV built-in

Serial Interface
Serial Standards: 8 to 16 RS-232/422/485 ports, software selectable (8-pin RJ45)
ESD Protection: 8 kV contact, 15 kV Air ESD protection for all signals
Surge Protection: 2 kV line-to-line and 4 kV line-to-ground surge protection, 8/20 μs waveform (DA-662A-I-8/16-LX only)
Insulation: 500 V (DA-662A-I-8/16-LX only)
Isolation: 2 kV digital isolation (DA-662A-I-8/16-LX only)
Termination Resistor: 120 ohm, jumper selectable
Console Port: RS-232 (all signals), RJ45 connector

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, ADDC® (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 (DA-662A-I-8/16-LX only: TxD, RxD, RTS, CTS, 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: 10/100M x 4
Serial: TxD, RxD (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: 4.3 kg
Dimensions:
Without ears: 440 x 45 x 237 mm (17.32 x 1.77 x 9.33 in)
With ears: 480 x 45 x 237 mm (18.90 x 1.77 x 9.33 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 auto ranging (47 to 63 Hz for AC input)
Power Consumption: 20 W

Standards and Certifications
Safety: UL 60950-1
EMC:
EN 55022/24
CISPR 22, FCC Part 15B Class A
IEC 61000-4-2 ESD: Contact 8 kV; Air 15 kV
IEC 61000-4-3 RS: 3 V/m (80 MHz to 1 GHz)
IEC 61000-4-4 EFT: Power 1 kV; Signal 0.5 kV
IEC 61000-4-5 Surge: Power 2 kV; Signal 4 kV
IEC 61000-4-6 CS: 3 V
IEC 61000-4-8
IEC 61000-4-11
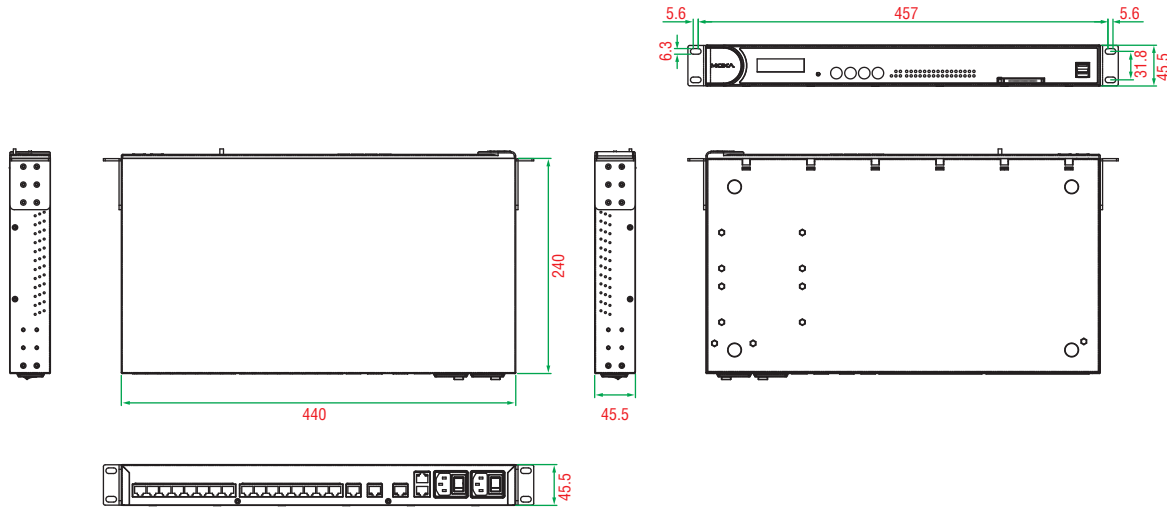**Green Product:** RoHS, CRoHS, WEEE

Reliability
Alert Tools: Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
MTBF (mean time between failures):
125,733 hrs

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

Software Specifications

Linux

OS: Linux 2.6.38.8
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, SNMP v1/v2, SSL, OpenVPN
Internet Security: 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

Ordering Information

Available Models

DA-662A-8-LX: RISC-based 19-inch rackmount data acquisition computer with 8 serial ports, quad LANs, USB, Linux OS
DA-662A-16-LX: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, quad LANs, USB, Linux OS
DA-662A-16-DP-LX: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports, quad LANs, USB, Linux OS, dual power inputs
DA-662A-I-8-LX: RISC-based 19-inch rackmount data acquisition computer with 8 serial ports (isolation protection), quad LANs, USB, Linux OS
DA-662A-I-16-LX: RISC-based 19-inch rackmount data acquisition computer with 16 serial ports (isolation protection), quad LANs, USB, Linux OS

Package Checklist

• DA-662A 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
• 6 jumper caps
• Documentation and software CD
• Quick installation guide (printed)
• Warranty card

Model Name	RS-232/422/485 Serial Port	RS-485 2-wire Serial Port only	10/100 Mbps LAN Port	Storage Expansion	Serial port protection
DA-662A-8-LX	8	–	4	2 USB ports, CF slot	15 kV Air ESD protection
DA-662A-16-LX	16	–	4	2 USB ports, CF slot	15 kV Air ESD protection
DA-662A-16-DP-LX	16	–	4	2 USB ports, CF slot	15 kV Air ESD protection
DA-662A-I-8-LX	4	4	4	2 USB ports, CF slot	Isolation: 2 kV digital isolation ESD Protection: 8 kV contact, 15 kV Air ESD protection Surge Protection: 2 kV line-to-line and 4 kV line-to-ground surge protection, 8/20 μs
DA-662A-I-16-LX	4	12	4	2 USB ports, CF slot	Isolation: 2 kV digital isolation ESD Protection: 8 kV contact, 15 kV Air ESD protection Surge Protection: 2 kV line-to-line and 4 kV line-to-ground surge protection, 8/20 μs

⋮ Accessories (can be purchased separately)

Model	Description
PWC-C13US-3B-183 10A/125V	North American type power supply cord
PWC-C13EU-3B-183 10A/250V	European type power supply cord
PWC-C13CN-3B-183 10A/250V	China type power supply cord
PWC-C13UK-3B-183 10A/250V	British type power supply cord
PWC-C13AU-3B-183 10A/250V	Australia type power supply cord