

IA240 Series

▶ Award-winning Product



RISC-embedded computers with 4 serial ports, 4 DI and 4 DO channels, dual LANs, PCMCIA, SD



- > MOXA ART 32-bit ARM9 industrial processor
- > 64 MB RAM, 16 MB flash onboard
- > 4 RS-232/422/485 serial ports
- > 4 digital input and 4 digital output channels (TTL signal)
- > Dual 10/100 Mbps Ethernet for network redundancy
- > SD socket for storage expansion
- > Ready-to-run Linux Kernel 2.6 platform
- > Unique patented Software Encryption Lock
- > Installation options: DIN-rail, wall-mount (with accessory)
- > Robust, fanless design, IP30 protection mechanism
- > -40 to 75°C wide-temperature models available



Overview

The IA240 embedded computers are designed for industrial automation applications. The computers feature 4 RS-232/422/485 serial ports, dual LANs, 4 digital input channels, 4 digital output channels, and a PCMCIA cardbus and SD socket in a compact, IP30-protected, industrial-strength rugged housing.

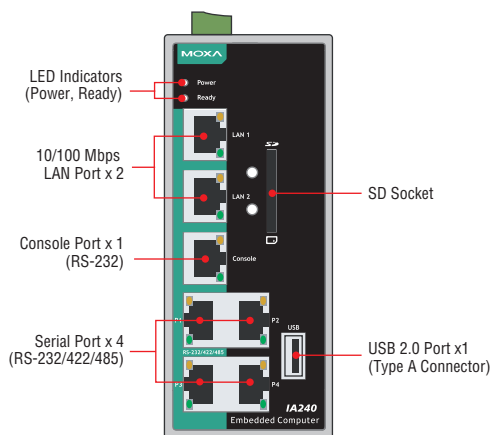
The IA240's vertical DIN-rail form factor makes it easy to install the computers in a small cabinet. This space-saving solution also facilitates easy wiring, making the IA240 a great choice as front-end embedded controllers for industrial applications.

Wide-temperature models of the IA240 are also available. The IA240-T can operate reliably in a temperature range from -40 to 75°C, making them appropriate for harsh industrial automation environments.

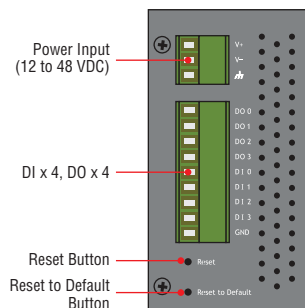
The industrial design of the IA240 provides a robust, reliable computing platform. Due to their RISC-based architecture, the IA240 computers will not generate a lot of heat, making them ideal for industrial automation environments.

Appearance

Front View



Top View



Hardware Specifications

Computer

CPU: MOXA ART ARM9 32-bit RISC CPU, 192 MHz

USB: USB 2.0 hosts x 1, type A connector

DRAM: DDR2 SDRAM, 64 MB

Flash: NOR Flash, 16 MB

OS (pre-installed): Embedded Linux

Storage

Storage Expansion: SD slot

Ethernet Interface

LAN: Auto-sensing 10/100 Mbps ports (RJ45) x 2

Magnetic Isolation Protection: 1.5 kV, built-in

Serial Interface

Serial Standards: RS-232/422/485 ports, software-selectable (8-pin RJ45) x 4

ESD Protection: 4 kV for all signals

Console Port: RS-232, 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, ADDC® (automatic data direction control) for RS-485

Baudrate: 50 bps to 921.6 kbps (supports nonstandard 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

Digital Input

Input Channels: DI x 4

Input Voltage:

Logic 0: 0-0.8 V

Logic 1: 2.0-5.5 V

Over-current Limit: -24 mA

Digital Output

Output Channels: DO x 4

Output Current: 24 mA

Output Voltage:

Logic 0: 0-0.55 V

Logic 1: 2.5-3.3 V

LEDs

System: Power, Ready, Storage

LAN: 10M/Link x 2, 100M/Link x 2 (on connector)

Serial: TxD x 4, RxD x 4 (on connector)

Switches and Buttons

Reset Button: Supports "Reset to Factory Default"

Physical Characteristics

Housing: SECC sheet metal (1 mm)

Weight:

430 g (0.96 lb)

Dimensions: 60 x 137 x 100 mm (2.36 x 5.39 x 3.94 in)

Mounting: DIN rail, wall

Environmental Limits

Operating Temperature:

Standard Models: -10 to 60°C (14 to 140°F)

Wide Temp. Models: -40 to 75°C (-40 to 167°F)

Storage Temperature:

Standard Models: -20 to 80°C (-4 to 176°F)

Wide Temp. Models: -40 to 85°C (-40 to 185°F)

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

Anti-Vibration: 1 Grms @ IEC-68-2-6, sine wave (resonance search), 5-500 Hz, 1 Oct/min, 1 cycle, 13 min 17 sec per axis

Power Requirements

Input Voltage: 12 to 48 VDC

Input Current:

• 300 mA @ 24 VDC

• 600 mA @ 12 VDC

Power Consumption: 7 W

Standards and Certifications

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

EMC: EN 55032 Class A, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV

IEC 61000-4-5 Surge: Power: 1 kV

IEC 61000-4-6 CS: Signal: 10 V/m

IEC 61000-4-8 1 A/m

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)

Time: 425,321 hrs

Standard: Telcordia (Bellcore) Standard

Warranty

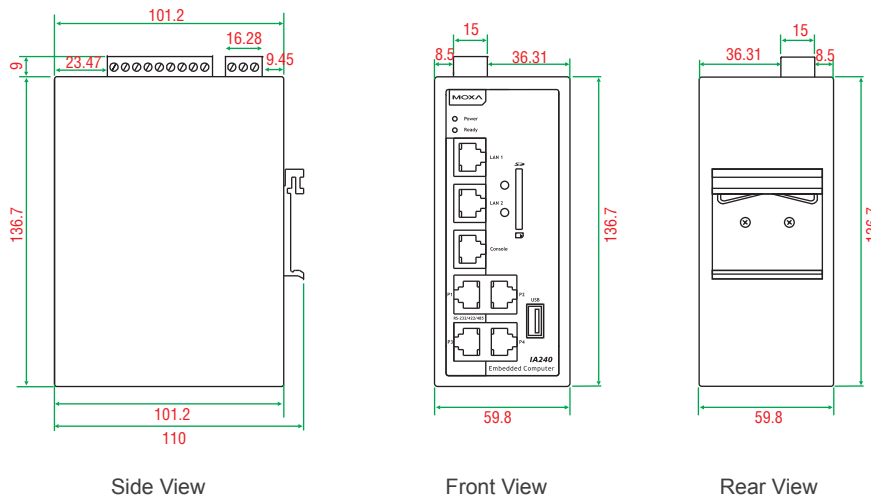
Warranty Period: 5 years

Details: See www.moxa.com/warranty

Note: The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adapter and cables.

Dimensions

Unit: mm (inch)



Software Specifications

Linux

OS: Linux 2.6.9

Web Server (Apache): Allows you to create and manage web sites

Terminal Server (SSH): Provides secure encrypted communications between two untrusted hosts over an unsecure network

File System: JFFS2

Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SMTP, Telnet, FTP, TFTP, PPP, PPPoE

Internet Security: OpenVPN, IPTables Firewall

Dial-up Networking: PPP Daemon (pppd) for Linux that uses the PPP protocol and allows Unix machines to connect to the Internet as PPP servers or clients, through dialup. The PPP Daemon works with chat, dip, and diald programs among others, and supports the IP, TCP, UDP, and IPX for Linux (Novell) protocols.

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, Moxa serial I/O control, Moxa DI/DO API)
- 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)

Ordering Information

Available Models

IA240-LX: RISC-based industrial computer with 4 serial ports, 4 DIs and 4 DO channels, dual LANs, SD, Linux OS, -10 to 60°C operating temperature

IA240-T-LX: RISC-based industrial computer with 4 serial ports, 4 DIs and 4 DO channels, dual LANs, SD, Linux OS, -40 to 75°C operating temperature

Package Checklist

- IA240 embedded computer
- Wall-mounting 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
- Universal power adapter (including terminal block to power jack converter)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card