

IA240/241 Series

RISC-based industrial 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
- > PCMCIA slot for wireless expansion (802.11b/g, GPRS/UMTS/HSDPA)
- > SD socket for storage expansion
- > Ready-to-run Linux Kernel 2.6 platform
- > Unique patented Software Encryption Lock
- > Installation options: DIN-rail, wallmount (with accessory)
- > Robust, fanless design, IP30 protection mechanism
- > -40 to 75°C wide temperature models available

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.



Overview

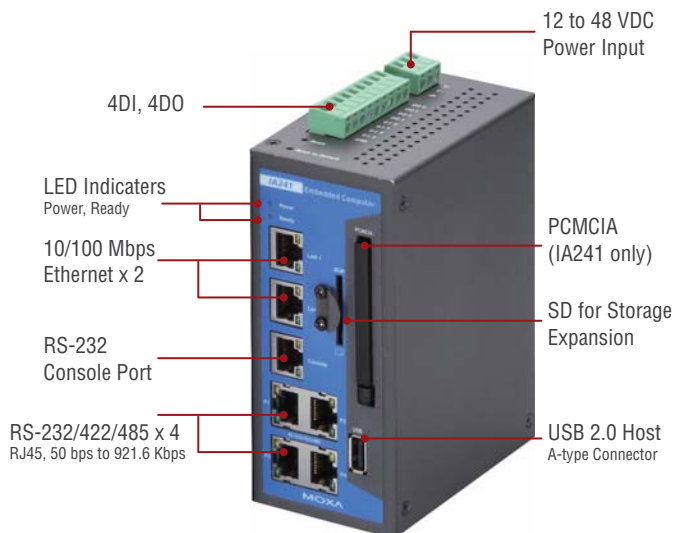
The IA240/241 embedded computers are designed for industrial automation applications. The computers feature 4 RS-232/422/485 serial ports, dual LANs, 4 digital input channels, 4 digital output channels, and a PCMCIA cardbus and SD socket in a compact, IP30 protected, industrial-strength rugged housing.

The IA240/241'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 IA240/241 a great choice as front-end embedded controllers for industrial applications.

Wide temperature models of the IA240/241 are also available. The IA240-T and IA241-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/IA241 provides a robust, reliable computing platform. Due to their RISC-based architecture, the IA240/IA241 computers will not generate a lot of heat, making them ideal for industrial automation environments.

Appearance



Hardware Specifications

Computer

CPU: MOXA ART ARM9 32-bit RISC CPU, 192 MHz
OS (pre-installed): Embedded Linux
DRAM: 64 MB onboard (128 MB for IA241 ODM)
Flash: 16 MB onboard (32 MB for IA241 ODM)
PCMCIA: Cardbus card and 16-bit PCMCIA 2.1, JEIDA 4.2 card (IA241 only)
USB: USB 2.0 host

Storage

Storage Expansion: SD slot

Ethernet Interface

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

Magnetic Isolation Protection: 1.5 KV built-in

Serial Interface

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

ESD Protection: 15 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 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

Digital Input

Input Channels: 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: 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: Aluminum (1 mm)

Weight:

IA240: 430 g

IA241: 500 g

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)

Operating Humidity: 5 to 95% RH

Storage Temperature:

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

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

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption: 7 W

• 300 mA @ 24 VDC

• 600 mA @ 12 VDC

Regulatory Approvals

EMC: CE (EN55022 Class A, EN61000-3-2 Class A, EN61000-3-3, EN55024), FCC (Part 15 Subpart B, CISPR 22 Class A)

Safety: UL/cUL (UL60950-1, CSA C22.2 No. 60950-1-03), TÜV (EN60950-1)

Reliability

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

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

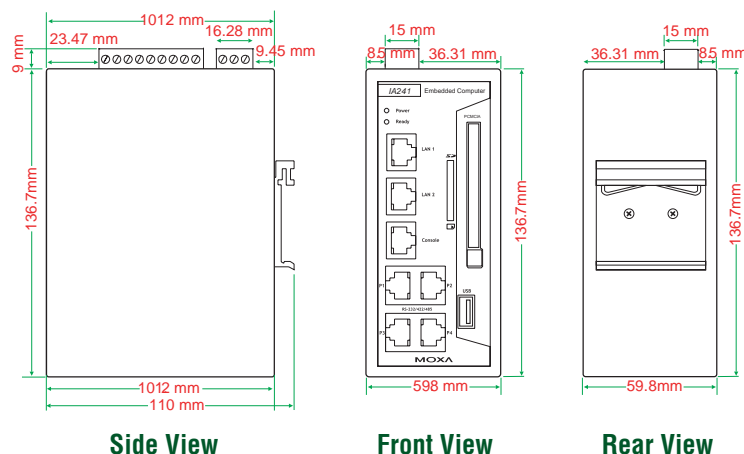
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

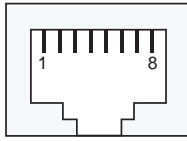
Note: The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adaptor and cables.

Dimensions



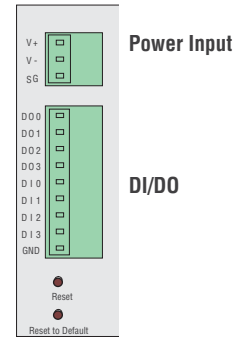
Pin Assignment

Serial Port,
RJ45 Connector



PIN	RS-232	RS-422	RS-485
1	DSR	---	---
2	RTS	TxD+	---
3	GND	GND	GND
4	TxD	TxD-	---
5	RxD	RxD+	Data+
6	DCD	RxD-	Data-
7	CTS	---	---
8	DTR	---	---

Terminal Block on Top



Software Specifications

Linux

Kernel Version: 2.6.9

Protocol Stack: TCP, UDP, IPv4, SNMP V1, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSH 1.0/2.0, SSL, DHCP, NTP, NFS, SMTP, Telnet, FTP, PPP, PPPoE

File System: JFFS2 (on-board flash)

System Utilities: bash, busybox, tinylogin, telnet, ftp, scp

telnetd: Telnet Server daemon

ftpd: FTP server daemon

sshd: Secure shell server

Apache: Web server daemon, supporting PHP and XML

openvpn: Virtual private network service manager

iptables: Firewall service manager

pppd: dial in/out over serial port daemon & PPPoE

snmpd: snmpd agent daemon

inetd: TCP server manager program

Application Development Software:

- Moxa Linux API Library for device control

- Linux Tool Chain: Gcc, Glibc, GDB

Software Encryption Lock:

BINEncryptor: Encryption tool for binary files (based on patented Moxa technology)

Ordering Information

Available Models

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

IA241-LX: RISC-based industrial computer with 4 serial ports, 4 DI and 4 DO channels, dual LANs, PCMCIA, SD, Linux OS, -10 to 60°C operating temperature

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

IA241-T-LX: RISC-based industrial computer with 4 serial ports, 4 DI and 4 DO channels, dual LANs, PCMCIA, SD, Linux OS, -40 to 75°C operating temperature

Package Checklist

- IA240 or IA241 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 adaptor (including terminal block to power jack converter) Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card