

# IA3341

**RISC-based embedded computer with 2 serial ports, 4 DIs, 4 DOs, 2 AIs, 2 thermocouples, dual LANs, SD, Linux**



- > MOXA ART 32-bit ARM 9 industrial processor
- > 64 MB RAM, 16 MB Flash onboard
- > 2 software selectable RS-232/422/485 serial ports
- > 50 bps to 921.6 kbps serial speed (non-standard baudrates supported)
- > 4 DIs and 4 DOs with 3 kV digital isolation protection
- > 2 AIs and 2 thermocouple inputs; sensor types J, K, T, E, R, S, B, N
- > Dual 10/100 Mbps Ethernet ports for network redundancy
- > SD socket for storage expansion
- > USB 2.0 host
- > Supports Modbus TCP library to retrieve AI and thermocouple data
- > Ready-to-run Linux Kernel 2.6 platform
- > DIN-Rail and wall mount installation
- > Robust, fanless design



## Overview

The IA3341, which is designed for solar power and environmental monitoring applications, is based on the MOXA ART ARM9 industrial processor, and features 2 RS-232/422/485 serial ports, dual LANs, 4 digital input channels, and 4 digital output channels. In addition, the IA3341 computer has 2 analog input channels and 2 thermocouple channels, making it the ideal solution for a variety of industrial applications.

By supporting multiple interfaces, the IA3341 can connect to different types of devices, making it particularly well-suited for solar power applications. Meters, sensors, and other devices can all connect easily to the IA3341, and with its powerful computing platform, the IA3341

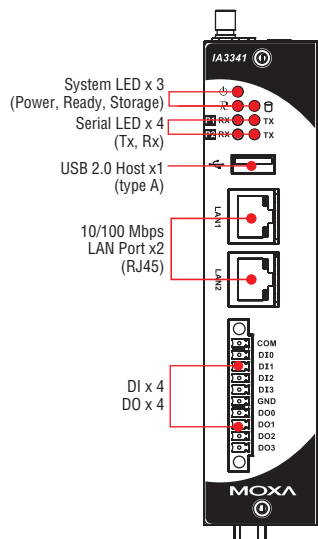
can be used as a front-end controller to perform industrial tasks, such as data acquisition, data computing, protocol conversion, and data analysis.

The industrial-grade design of the IA3341 provides a robust, reliable computer that can fit any industrial environment, and the open source Linux platform gives programmers a convenient tool for developing sophisticated, bug-free application software at a lower cost.

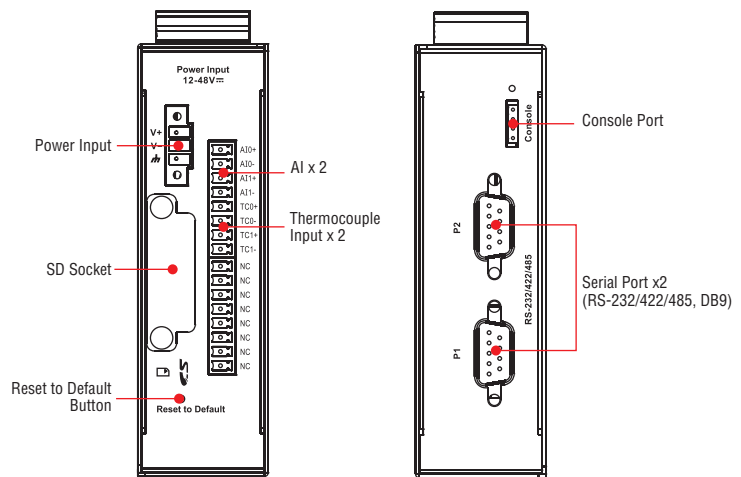
As an added plus, the IA3341 offers a Modbus TCP client library in C for Windows programmers. The library helps users to easily acquire AI and thermocouple data. This feature can efficiently accelerate remote device monitoring and data acquisition at a lower cost.

## Appearance

### Front View



### Top and Bottom Views



## Hardware Specifications

### Computer

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

**OS (pre-installed):** Embedded Linux

**DRAM:** 64 MB onboard

**Flash:** 16 MB onboard

**USB:** USB 2.0 host x 1 (type A connector)

### 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:** 2 RS-232/422/485 ports, software-selectable (DB9 male)

**ESD Protection:** 4 kV for all signals

**Console Port:** RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)

### 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, source type

**Input Voltage:** 0 to 30 VDC

**Digital Input Levels for Dry Contacts:**

- Logic level 0: Close to GND
- Logic level 1: Open

**Digital Input Levels for Wet Contacts:**

- Logic level 0: +2 V max.
- Logic level 1: +4 V to +30 V

**Connector Type:** 10-pin screw terminal block (4 points, COM, GND)

**Isolation:** 3 kV digital isolation

### Digital Output

**Output Channels:** 4, sink type, keeps output status after hot system reset

**Output Range:** 5 to 30 VDC at open collector to 30 V

**Max. Load:** 30 mA

**Power Dissipation:** 300 mW

**Connector Type:** 10-pin screw terminal block (4 points, GND)

**Isolation:** 3 kV digital isolation

### Analog Input

**Input Channels:** 2

**Resolution:** 16 bits

**I/O Mode:** Voltage/Current

**Input Range:** 0-10 V, 4-20 mA

**Accuracy:**

- ±0.1% FSR @ 25°C
- ±0.3% FSR @ 10°C and 60°C

**Sampling Rate:** 12 samples/sec

**Input Impedance:** 200k ohms

### Thermocouple Input

**Input Channels:** 2

**Sensor Types:** J, K, T, E, R, S, B, N

**Sampling Rate:** 12 samples/sec

**Resolution:** 16 bits

**Accuracy:**

- ±0.1% FSR @ 25°C
- ±0.3% FSR @ 10°C and 60°C

**Input Impedance:** 1M ohms

### LEDs

**System:** Power, Ready, Storage

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

**Serial:** TxD x 2, RxD x 2

**Reset Button:** Supports "Reset to Factory Default"

### Physical Characteristics

**Housing:** SECC sheet metal (1 mm)

**Weight:** 585 g

**Dimensions:** 116 x 35 x 146 mm (2.95 x 1.38 x 3.71 in)

**Mounting:** DIN-Rail, wall

### 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:** 2 g rms @ IEC 60068-2-34, random wave, 5-500 Hz, 1 hr per axis

**Anti-shock:** 20 g @ IEC 60068-2-27, half sine wave, 11 ms

### Power Requirements

**Input Voltage:** 12 to 48 VDC (3-pin terminal block, V+, V-, SG)

**Power Consumption:**

5 W (with no load on the USB port)

- 106 mA @ 48 VDC
- 191 mA @ 24 VDC
- 351 mA @ 12 VDC

8.5 W (with load on the USB port)

- 176 mA @ 48 VDC
- 330 mA @ 24 VDC
- 661 mA @ 12 VDC

### Standards and Certifications

**Safety:** UL 60950-1, EN 60950-1, CCC (GB4943, GB9254, GB17625.1)

**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):** 333,363 hrs

### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Software Specifications

### Linux

**OS:** Linux 2.6.9

**File System:** JFFS2 (for on-board flash)

**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

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

**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).

**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

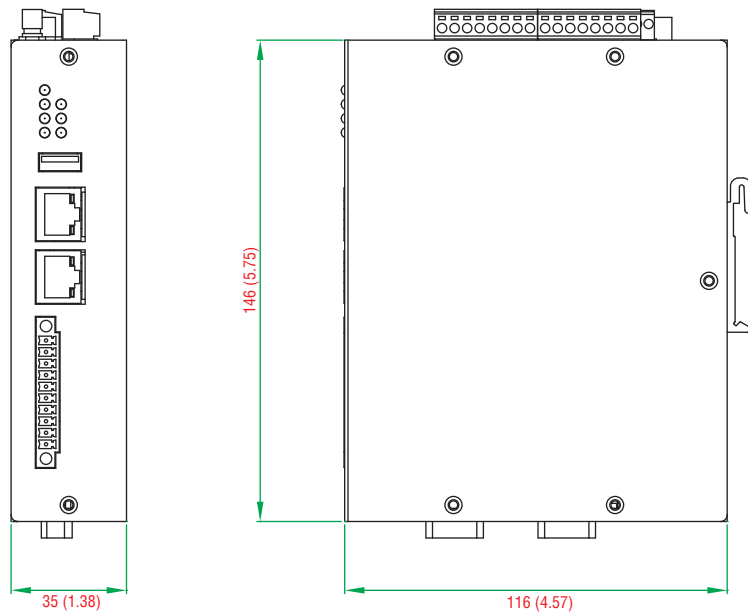
- GNU C library

- GDB source-level debugging server

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

## Dimensions

Unit: mm (inch)



## Ordering Information

### Available Models

**IA3341-LX:** RISC-based embedded computer with 2 serial ports, 4 DIs, 4 DOs, 2 AIs, 2 thermocouples, dual LANs, SD, Linux

### Package Checklist

- IA3341-LX embedded computer
- Wall mounting kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- Terminal block to power jack converter
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card