

# IA260 Series

**RISC-based computers with 4 serial ports, dual LANs, VGA, DIO, CompactFlash, USB**



- > Cirrus Logic EP9315 ARM9 CPU, 200 MHz
- > 128 MB RAM on-board, 32 MB flash disk
- > 4 software-selectable RS-232/422/485 serial ports
- > VGA interface for field site monitoring
- > Dual 10/100 Mbps Ethernet for network redundancy
- > 8+8 DI/DO channels, up to 30 VDC
- > 12 to 48 VDC power input design
- > Supports CompactFlash and USB 2.0 hosts
- > Ready-to-run Linux/WinCE 6.0 platform
- > H-type heat dissipation design for system reliability
- > -40 to 75°C wide operating temperature model 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 IA260 embedded computers come with 4 RS-232/422/485 serial ports, dual Ethernet ports, 8 digital input channels, 8 digital output channels, a VGA output, 2 USB hosts, and a CompactFlash socket. The computers are housed in a compact, IP40 protected, industrial-strength aluminum case.

The IA260 computers use the Cirrus Logic EP9315 ARM9, 32-bit, 200 MHz RISC CPU. This powerful computing engine supports several useful communication functions, but will not generate too much heat. The built-in 32 MB NOR Flash ROM and 128 MB SDRAM give you enough memory to run your application software directly on the IA260.

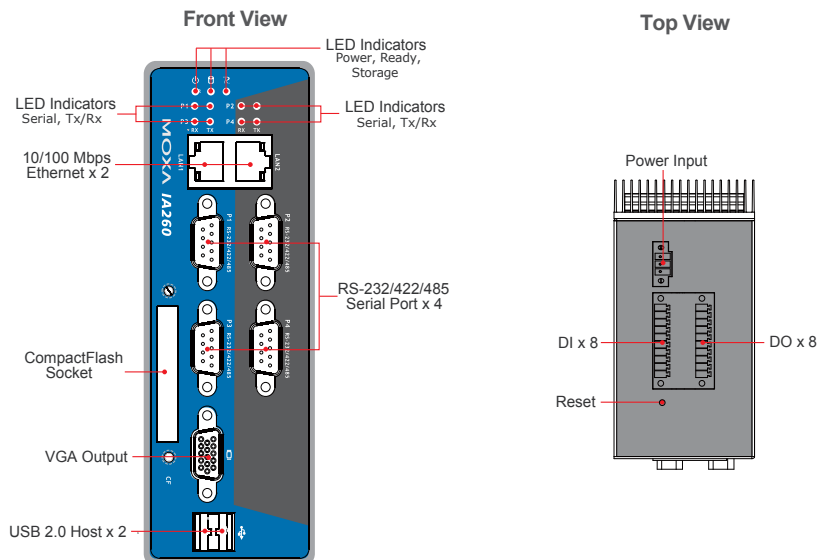
The patented "H-Type" heat dissipation design makes the IA260 an ideal computing unit for applications in extremely hot field sites, since it can directly transmit heat from inside the housing to the

air. With its built-in VGA output interface, the IA260 computers are suitable for use with SCADA systems in industrial applications, such as factory automation, production line process monitoring, and mining automation, that require VGA and HMI features.

The IA260 computers support RS-232/422/485, digital I/O, and have dual LAN ports, making them ideal as communication platforms for industrial applications that require network redundancy. In addition to the standard model, a wide temperature (-40 to 75°C) model is available for use in harsh industrial automation environments.

The IA260 embedded computers come pre-installed with either the open standard Linux OS, or the more common WinCE OS. Software written for a desktop PC can be easily ported to the IA260 platform by using a common compiler, without needing to modify the code, and the software you develop for your own applications can be stored in the IA260's flash memory.

## Appearance



## Hardware Specifications

### Computer

**CPU:** Cirrus EP9315 ARM9 CPU, 200 MHz  
**OS (pre-installed):** Windows CE 6.0 or Linux  
**DRAM:** 128 MB onboard (optional 256 MB)  
**Flash:** 32 MB onboard (optional 64 MB)  
**USB:** USB hosts x 2, compliant with USB 2.0 (OHCI) type A connectors

### Storage

**Storage Expansion:** CompactFlash slot

### Display

**Graphics Controller:** EP9315 internal graphics accelerator engine with TTL graphical signal support  
**Display Memory:** Dynamic video memory (shares system memory)  
**Display Interface:** CRT interface for VGA output, DB15 female connector  
**Resolution:** 1024 x 768, 8 bits

### 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 (DB9 male)  
**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:** 8, source type  
**Input Voltage:** 0 to 30 VDC at 5 KHz  
**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: +3 V max.
- Logic level 1: +10 V to +30 V (COM to DI)

**Connector Type:** 10-pin screw terminal block (8 points, COM, GND)

**Isolation:** 3 KV optical isolation

### Digital Output

**Output Channels:** 8, sink type  
**Output Current:** Max. 200 mA per channel  
**On-state Voltage:** 24 VDC nominal, open collector to 30 V  
**Connector Type:** 9-pin screw terminal block  
**Isolation:** 3 KV optical isolation

### LEDs

**System:** Power, Ready, Storage  
**LAN:** 10M/Link x 2, 100M/Link x 2 (on connector)  
**Serial:** TxD x 4, RxD x 4

### Switches and Buttons

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

### Physical Characteristics

**Housing:** Aluminum, industrial vertical form factor  
**Weight:** 1 kg  
**Dimensions:** 52 x 112.6 x 162 mm (2.05 x 4.43 x 6.38 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 (3-pin terminal block)

### Power Consumption:

With no load on USB ports: 5.8 W  
 • 240 mA @ 24 VDC  
 • 480 mA @ 12 VDC  
 With full load on USB ports: 11 W  
 • 450 mA @ 24 VDC  
 • 900 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), CCC (GB9254, GB 17625.1)

**Safety:** UL/cUL (UL60950-1, CSA C22.2 No. 60950-1-03), LVD (EN60950-1), CCC (GB4943)

### Reliability

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

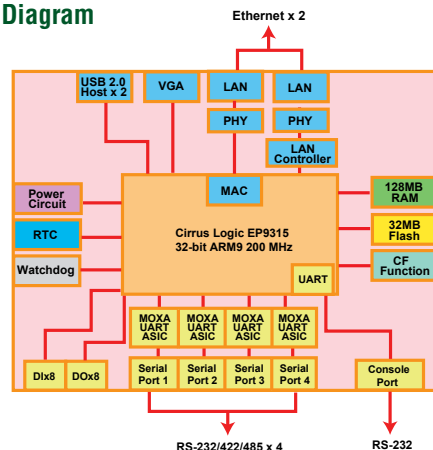
### Warranty

**Warranty Period:** 5 years

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

### H/W Block Diagram



## Software Specifications

### Linux

**Kernel Version:** 2.6.23

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

**File System:** JFFS2, NFS, Ext2, Ext3, VFAT/FAT

**System Utilities:** bash, tinylogin, telnet, ftp, smtpclient, scp

**telnetd:** telnet server daemon

**sshd:** secure shell server

**Apache:** web server daemon

**openvpn:** virtual private network

**pppd:** dial in/out over serial port daeon

**snmpd:** snmpd agent daeon

**inetd:** TCP server manager program

**openssl:** open SSL

**Linux Tool Chain:**

- GCC (V4.2.1): C/C++ PC Cross Compiler
- GDB (V5.3): Source level debug server
- Glibc (V2.2.5): POSIX standard C library

### Windows Embedded CE 6.0

**System Utilities:** Windows command shell, telnet, ftp, web-based administration manager

**File System:** FAT (on-board flash)

**Protocol Stack:** TCP, UDP, IPv4, SNMP V2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, Telnet, FTP, PPP

**Telnet Server:** Allows remote administration through a standard telnet client.

**FTP Server:** Used for transferring files to and from remote computer systems over a network.

**Web Server (httpd):** Includes ASP, ISAPI Secure Socket Layer support, SSL 2, SSL 3, Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions.

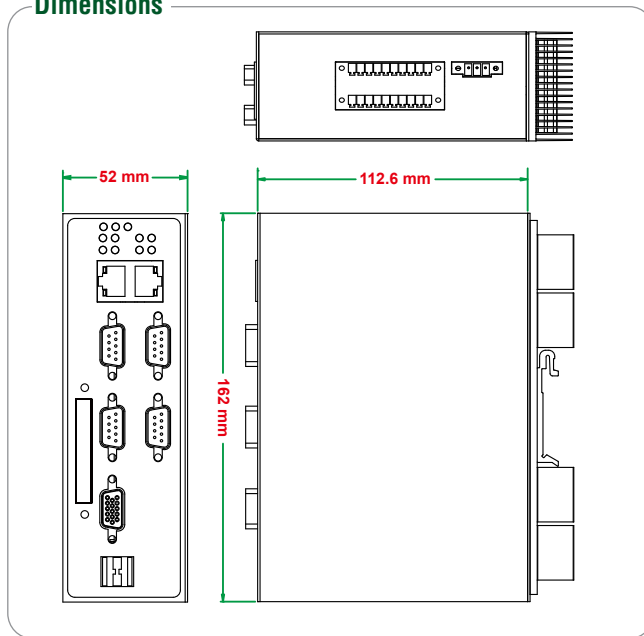
**Dial-up Networking Service:** RAS client API and PPP, supporting Extensible Authentication Protocol (EAP) and RAS scripting.

**Watchdog Server:** CPU hardware function for resetting the CPU in a user-specified time interval; activated by a Moxa library function

**Application Development Software:**

- Moxa WinCE 6.0 SDK
- 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
- SOAP Toolkit
- Winsock 2.2

### Dimensions



## Ordering Information

### Available Models

**IA260-CE:** RISC-based embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Win CE 6.0 OS, -10 to 60°C operating temperature

**IA260-LX:** RISC-based industrial embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Linux OS, -10 to 60°C operating temperature

**AVAILABLE SOON IA260-T-CE:** RISC-based embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Win CE 6.0 OS, -40 to 75°C operating temperature

**IA260-T-LX:** RISC-based industrial embedded computer with 4 serial ports, 8 DIs, 8 DOs, dual LANs, VGA, CompactFlash, USB, Linux OS, -40 to 75°C operating temperature

### Package Checklist

- IA260 or IA260-T computer
- Wall mounting kit
- DIN-Rail 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
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card