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› Moxa UC-8410A-LX Embedded Computer User Manual

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Moxa UC-8410A-LX Embedded Computer User Manual

Model: UC-8410A-LX

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Moxa UC-8410A-LX RISC Dual-core Embedded Computer. The UC-8410A-LX is an industrial-grade embedded computer designed for demanding applications, featuring a Cortex-A7 1 GHz dual-core processor, extensive I/O options, and wireless capabilities.

Please read this manual thoroughly before using the device to ensure proper and safe operation.

2. PRODUCT OVERVIEW

The Moxa UC-8410A-LX is a robust embedded computer engineered for industrial environments. It combines high performance with a rich set of connectivity options, making it suitable for various data acquisition, control, and communication tasks.



Figure 1: Front view of the Moxa UC-8410A-LX Embedded Computer, showing the USB port and eight serial ports.

Key Features:

- Cortex-A7 1 GHz Dual-core Processor
- 512 MB DDR3L RAM
- 8 Serial Ports (RS-232/422/485 configurable)
- 3 Ethernet LAN Ports
- 4 Digital Inputs (DIs) and 4 Digital Outputs (DOs)
- 1 USB Port
- 1 mSATA Slot for storage expansion
- 1 SD Slot with 1 GB card preinstalled
- Wireless-and-Security Enabled

- Operating System: Debian 8
- Wide operating temperature range: -10 to 60°C

3. SETUP AND INSTALLATION

3.1 Package Contents

Before proceeding with installation, verify that your package contains the following items:

- Moxa UC-8410A-LX Embedded Computer
- Power adapter (if included)
- Mounting kit (e.g., DIN-rail or wall-mount)
- Documentation CD or link to online resources
- Quick Installation Guide

If any items are missing or damaged, contact your vendor immediately.

3.2 Mounting the Device

The UC-8410A-LX supports both DIN-rail and wall mounting. Choose the appropriate method for your application.

3.2.1 DIN-Rail Mounting

1. Attach the DIN-rail mounting kit to the rear panel of the UC-8410A-LX using the provided screws.
2. Hook the top of the DIN-rail clip over the top edge of the DIN rail.
3. Push the device firmly downwards until the clip snaps into place on the rail.
4. Ensure the device is securely fastened.

3.2.2 Wall Mounting

1. Attach the wall-mounting plates to the side panels of the UC-8410A-LX using the provided screws.
2. Mark the desired mounting locations on the wall using the plates as a template.
3. Drill pilot holes at the marked locations.
4. Secure the device to the wall using appropriate screws for the wall material.

3.3 Connecting Peripherals

Refer to the port layout for connecting external devices.

- **Power Input:** Connect a 12-48 VDC power source to the terminal block. Ensure correct polarity.
- **Ethernet Ports (LAN1, LAN2, LAN3):** Use standard RJ45 Ethernet cables to connect to your network.
- **Serial Ports (P1-P8):** Connect serial devices using appropriate cables. These ports support RS-232/422/485. Configuration details are available in the software section.
- **USB Port:** Connect USB peripherals such as keyboards, mice, or storage devices.
- **Digital Inputs/Outputs (DIOs):** Connect industrial sensors or actuators to the DIO terminal block.
- **SD Card Slot:** The device comes with a 1 GB SD card preinstalled. Do not remove it during operation.
- **mSATA Slot:** For additional storage, an mSATA SSD can be installed internally. Refer to the hardware installation guide for detailed steps.

4. OPERATING INSTRUCTIONS

4.1 Powering On/Off

To power on the UC-8410A-LX, connect the power source to the terminal block. The system will boot automatically. To power off, ensure all operations are complete, then disconnect the power source. For controlled shutdown, use the operating system's shutdown procedure.

4.2 Initial Configuration

The UC-8410A-LX runs Debian 8. Access the system via a serial console or network connection (SSH).

- **Serial Console:** Connect a terminal emulator (e.g., PuTTY) to one of the serial ports (typically P1) with settings: 115200 bps, 8 data bits, no parity, 1 stop bit.
- **Network Access:** The device may obtain an IP address via DHCP by default. If not, or for static IP configuration, refer to the Debian network configuration documentation.

Default login credentials and initial setup steps are typically provided in the Quick Installation Guide or on the manufacturer's support website.

4.3 Software and Driver Installation

Drivers for the integrated peripherals are typically included with the Debian 8 operating system. For specific industrial protocols or custom applications, refer to Moxa's support website for additional software packages and development kits.

5. MAINTENANCE

5.1 Cleaning

Regularly clean the exterior of the device with a soft, dry cloth. Avoid using liquid cleaners or solvents, as they may damage the enclosure or internal components. Ensure the device is powered off before cleaning.

5.2 Firmware and Software Updates

Periodically check the Moxa support website for firmware and software updates. Keeping the system updated ensures optimal performance, security, and access to new features. Follow the provided instructions carefully when performing updates.

5.3 Environmental Considerations

Ensure the operating environment adheres to the specified temperature and humidity ranges (-10 to 60°C). Avoid exposing the device to excessive dust, moisture, or direct sunlight to prevent damage and ensure longevity.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	No power supply or incorrect connection.	Verify power cable connection and power source. Ensure correct voltage and polarity.
Cannot access the device via network.	Incorrect IP configuration, network cable issue, or firewall.	Check network cable. Verify IP address settings. Temporarily disable firewall for testing. Use serial console for initial network setup.
Serial ports not communicating.	Incorrect port settings, driver issues, or cable problems.	Verify baud rate, data bits, parity, and stop bits. Ensure correct cable wiring. Check serial port drivers in the OS.

Problem	Possible Cause	Solution
System performance is slow.	High CPU/RAM usage, insufficient storage, or background processes.	Monitor system resources. Optimize applications. Consider adding mSATA storage if needed.

If the problem persists after attempting these solutions, please contact Moxa technical support.

7. SPECIFICATIONS

Feature	Detail
Model	UC-8410A-LX
Processor	Cortex-A7 1 GHz Dual-core
RAM	512 MB DDR3L
Storage	1 GB SD card (preinstalled), 1 mSATA slot
Serial Ports	8 (RS-232/422/485 configurable)
Ethernet Ports	3 x 10/100 Mbps RJ45
Digital I/O	4 Digital Inputs, 4 Digital Outputs
USB Ports	1 x USB 2.0 Type-A
Wireless	Wireless-and-Security Enabled (specific modules may vary)
Operating System	Debian 8
Power Input	12-48 VDC (terminal block)
Operating Temperature	-10 to 60°C (14 to 140°F)
Dimensions (W x D x H)	<i>Refer to product datasheet for exact dimensions.</i>
Weight	12.99 pounds (approx. 5.89 kg)
Manufacturer	MOXA Inc.

8. WARRANTY INFORMATION

Moxa products are covered by a limited warranty. The specific terms and duration of the warranty may vary by region and product type. For detailed warranty information, please refer to the official Moxa website or the warranty card included with your product.

Typically, the warranty covers defects in materials and workmanship under normal use. It does not cover damage caused by improper installation, accident, abuse, misuse, natural disaster, or unauthorized modification.

To claim warranty service, you may need to provide proof of purchase and contact Moxa technical support or an authorized service center.

9. TECHNICAL SUPPORT

For technical assistance, product documentation, driver downloads, and FAQs, please visit the official Moxa support website:

www.moxa.com/support

When contacting support, please have your product model (UC-8410A-LX) and serial number ready to expedite service.

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Example: How do I reset this device or fix this error?

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