

# UC-7101/7110/7112 Series

**RISC ready-to-run embedded computers with 1 or 2 serial ports, dual LANs, SD**



- > MOXA ART ARM9 32-bit 192 MHz processor
- > 16 or 32 MB RAM
- > 8 or 16 MB Flash ROM
- > Dual or single 10/100 Mbps Ethernet for network redundancy
- > 1 or 2 software-selectable RS-232/422/485 ports
- > 50 bps to 921.6 Kbps baudrate (non-standard baudrates supported)
- > SD socket for storage expansion
- > Built-in real-time clock (RTC) and buzzer
- > Pre-installed Linux Kernel 2.6 platform
- > -40 to 75°C wide temperature models available



## Overview

The UC-7101/UC-7110/UC-7112 mini RISC-based communication platforms are ideal for embedded applications. The computers come with 1 or 2 RS-232/422/485 serial ports and single or dual 10/100 Mbps Ethernet LAN ports to provide users with a versatile communication platform.

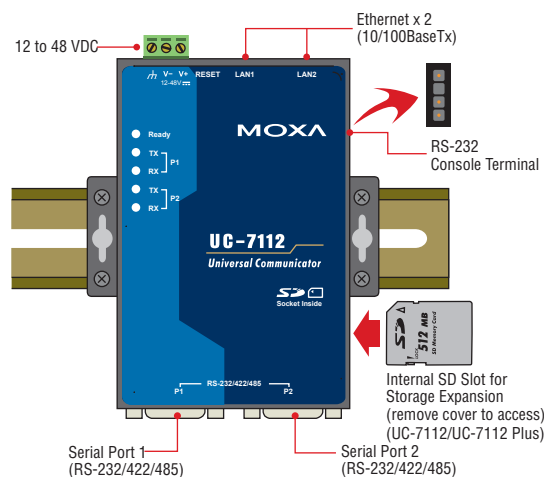
The UC-7101/UC-7110/UC-7112 use the ARM9 RISC CPU. Its design architecture and modern semiconductor technology provide the CPU with a powerful computing engine and communication functions, but without generating too much heat. The built-in 8 or 16 MB NOR Flash ROM and 16 or 32 MB SDRAM provide plenty of storage, and the SD socket (UC-7101 and UC-7112 only) provide users with flexible storage expansion to run applications that generate a lot of data. The dual or single LAN ports built into the ARM9 make the UC-

7101/7110/UC-7112 computers ideal communication platforms for data acquisition and protocol conversion applications, and the 1 or 2 RS-232/422/485 serial ports allow you to connect a variety of serial devices.

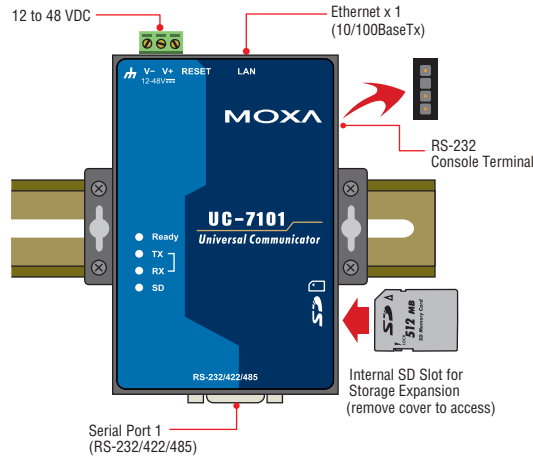
The pre-installed  $\mu$ Linux or Linux operating system provides an open platform for software development. This means that software written for desktop PCs can be easily ported to a UC-7101, UC-7110 or UC-7112 embedded computer with a GNU cross compiler, eliminating the need to spend time modifying existing code. The operating system, device drivers, and your own software can all be stored in the UC-7101/UC-7110/UC-7112's flash memory.

## Appearance

### UC-7110/UC-7112



## UC-7101



## Hardware Specifications

### Computer

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

**OS (pre-installed):** µClinux or Linux

### DRAM:

UC-7101/7110/7112: 16 MB

UC-7112 Plus: 32 MB onboard

### Flash:

UC-7101/7110/7112: 8 MB onboard

UC-7112 Plus: 16 MB onboard

### Storage

**Storage Expansion:** SD slot (UC-7101, UC-7112, and UC-7112 Plus only)

### Ethernet Interface

**LAN:** Auto-sensing 10/100 Mbps (RJ45)

- UC-7101: 1 port
- UC-7110/7112/7112 Plus: 2 ports

**Magnetic Isolation Protection:** 1.5 KV built-in

### Serial Interface

**Serial Standards:** RS-232/422/485 software-selectable (DB9 male)

- UC-7101: 1 port
- UC-7110/7112: 2 ports

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

**Console Port:** RS-232 (TxD, RxD, GND)

- UC-7101: 4-pin pin header output
- UC-7110/7112: 3-wire pin-header

### 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

### LEDs

**System:** Ready

**LAN:** LED located on the RJ45 connector

- UC-7101: 10M/Link x 1, 100M/Link x 1
- UC-7110/7112: 10M/Link x 2, 100M/Link x 2

### Serial:

- UC-7101: TxD x 1, RxD x 1
- UC-7110/7112: TxD x 2, RxD x 2

### Physical Characteristics

**Housing:** Aluminum (1 mm)

### Weight:

- UC-7101: 130 g
- UC-7110/7112: 190 g

### Dimensions:

- UC-7101: 67 x 22 x 100.4 mm (2.64 x 0.87 x 3.95 in)
- UC-7110/7112: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 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 g @ IEC-68-2-6, sine wave (resonance search), 5-500 Hz, 1 Oct/min, 1 cycle, 13 min 17 sec per axis (UC-7101/7110 only)

### Power Requirements

**Input Voltage:** 12 to 48 VDC

**Power Consumption:** 4.5 W

- 170 mA @ 24 VDC
- 340 mA @ 12 VDC

### Standards and Certifications

#### Safety:

- UC-7101: UL 60950, CSA-C22.2 No. 60950-1, EN 60950-1
- UC-7110/7112: UL 60950-1, CSA C22.2 No. 60950-1-03, EN 60950-1

**EMC:** EN 55022 Class A, EN 61000-3-2 Class A, EN 61000-3-3, EN 55024, FCC Part 15 Subpart B Class A, DNV

**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):

- UC-7101: 514,973 hrs
- UC-7110: 149,414 hrs
- UC-7112: 148,990 hrs

### 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.

## Software Specifications

### Linux (UC-7112-LX Plus only)

**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

### µClinux

**Kernel Version:** 2.6.19

**Protocol Stack:** TCP, UDP, IPv4, SNMP V1, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SMTP, Telnet, FTP, PPP, PPPoE

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

**System Utilities:** msh, busybox, tinylogin, telnet, ftp

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

**snmpd:** snmpd agent daemon

**telnetd:** Telnet Server daemon

**inetd:** TCP server manager program

**ftpd:** FTP server daemon

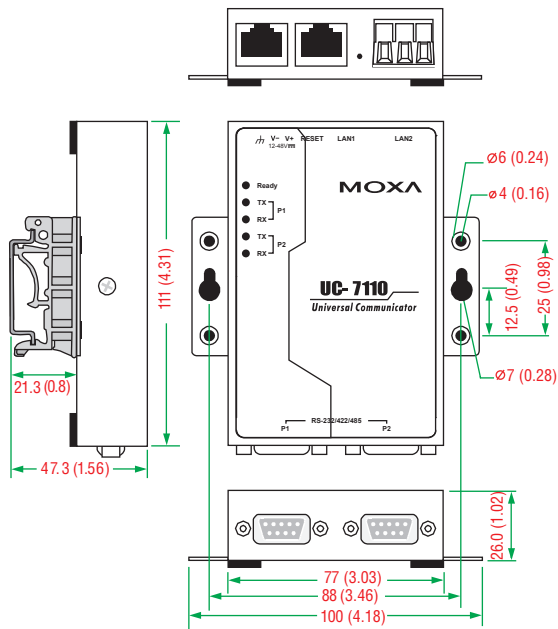
**boa:** Web server daemon

**Application Development Software:**

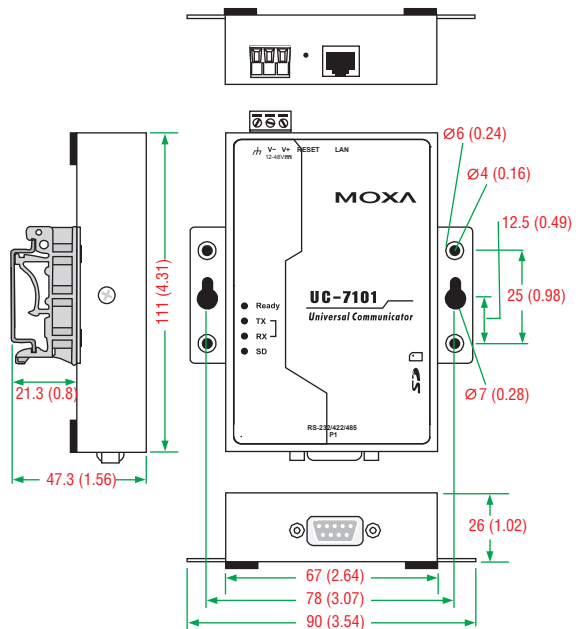
- Moxa Linux API Library for device control
- Linux Tool Chain:
- Arm-elf-gcc: C/C++ PC Cross Compiler
- µClibc: POSIX Standard Library

## Dimensions

### UC-7110/UC-7112



### UC-7101



Unit: mm (inch)

Model Name	Serial Ports	LAN Ports	Storage	OS		Wide Temp.
	RS-232/422/485	10/100 Mbps	SD	uClinux	Linux	
UC-7101	1	1	✓	✓	-	✓
UC-7110	2	2	-	✓	-	✓
UC-7112	2	2	✓	✓	✓	-

## : Ordering Information

### Available Models

**UC-7101-LX:** Mini RISC-based embedded computer with 1 serial port, LAN, µClinix OS, -10 to 60°C operating temperature

**UC-7110-LX:** Mini RISC-based embedded computer with 2 serial ports, dual LANs, µClinix OS, -10 to 60°C operating temperature

**UC-7112-LX:** Mini RISC-based embedded computer with 2 serial ports, dual LANs, SD, µClinix 2.6 OS, -10 to 60°C operating temperature

**UC-7112-LX Plus:** Mini RISC-based embedded computer with 2 serial ports, dual LANs, SD, Linux 2.6 OS, -10 to 60°C operating temperature

**UC-7101-T-LX:** Mini RISC-based embedded computer with 1 serial port, LAN, µClinix OS, -40 to 75°C operating temperature

**UC-7110-T-LX:** Mini RISC-based embedded computer with 2 serial ports, dual LANs, µClinix OS, -40 to 75°C operating temperature

### Package Checklist

- UC-7101 or UC-7110 or UC-7112 embedded computer
- 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
- Universal power adaptor (including terminal block to power jack converter)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card