MOXA®

UC-7408-CE
Quick Installation Guide

Second Edition, June 2008

1. Overview

MOXA UC-7408 features eight RS-232/422/485 serial ports, an 8-ch digital input, an 8-ch digital output, dual 10/100 Mbps Ethernet ports, PCMCIA, and a CompactFlash interface for wireless LAN communication and flash disk expansion, making UC-7408 ideal for embedded applications.

2. Package Checklist

Before installing UC-7408, verify that the package contains the following items:
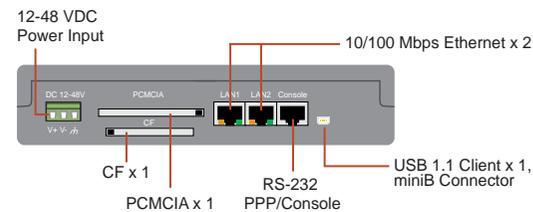
- 1 UC-7408
- Wall-Mounting Kit
- DIN-Rail Mounting Kit
- UC-7408 Quick Installation Guide (this guide)
- UC-7408 Documentation & Software CD
- Cross-over Ethernet cable
- CBL-RJ45M9-150: 150 cm, 8-pin RJ45 to Male DB9 serial port cable
- CBL-RJ45F9-150: 150 cm, 8-pin RJ45 to Female DB9 console port cable
- Universal Power Adaptor
- Product Warranty Statement

Please notify your sales representative if any of the above items are missing or damaged.
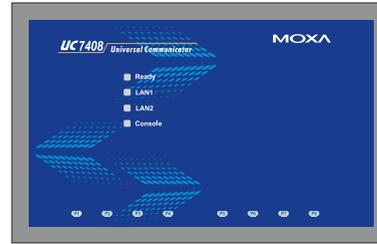
3. UC-7408 Panel Layout

NOTE: UC-7420 (shown in the figures) has a CF slot, PCMCIA slot, and two USB 2.0 Host ports (circled below). UC-7410 does NOT have these three features.
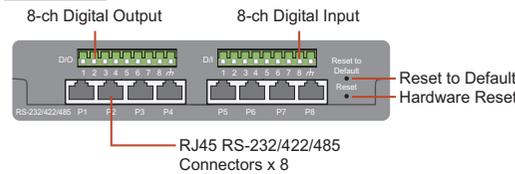
Rear View

12-48 VDC Power Input
10/100 Mbps Ethernet x 2
CF x 1
PCMCIA x 1
RS-232 PPP/Console
USB 1.1 Client x 1, miniB Connector

P/N: 1802074081011

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Top View

Front View

8-ch Digital Output
8-ch Digital Input
Reset to Default
Hardware Reset
RJ45 RS-232/422/485 Connectors x 8

4. Installing UC-7408
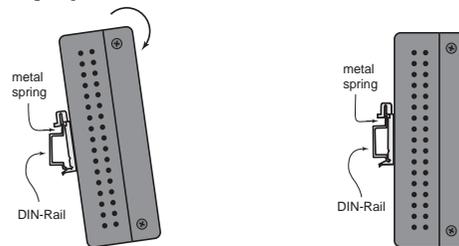
Wall or Cabinet

The two metal brackets included with UC-7408 can be used to attach it to a wall, or the inside of a cabinet. Using two screws per bracket, first attach the brackets to the bottom of the UC-7408. Next, use two screws per bracket to attach the UC-7408 to a wall or cabinet.

DIN-Rail Mounting

The aluminum DIN-Rail attachment plate is included in the package. To attach the plate to UC-7408, situate the stiff metal spring towards the top.

STEP 1: Insert the top of the DIN-rail into the slot just below the stiff metal spring.

STEP 2: The DIN-Rail attachment unit will snap into place as shown below.

metal spring
DIN-Rail
metal spring
DIN-Rail

To remove UC-7408 from the DIN-Rail, simply reverse Steps 1 and 2 above.

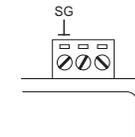## 5. Connector Description

Power Connector

Connect the 12-48 VDC power line to UC-7408's terminal block. If the power is properly supplied, the Ready LED will will show a solid green color when the OS is ready.

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Grounding UC-7408

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting the power.

ATTENTION

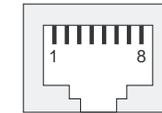This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

SG: The Shielded Ground (sometimes called Protected Ground) contact is the left most contact of the 3-pin power terminal block connector when viewed from the angle shown here. Connect the SG wire to an appropriate grounded metal surface.

Ethernet Ports

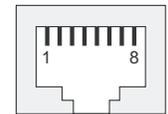The 10/100 Mbps Ethernet ports (LAN 1 and LAN 2) use RJ45 connectors.

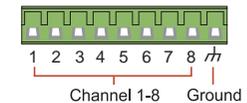| Pin	Signal
1	ETx+
2	ETx-
3	ERx+
6	ERx-

Serial Ports

The eight serial ports (P1 to P8) use RJ45 connectors. Each port can be configured by software for RS-232, RS-422, or RS-485. The pin assignments are shown in the following table:

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	---	---

D/I, D/O

The eight Digital Input channels and eight Digital Output channels use separate terminal blocks.

1 2 3 4 5 6 7 8
Channel 1-8   Ground

PCMCIA

The PCMCIA slot supports the CardBus (Card-32) Card standard and 16-bit (PCMCIA 2.1/JEIDA 4.2) Card standard. It supports +3.3V, +5V, and +12V at a working voltage of 120 mA.

CompactFlash

UC-7408 provides one CompactFlash slot that supports CompactFlash type I/II card expansion. Currently, MOXA provides a CompactFlash disk for plug & play expansion. You may also use flash disks available from most computer supply outlets. The CompactFlash will be mounted at

```
\> CFFolder
```

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Console Port

The console port is an RJ45 RS-232 port. It is designed for serial console, and can be connected to a V90 or GPRS modem via PPP. The pin definitions are the same as for the eight serial ports (P1 to P8).

Reset to Default Button

Press the "Reset to Default" button continuously for at least 5 seconds to load the factory default configuration. After the factory default configuration has been loaded, the system will reboot automatically. The Ready LED will blink on and off for the first 5 seconds, and then maintain a steady glow once the system has rebooted.

Reset Button

Press the "Reset" button to activate the hardware reset function. You should only use this function if the software does not function properly. To reset a system, you should reboot the operating system to avoid deleting important data.

USB

The USB 1.1 Client port is reserved for future enhancement.

Real Time Clock

UC-7408's real time clock is powered by a lithium battery. We strongly recommend that you do not replace the lithium battery without help from a qualified MOXA support engineer. If you need to change the battery, contact the Moxa RMA service team.

ATTENTION

There is a risk of explosion if the battery is replaced by an incorrect type.

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6. Powering on UC-7408

To power on UC-7408, connect the "terminal block to power jack converter" to the UC-7408's DC terminal block (located on the left back panel), and then connect the power adaptor. Note that the Shielded Ground wire should be connected to the right most pin of the terminal block. It takes about 30 seconds for the system to boot up. Once the system is ready, the Ready LED will light up, and UC-7408's network settings will appear on the LCM display.

7. Connecting UC-7408 to a PC

There are two ways to connect UC-7408 to a PC, through the serial console port or by Telnet over the network. The COM settings for the serial console port are: **Baudrate = 115200 bps, Parity = None, Data bits = 8, Stop bits = 1, Flow Control = None.**

ATTENTION

Remember to choose the "VT100" terminal type. Use the CBL-RJ45F9-150 cable included with the product to connect a PC to UC-7408's serial console.

To use Telnet you will need to know UC-7408's IP address and netmask. The default LAN settings are shown below. For first-time configuration, you may find it convenient to use a cross-over Ethernet cable to connect the PC directly to the UC-7408.

	Default IP Address	**Netmask**
LAN 1	192.168.3.127	255.255.255.0
LAN 2	192.168.4.127	255.255.255.0

Once the UC-7408 is powered on, the Ready LED will light up, and a login page will open. Use the following default Login name and Password to proceed.

Login: admin
Password: admin

8. Configuring the Network Setting

Normally, you are required to change the IP address of UC-7400-CE because it is located in a different local network from that of your development workstation. Use the *netconfig* utility to complete the task. Before using this utility, type *netconfig -h* to examine the usage of the command.

```
\> netconfig –h
Usage: netconfig -n <"LAN1" or "LAN2"> [-m <netmask>] [-d
<DNS server>] [-g <gateway>] [-i <IP address>]
```

For example, your development workstation has a LAN port at 192.168.1.x and the Domain Name Server (DNS) is at 192.168.2.6. Execute the following command.

```
\> netconfig –n LAN1 –i 192.168.1.5 –m 255.255.255.0 –g
192.168.1.254 –d 192.168.2.6
```

Type *netconfig* to view the new settings.

```
\> netconfig
LAN1 Interface Configuration:
IP Address: 192.168.1.5
SubNet Mask:  255.255.255.0
Gateway:  192.168.1.254
DNS:   192.168.2.6

LAN2 Interface Configuration:
IP Address: 192.168.4.127
SubNet Mask:  255.255.255.0
Gateway:
DNS:
```

9. Developing Your Application

Application development on the UC-7400-CE computer takes advantage of a number of well-known tools that are provided by the Windows environment in programmers' workstations. These tools are trouble-free to use for Windows programmers. Check the following development tools for Windows Embedded Application Development.

- **VB.NET/C#** Applications: Use **Visual Studio 2005**
- **VB.NET/C#** Applications: Use **Visual Studio .NET 2003**
- **C/C++** Applications: Use **eMbedded Visual C++ (eVC) 4.0**

Visual Studio 2005
You do not need to install additional packages.

Visual Studio .NET 2003
1. Install Visual Studio .NET 2003
2. Install Windows® CE Utilities for Visual Studio .NET 2003 Add-on Pack (550KB) for VB .NET
3. Import Compact .NET Framework SDK

eMbedded Visual C++ (eVC) 4.0
1. Install eMbedded Visual C++ 4.0 (230 MB)
2. Install Service Pack 4 for eVC 4.0 (68 MB)
3. Install MOXA Windows® CE 5.0 C/C++ SDKs

Developing applications with eVC 4.0 and MOXA SDKs
1. Open Microsoft® eMbedded Visual C++ 4.0.
2. From the **File** menu, choose **New**.
3. Choose the **Projects** tab and then select the type of application.
4. In the **Project name** box, type project name, then click **OK**.
5. Choose the application type you want to create and click **Finish**.
6. On the **Build** toolbar, choose the MOXA UC-7400-CE SDK, the type of run-time image (Release or Debug), and the UC-7400-CE device.
7. Write your application code.
8. From the **Build** menu, choose **Rebuild All** to build the application.
9. When you complete your application, use the web-based management system to upload it to the target computer.

Developing a VB.NET / C# application with .NET Compact Framework
1. Open Microsoft® Visual Studio .NET 2003.
2. From the **File** menu, choose **New → Project**.
3. Choose the **Project Type** and then select the **Smart Device Application** type of application.
4. In the **Project name** box, type a name for the project, and then click **OK**.
5. Choose the **Windows CE** target platform.
6. Select the project type and click **OK**.
7. Write your application code.
8. From the **Device** toolbar, choose Windows **CE.NET Device**.
9. From the **Build** menu, choose **Build Project** or **Rebuild Project**.
10. When you complete your application, use the web-based management system to upload it to the target computer.

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