MOXA®

UC-8410
Quick Installation Guide

1. Overview

The UC-8410 features 8 RS-232/422/485 serial ports, 3 10/100 Mbps Ethernet ports, 4 digital input and 4 digital output channels, and CompactFlash and USB ports for adding additional memory. All of these features make the UC-8410 ideal for your embedded applications.

2. Package Checklist

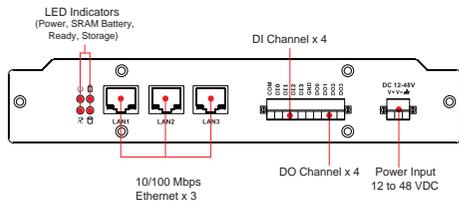Before installing the UC-8410, verify that the package contains the following items:

- 1 UC-8410 embedded computer
- Wall-Mounting Kit
- DIN-Rail Mounting Kit
- UC-8410 Quick Installation Guide (this guide)
- UC-8410 Document & Software CD
- Cross-over Ethernet cable
- CBL-RJ45M9-150: 150 cm, 8-pin RJ45 to DB9 male serial port cable
- CBL-4PINDB9F-150: 4-pin pin header to DB9 female console port cable, 150 cm
- Universal power adaptor (includes terminal block to power jack converter)
- Product Warranty Sheet

Note: Please notify your sales representative if any of the above items are missing or damaged.
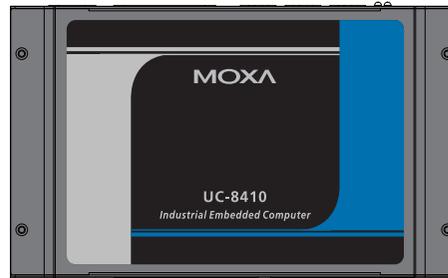
3. UC-8410 Panel Layout

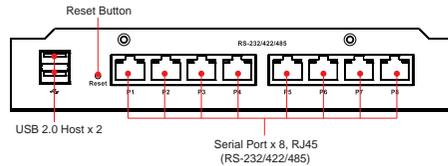Refer to the following figures for UC-8410 panel layout.

Rear View

LED Indicators
(Power, SRAM Battery, Ready, Storage)

DI Channel x 4

DC 12-48V
V+ V− ⏚

10/100 Mbps Ethernet x 3

DO Channel x 4

Power Input 12 to 48 VDC

P/N: 1802084000010

Top View

Front View

Reset Button

RS-232/422/485

USB 2.0 Host x 2

Serial Port x 8, RJ45
(RS-232/422/485)

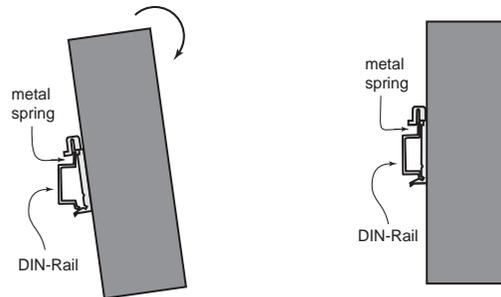## 4. Installing the UC-8410

Wall or Cabinet

The two metal brackets included with the UC-8410 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-8410. Next, use two screws per bracket to attach the UC-8410 to a wall or cabinet.

DIN-Rail Mounting

The aluminum DIN-Rail attachment plate is included in the package. To attach the plate to the UC-8410, 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 the UC-8410 from the DIN-Rail, reverse Steps 1 and 2 above.

5. Connector Description

Power Connector

Connect the 12-48 VDC power line to UC-8410's terminal block. If the power is properly supplied, the Ready LED will glow a steady green color when the OS is ready.
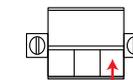
Grounding the UC-8410

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.
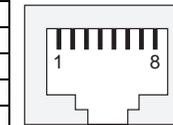

DC 12-48V
V+ V− ⏚

SG

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 Port

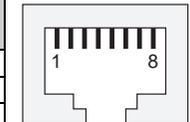The 2 10/100 Mbps Ethernet ports (LAN 1 and LAN 2) use RJ45 connectors.

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

Serial Port

The 8 serial ports (P1 to P8) use RJ45 connectors. Each port can be configured by software as RS-232, RS-422, or RS-485. The pin assignments are shown in the following table:

Pin	RS-232	RS-422/ RS-485-4W	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	---	---

CompactFlash

The UC-8410 provides one CompactFlash slot that supports CompactFlash type I/II card expansion. Currently, Moxa provides a CompactFlash card for storage expansion. Be sure of power off the computer before inserting or removing the CompactFlash card. The CompactFlash is be mounted at **/mnt/sda**.

Console Port

The serial console port is a 4-pin pin-header RS-232 port. It is used for the serial console terminal, which is useful for viewing boot-up messages. Use the CBL-4PINDB9F-100 cable included with the UC8410-LX to connect a PC to the UC-8410's serial console port.

Reset Button

Press the "Reset" 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.

USB

The USB 2.0 Host port now supports a USB storage device driver. The USB1.1 Client port is reserved for future enhancement.

Real Time Clock

The UC-8410'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 the UC-8410

To power on the UC-8410, connect the "terminal block to power jack converter" to the UC-8410's DC terminal block (located on the left rear 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 approximately 30 seconds for the system to boot up. Once the system is ready, the Ready LED will light up.

7. Connecting the UC-8410 to a PC

There are two ways to connect the UC-8410 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 the UC-8410's serial console port.

To use Telnet you will need to know the UC-8410'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 directly from the PC to the UC-8410.

	Default IP Address	Netmask
LAN 1	192.168.3.127	255.255.255.0
LAN 2	192.168.4.127	255.255.255.0
LAN 3	192.168.5.127	255.255.255.0

Once the UC-8410 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: root
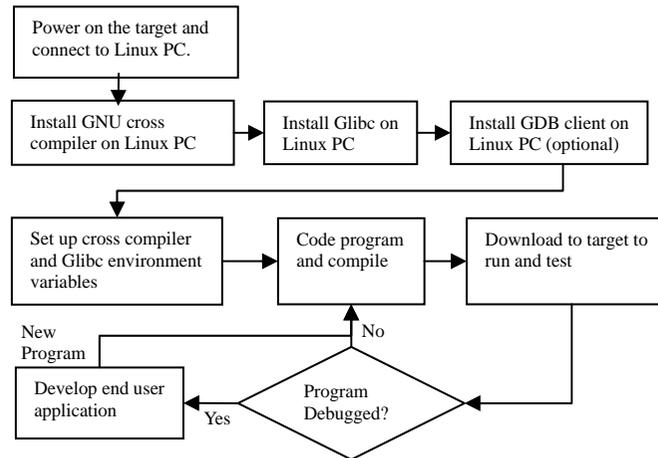**Password: root**

8. Configuring the Ethernet Interface

If you use the console cable for first-time configuration of the network settings, use the following commands to edit the **interfaces** file:

```
#ifdown –a
  //Disable LAN1/LAN2/LAN3 interface first, before you
  reconfigure the LAN settings. LAN 1 = eth0, LAN 2= eth1//
#vi /etc/network/interfaces
  //check the LAN interface first//
```

After the boot setting of the LAN interface has been modified, use the following command to activate the LAN settings immediately:
```
#sync ; ifup –a
```

NOTE: Refer to the UC-8410 User's Manual for additional configuration information.

9. Developing Your Application

10. Installing the UC-8410 Tool Chain

The PC must have the Linux operating system pre-installed to install the UC-8410 GNU Tool Chain. Redhat 7.3/8.0, or Linux Kernel 2.4.18 and compatible versions are recommended. The Tool Chain will use about 400 MB of your PC's hard disk space. Use the following command to install the Tool Chain from the UC-8410 CD:

```
#mount /dev/cdrom /mnt/cdrom
#sh /mnt/cdrom/tool-chain/linux/arm-linux_2.0.sh
```

The Tool Chain will be installed on your PC automatically.

11. Compiling and Running Hello.c

The path to the Tool Chain is:
```
PATH=/usr/local/arm-linux/bin:$PATH
```

The UC-8410 CD also includes several example programs. Here we use **Hello.c** as an example to show you how to compile and run your applications. Type the following commands on your PC:

```
# cd /tmp/
# mkdir example
# cp –r /mnt/cdrom/example/* /tmp/example
```

Next, go to the **Hello** subdirectory and type the following command:
```
#make
```
to finish compiling **Hello.c**.

Finally, run the executable file that was created to generate **hello-release** and **hello-debug**.