UC-7408 Series

RISC-based data acquisition computers with 8 serial ports, 8 DI/DO channels, dual LANs, PCMCIA, CompactFlash

-40°C | 75°C

> Intel XScale IXP422/425, 266/533 MHz processor
> 128 MB RAM on-board, 32 MB flash disk
> 8 RS-232/422/485 serial ports
> 8-ch digital input and 8-ch digital output (TTL Signal)
> Dual 10/100 Mbps Ethernet for network redundancy
> CompactFlash socket for storage expansion
> PCMCIA supporting WLAN, GPRS, UMTS, HSDPA
> Ready-to-run Linux or WinCE 5.0 platform
> DIN-rail or wallmount installation
> Robust, fanless design
> -40 to 75°C wide temperature models 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.

Microsoft® Windows® Embedded   RoHS   DNV   CE   FC   c UL us LISTED   TÜV Rheinland Product Safety   BAUART GEPRÜFT TYPE APPROVED

⦂ Overview

The UC-7408 data acquisition embedded computers feature 8 RS-232/422/485 serial ports, an 8-ch digital input and 8-ch digital output, dual 10/100 Mbps ports, a PCMCIA interface for wireless LAN communication, and CompactFlash slot for mass storage disk expansion.
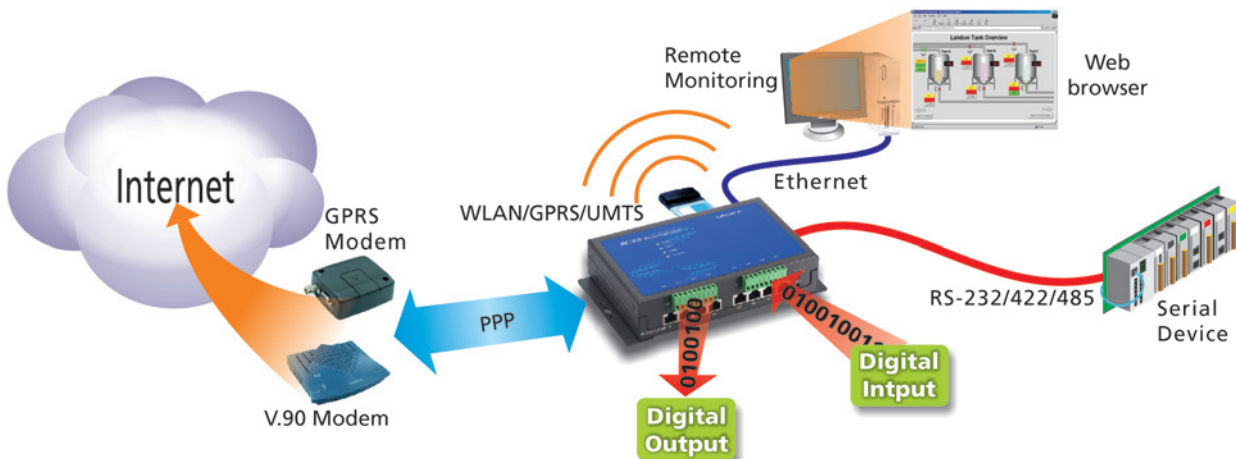
The digital I/O feature of the UC-7408 series provides users with the convenience of connecting digital devices to a front-end embedded computer. The UC-7408 can be used for on/off event handling by reading the state change of the digital input signal. In addition, output signals from external digital devices can be imported through the UC-7408's digital input channels, and the UC-7408 can be programmed to take immediate action when it detects a change in the state of the signal.

The digital output channels on the UC-7408 can connect to devices and trigger digital output signals to control external digital devices. With the digital I/O feature, Moxa's embedded computers support both data acquisition and protocol conversion through the RS-232/422/485 serial ports, and simple I/O control with the digital I/O signals.

UC-7408 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 UC-7408 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 UC-7408's flash memory.

In addition to the standard model, a wide temperature (-40 to 75°C) model of the UC-7408 is available for use in harsh industrial environments.
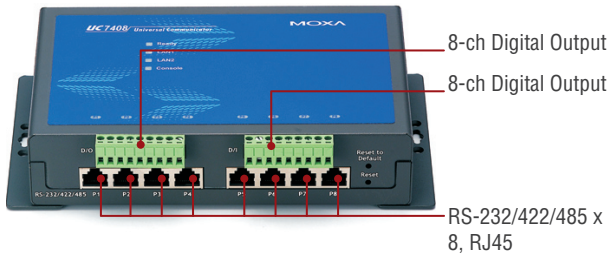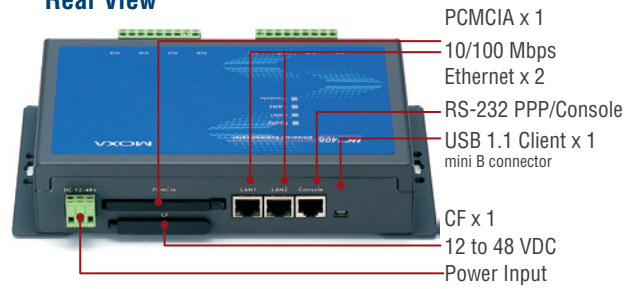
⦂ Typical Application

MOXA®   www.moxa.com   info@moxa.com

: Appearance

Front View

- 8-ch Digital Output
- 8-ch Digital Output
- RS-232/422/485 x 8, RJ45

Rear View

- PCMCIA x 1
- 10/100 Mbps Ethernet x 2
- RS-232 PPP/Console
- USB 1.1 Client x 1 mini B connector
- CF x 1
- 12 to 48 VDC Power Input

: Hardware Specifications

Computer

CPU:
UC-7408: Intel XScale IXP422 266 MHz
UC-7408 Plus: Intel XScale IXP425 533 MHz

OS (pre-installed): Embedded Linux or Windows CE 5.0

DRAM: 128 MB onboard (256 MB for ODM)

Flash: 32 MB onboard

PCMCIA: Cardbus card and 16-bit PCMCIA 2.1 or JEIDA 4.2 card

Storage Expansion: CompactFlash socket

Ethernet Interface

LAN: 2 auto-sensing 10/100 Mbps ports (RJ45)

Magnetic Isolation Protection: 1.5 KV built-in

Serial Interface

Serial Standards: 8 RS-232/422/485 ports, software-selectable (8-pin RJ45)

ESD Protection: 15 KV for all signals

Console Port: RS-232 (all signals), RJ45 connector, supports PPP

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

Input Voltage:
• Logic 0: 0-0.8 V
• Logic 1: 2.0-5.5 V
-24 mA

Digital Output

Output Channels: 8

Output Current: 24 mA

Output Voltage:
• Logic 0: 0-0.55 V
• Logic 1: 2.5-3.3 V

LEDs

System: OS Ready, Console (TxD/RxD)

LAN: 10M/100M x 2

Serial: TxD x 8, RxD x 8

Physical Characteristics

Housing: SECC sheet metal (1 mm)

Weight: 870 g

Dimensions: 197 x 44 x 125 mm (7.76 x 1.73 x 4.92 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: -20 to 80°C (-4 to 176°F)

Anti-vibration: 1g @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct./min, 1 hr/axis

Anti-shock: 5g @ IEC-68-2-27, half sine wave, 30 ms

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption: 7.6 W
• 315 mA @ 24 VDC
• 628 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)

Safety: UL/cUL (UL60950-1, CSA C22.2 No. 60950-1-03), TÜV (EN60950-1)

Reliability

Alert Tools: Built-in buzzer and RTC (real-time clock)

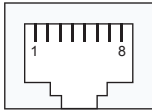**Automatic Reboot Trigger:** Built-in WDT (watchdog timer)

Warranty

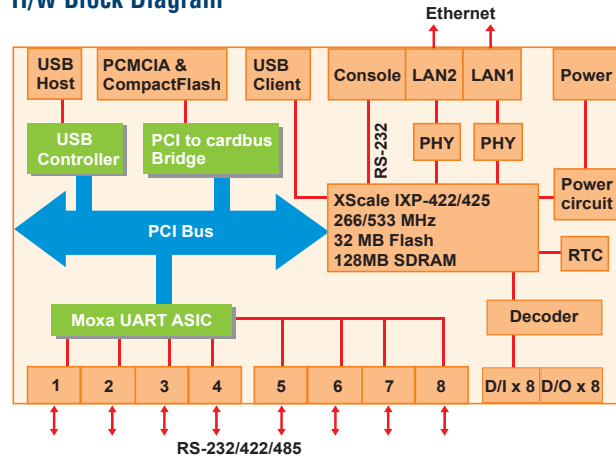**Warranty Period:** 5 years

Details: See www.moxa.com/warranty

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Pin Assignment

8-pin RJ45

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	---	---

H/W Block Diagram

: Software Specifications

Linux

Kernel Version: 2.4.18 or 2.6.10 (Plus version)

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

Windows Embedded CE 5.0

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, SMTP, 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): WinCE IIS, including ASP, ISAPI Secure Socket Layer support, SSL 2, SSL 3, and 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.

Application Development Environment:
• Moxa WinCE 5.0 SDK
• C Libraries and Run-times
• Component Services (COM and DCOM)
• Microsoft Foundation Classes (MFC)
• Microsoft® .NET Compact Framework 2.0 SP2
• XML, including DOM, XQL, XPATH, XSLT, SAX2
• SOAP Toolkit
• Winsock 2.2

: Ordering Information

Available Models

UC-7408-LX: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, Linux 2.4, -10 to 60°C operating temperature

UC-7408-LX Plus: RISC-based IXP425 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, USB, Linux 2.6, -10 to 60°C operating temperature

UC-7408-CE: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, WinCE 5.0, -10 to 60°C operating temperature

UC-7408-T-LX: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, Linux 2.4, -40 to 75°C operating temperature

UC-7408-T-LX Plus: RISC-based IXP425 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, USB, Linux 2.6, -40 to 75°C operating temperature

UC-7408-T-CE: RISC-based IXP422 embedded computer with 8 serial ports, 8 DI channels, 8 DO channels, dual LANs, PCMCIA, CompactFlash, WinCE 5.0, -40 to 75°C operating temperature

Package Checklist

• UC-7408 embedded 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
• Universal power adaptor (including terminal block to power jack converter)
• Document and Software CD
• Quick Installation Guide (printed)
• Warranty Card

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