MOXA®

Moxa Systems Co., Ltd.
Tel: +886-2-2910-1230
Fax: +886-2-2910-1231
www.moxa.com
info.sys@moxa.com

USA

Moxa Technologies, Inc.
Toll-free: 1-888-MOXA-USA (1-888-669-2872)
Tel: +1-714-528-6777
Fax: +1-714-528-6778
www.moxaUSA.com
usa@moxa.com

Taiwan

Moxa Technologies, Inc.
Tel: +886-2-8919-1230
Fax: +886-2-8912-1231
www.moxa.com
taiwan@moxa.com

China

Moxa Technologies Shanghai, Inc.
Tel: +86-21-5298-8618
Fax: +86-21-5298-8643
www.moxa.com
china@moxa.com

Moxa Technologies Beijing, Inc.
Tel: +86-10-6872-3959/60/61
Fax: +86-10-6872-3958
china@moxa.com

Moxa Technologies Shenzhen, Inc.
Tel: +86-755-8368-4084/94
Fax: +86-755-8368-4148
www.moxa.com
china@moxa.com

Europe

Moxa Europe GmbH
Tel: +49 (0) 89 3 70 03 99-0
Fax: +49 (0) 89 3 70 03 99-99
www.moxa.com
europe@moxa.com

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MOXA®

Embedded Computers

Ready-to-Run, Reliable, Wide Temperature

Microsoft® Windows® Embedded Partner

-40°C 75°C

Warranty 5 Year

www.moxa.com

ThinkCore W341/321/311

RISC-based Ready-to-Run Wireless Embedded Computers with WLAN, 4/2/1 Serial Ports, LAN, SD, USB, Linux OS

- MOXA ART ARM9 32-bit 192 MHz processor
- On-board 64/32 MB RAM, 16 MB flash disk
- 802.11a/b/g wireless LAN
- WEP, WPA, and WPA2 encryption
- Infrastructure Mode and Ad-Hoc Mode supported
- WLAN Repeater function supported
- 4/2/1 software-selectable RS-232/422/485 serial ports
- 10/100 Mbps Ethernet for network redundancy
- Designed to withstand continuous 5G vibration and 50G shock
- SD socket for storage expansion supported
- Ready-to-run Linux Kernel 2.6 platform
- DIN-rail or wall-mount installation
- Robust, fanless design

ThinkCore W345/325/315

RISC-based Ready-to-Run Wireless Embedded Computers with GSM/GPRS, 4/2/1 Serial Ports, LAN, SD, USB, Linux OS

- MOXA ART ARM9 32-bit 192 MHz processor
- On-board 64/32 MB RAM, 16 MB flash disk
- Built-in quad band GSM/GPRS 850/900/1800/1900 MHz
- GPRS Class 10, Coding Scheme from CS1 to CS4 supported
- 4/2/1 software-selectable RS-232/422/485 serial ports
- 10/100 Mbps Ethernet for network redundancy
- Designed to withstand continuous 5G vibration and 50G shock
- SD socket for storage expansion supported
- Ready-to-run Linux Kernel 2.6 platform
- DIN-rail or wall-mount installation
- Robust, fanless design

ThinkCore V481

X86 Ready-to-Run Embedded Computer with VGA, Dual LANs, 8 Serial Ports, CompactFlash, USB, Audio, WinCE 5.0 OS

- Intel Celeron M 1 GHz CPU, 400 MHz FSB
- On-board 256 MB DDR SRAM, 128 MB CompactFlash
- 8 software-selectable RS-232/422/485 serial ports
- Serial port speed from 50 bps to 921.6 Kbps, supporting ANY BAUDRATE
- Dual 10/100 Mbps Ethernet for network redundancy
- Supports 2nd CompactFlash socket for storage expansion
- 2 USB 2.0 Hosts support system bootup
- LED indicators for System Ready and Storage
- Ready-to-run WinCE 5.0 platform
- DIN-rail or wall-mount installtion
- Robust, fanless design

EM-1220

RISC-based Ready-to-Run Embedded Core Module with 2 Serial Ports, Dual LANs, SD, µClinux

- MOXA ART ARM9 32-bit 192 MHz processor
- On-board 16 MB RAM, 8 MB flash disk
- 2 software-selectable RS-232/422/485 serial ports
- Dual 10/100 Mbps Ethernet for network redundancy
- RS-232 serial console port supports PPP
- Ready-to-run µClinux Kernel 2.6 platform
- SD signals supported for external SD socket connection
- Built-in RTC, buzzer
- 8 GPIOs reserved for system integration
- Credit card size design for easy integration at any field site
- Full-function development kit for quick evaluation and application development
- -40 to 75°C wide temperature model available

EM-1240

RISC-based Ready-to-Run Embedded Core Module with 4 Serial Ports, Dual LANs, SD, µClinux

- MOXA ART ARM9 32-bit 192 MHz processor
- On-board 16 MB RAM, 8 MB flash disk
- 4 software-selectable RS-232/422/485 serial ports
- Dual 10/100 Mbps Ethernet for network redundancy
- RS-232 serial console port supports PPP
- Ready-to-run µClinux Kernel 2.6 platform
- SD signals supported for external SD socket connection
- Built-in RTC, buzzer
- 10 GPIOs reserved for system integration
- Full-function development kit for quick evaluation and application development

UC-7124/UC-7122

Mini RISC-based Ready-to-Run Embedded Computers with 4/2 Serial Ports, Dual LANs, SD, USB, WinCE 5.0 OS

- Cirrus Logic EP9302 ARM9 32-bit 192 MHz processor
- On-board 16 MB RAM, 16 MB flash disk
- 4/2 software-selectable RS-232/422/485 serial ports
- Serial port speed from 50 bpsto 921.6Kbps, supporting ANY BAUDRATE
- Dual 10/100 Mbps Ethernet for network redundancy
- SD socket for storage expansion supported
- Built-in RTC, buzzer, Watchdog Timer
- Ready-to-run WinCE 5.0 platform
- -40 to 75°C wide temperature model available

UC-7420/UC-7410

RISC-based Ready-to-Run Embedded Computer with 8 Serial Ports, Dual LANs, USB, PCMCIA, CompactFlash

- Intel XScale IXP-422/425, 266/533 MHz processor
- On-board 128 MB RAM, 32 MB flash disk
- 8 RS-232/422/485 serial ports
- Dual 10/100 Mbps Ethernet for network redundancy
- USB 2.0 Host
- CompactFlash socket for storage expanion
- PCMCIA supports WLAN, GPRS, UMTS, HSDPA
- LCM display and keypad for HMI
- Ready-to-run Linux / WinCE 5.0 platform
- DIN-rail or wall-mount installation
- Robust, fanless design

UC-7408

RISC-based Data Acquisition Embedded Computer with 8 Serial Ports, 8 DI Channels, 8 DO Channels, Dual LANs, PCMCIA, CompactFlash

- Intel XScale IXP-422/425, 266/533 MHz processor
- On-board128 MB RAM, 32 MB flash disk
- 8 RS-232/422/485 serial ports
- 8-ch digital input and 8-ch digital output
- Dual 10/100 Mbps Ethernet for network redundancy
- CompactFlash socket for storage expanion
- PCMCIA supports WLAN, GPRS, UMTS, HSDPA
- Ready-to-run Linux / WinCE 5.0 platform
- DIN-rail or wall-mount installation
- Robust, fanless design

UC-7402

RISC-based Ready-to-Run Embedded Network Computer with Dual LANs, PCMCIA, CompactFlash

- Intel XScale IXP-422/425, 266/533 MHz processor
- On-board 128 MB RAM, 32 MB flash disk
- Dual 10/100 Mbps Ethernet for network redundancy
- CompactFlash socket for storage expanion
- PCMCIA supports WLAN, GPRS, UMTS, HSDPA
- Ready-to-run Linux platform
- Hardware level data encryption engine supports AES, DES, and 3DES
- SSL, SSH, TLS security function
- Built-in firewall and VPN function
- Apache web server supports PHP and XML
- DIN-rail or wall-mount installation

ThinkCore DA-660 Series

RISC-based 19-inch Rackmount Data Acquisition Embedded Computers with 8/16 Serial Ports, LANs/Fiber Ports, PCMCIA, CompactFlash, USB

- Intel XScale IXP-422/425, 266/533 MHz processor
- On-board 128 MB RAM, 32 MB flash disk
- 8/16 RS-232/422/485 serial ports
- Dual/quad 10/100 Mbps Ethernet for network redundancy
- Standard 19-inch rackmount installation, 1U height
- Wide range of power input voltages from 100 to 240V, both AC and DC
- LCM display and keypad for HMI
- Ready-to-run Linux / WinCE 5.0 platform
- Robust, fanless design

ThinkCore IA241/IA240

RISC-based Industrial Ready-to-Run Embedded Computers with 4 Serial Ports, 4 DI Channels, 4 DO Channels, Dual LANs, PCMCIA, SD

Wide Temperature

TAIWAN EXCELLENCE 2006

- MOXA ART 32-bit ARM9 industrial processor
- On-board 64 MB RAM, 16 MB flash disk
- 4 RS-232/422/485 serial ports
- 4-ch digital input and 4-ch digital output
- Dual 10/100 Mbps Ethernet for network redudancy
- PCMCIA supports wireless expansion (802.11b/g, GPRS/UMTS/HSDPA)
- SD socket for storage expansion supported
- Ready-to-run Linux platform
- Unique patented Software Encryption Lock
- Industrial DIN-rail installation, wall-mount is also possible
- Robust, fanless design, IP30 protection mechanism
- -40 to 75°C wide temperature model available

UC-7112/UC-7110

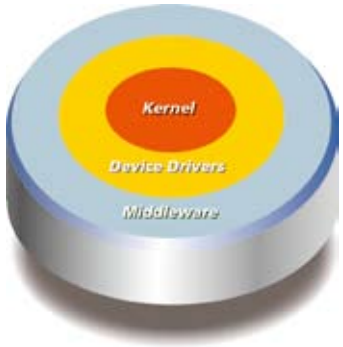
Mini RISC-based Ready-to-Run Embedded Computers with 2 Serial Ports, Dual LANs, SD

Wide Temperature

- Mini controller with ready-to-run platform for customized applications
- MOXA ART ARM9 32-bit 192 MHz processor
- 16 MB RAM (about 12 MB of user programmable space)
- 8 MB Flash ROM (about 4 MB of user programmable space)
- Dual 10/100 Mbps Ethernet for network redundancy
- 2 software-selectable RS-232/422/485 serial ports
- SD socket for storage expansion supported
- Built-in RTC, buzzer
- Ready-to-run µClinux platform
- GNU GCC cross-compiler
- -40 to 75°C wide temperature model available (UC-7110 only)

MOXA Ready-to-Run Software Environment

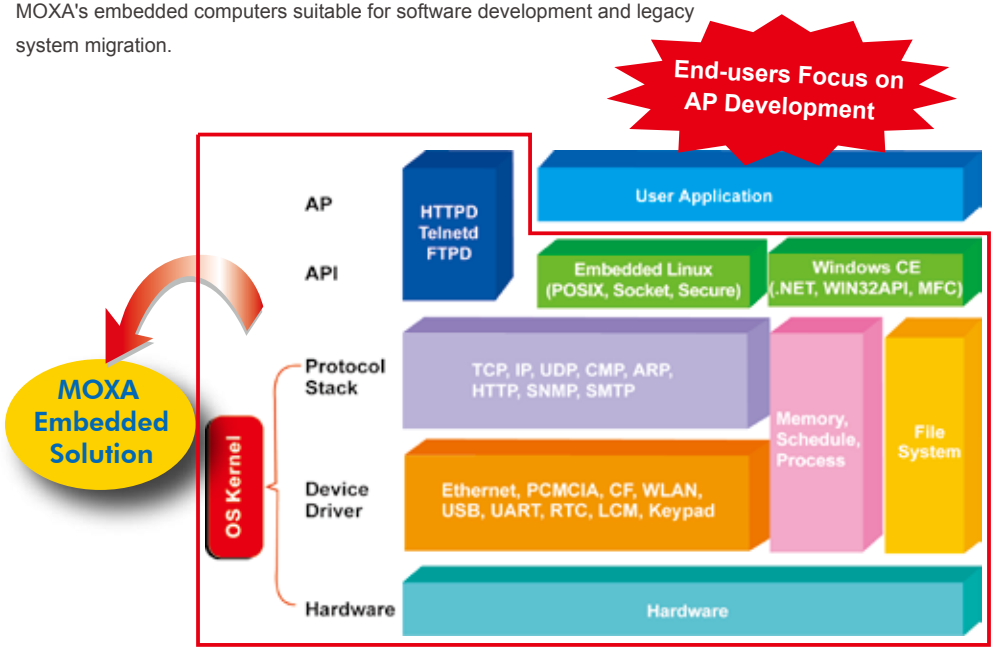
- **Kernel Ready**
  - Linux
  - Windows CE 5.0
- **Device Drivers**
  - Ethernet
  - 802.11a/b/g
  - GPRS, UMTS, HSDPA
  - RS232/RS422/RS485
  - USB 1.1/2.0
  - CompactFlash, SD
  - PCMCIA/CardBus
  - Watchdog
  - LCM, Keypad, Buzzer,...



- **File Systems**
  - JFFS2 (Linux)
  - TFAT (WinCE)
- **Services**
  - Telnetd
  - FTPD
  - HTTPD
  - SSHD
  - Firewall
- **Middleware**
  - OpenVPN
  - MySQL
  - Web Service

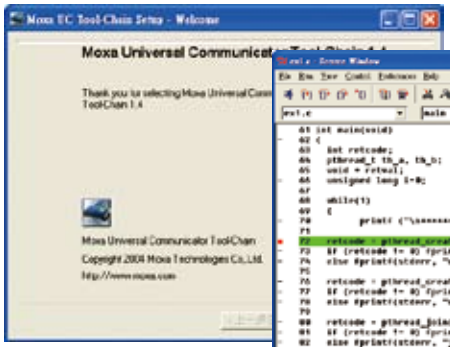
Open yet Reliable Operating System for Easy Development

MOXA embedded computers are built on either the Linux or Microsoft® Windows® CE 5.0 operation system. Building on an open operating environment makes MOXA's embedded computers suitable for software development and legacy system migration.

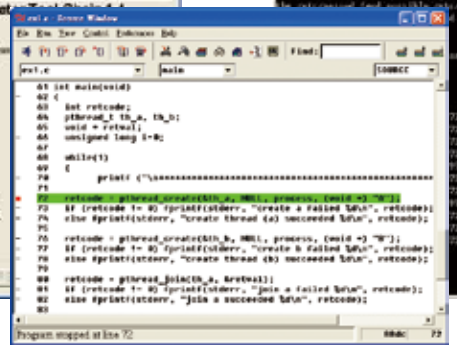


Linux Application Development

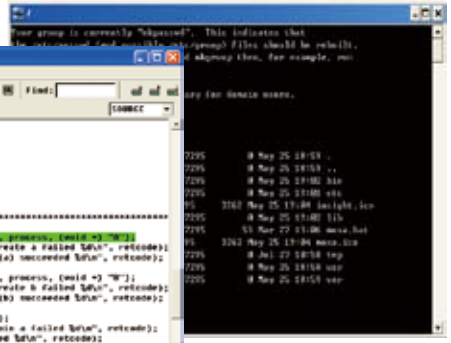
- MOXA Linux C/C++ APIs
- Linux PC Tool Chain
- Windows Tool Chain
- PHP/CGI/Perl
- Software Encryption Lock (Patented)
- MOXA 2G NPort Real TTY Driver
- UC-Finder: IP Broadcast Search
- On-Line Source Code Debugging



Windows Tool Chain



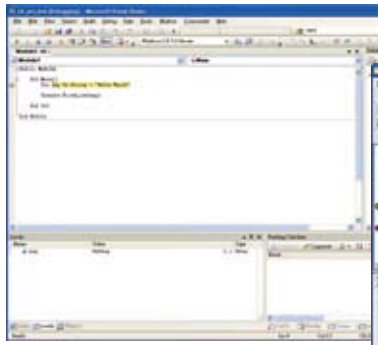
Insight Debugger



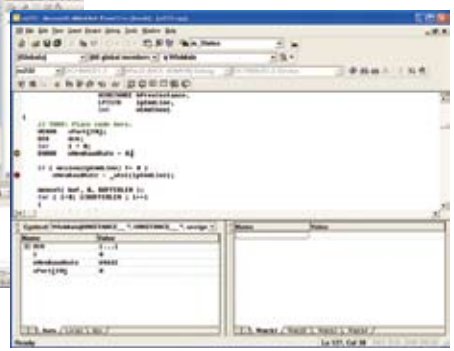
Bash Shell on Windows

Windows CE 5.0 Application Development

- MOXA WinCE 5.0 C/C++ APIs
- Libraries and Run-Times
- OM/DCOM, and ATL
- Winsock 2.2
- Microsoft Foundation Classes (MFC)
- Microsoft .NET Compact Framework 2.0
- XML and SOAP Toolkit
- On-Line Source Code Debugging



Visual Studio 2005



Embedded Visual C++ 4.0

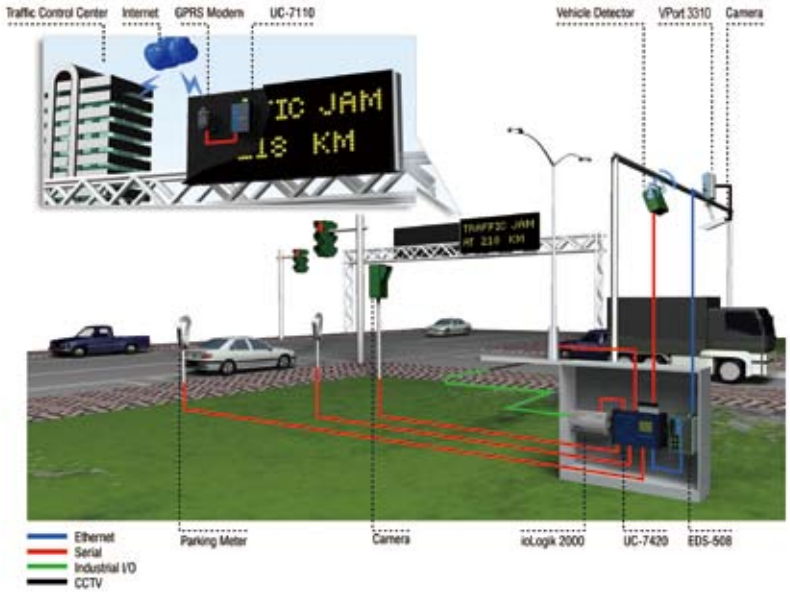
Intelligent Transportation System

Automatic Monitoring and Control of Traffic

Overview

Intelligent Transportation Systems (ITS) are designed to improve both safety and efficiency. For example, it is becoming more common to use automatic surveillance and network communication to reduce traffic jams at busy intersections. IP cameras are used to allow human operators to gauge the number of cars waiting at the intersection, and then UC-7420, MOXA's 8-port embedded computer, transmits the images over the Internet from the intersection to a remote monitoring center. The UC-7420 can also be used to transmit signals that control the status of each traffic light to the central command center.

Another option is to use sensors that automatically detect which parking spaces are occupied and which spaces are empty. Connecting the sensors to a UC-7420 through an RS-485 network and then programming the UC-7420 to monitor the sensors continuously gives parking lot managers the ability keep track of which spaces are unoccupied. When a car leaves a space, this information is relayed to a central computer over an Ethernet LAN or 802.11 wireless LAN. More sophisticated systems use LED displays, which can be connected to the UC-7420, to notify drivers which parking spaces are empty.



Benefits

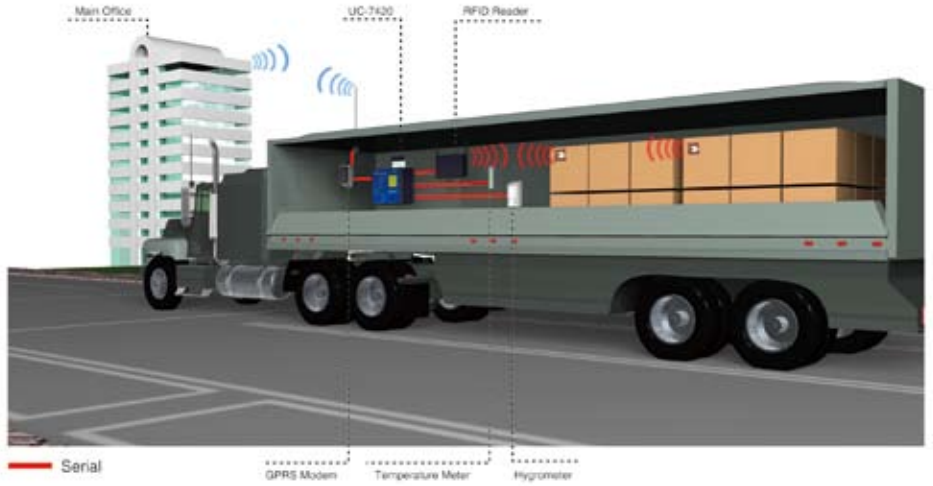
1. CompactFlash slot for data logging
2. Multiple connection options for greater networking versatility
3. PCMCIA slot for wireless network card
4. OpenVPN feature for a secure system

RFID for Logistics System

Instant Tracking System for Logistics Management

Overview

Inventory management is an important aspect of express delivery systems. In the past, human beings were the main tool used to collect and disperse inventory data. The introduction of the barcode helped make inventory management more accurate, but human beings were still needed to operate the barcode readers. As a result, inventory management was still very time-consuming. The UC-7420 can be used as a front-end controller in an RFID logistics system. In this case, an RFID reader, the UC-7420 embedded computer, and a satellite modem are installed in each delivery truck. The RFID reader and satellite modem are both connected to the UC-7420, and an RFID tag is attached to each package. This type of system can be used to send real-time information of the location of each package back to the main office. This type of RFID logistics system is very powerful, since the location of a package can be tracked, even if the package is transferred from one truck to another.



Benefits

1. Reliable and compact
2. Data buffering and logging
3. Low power consumption
4. Programmability facilitates RFID tracking system

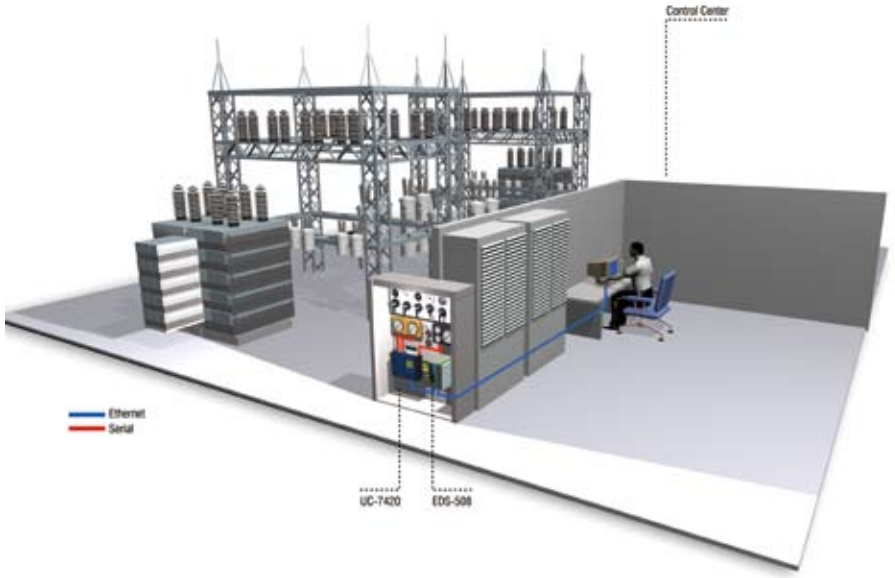
Power Management System

Bringing Reliability and Localized Computing Power to Substation Monitoring

Overview

High-tech power companies around the world are conducting research to identify economical ways to simplify a power plant's automatic protection and warning system, but without sacrificing reliability. One of the main requirements of such a system is a computing device that can handle protocol conversion, data acquisition, monitoring, and control. MOXA's embedded computers are front-end embedded computers that come with 8 RS-232/422/485 serial ports, dual Ethernet ports, wireless LAN capability, and an industrial strength no fan, no hard drive design that suit these requirements exactly.

The built-in operating system makes it easy to install software, and the Flash expansion slot lets users add additional memory space as needed. The dual Ethernet ports of MOXA's embedded computers provide redundancy for critical systems, ensuring that the embedded computer will still be able to communicate with each protection device and with the backup host if the network fails.



Benefits

1. No fan, no hard drive design for longer MTBF
2. CompactFlash for data logging
3. Dual-LAN ports for setting up super-redundant system
4. Programmability facilitates protocol conversion

Power Management System

Remote Monitoring of Solar Power Meters Over the Internet

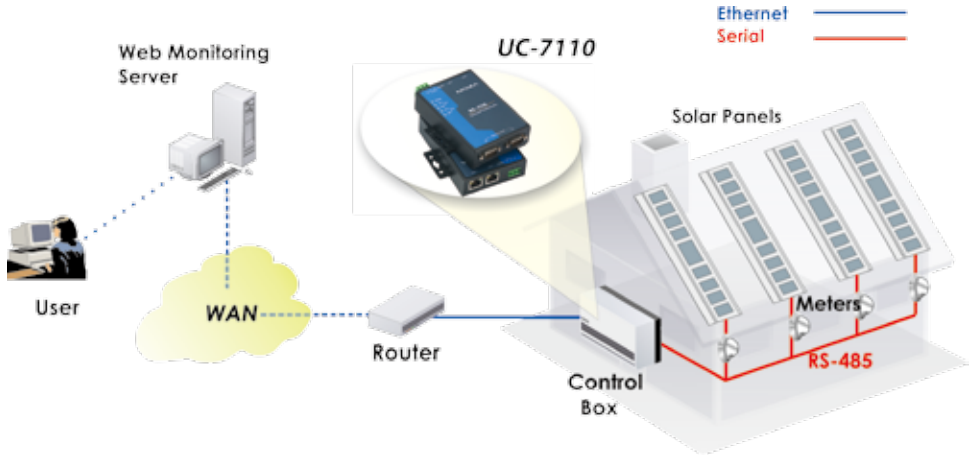
Overview

As the world's population continues to grow and more factories are built, it becomes more and more important to provide sufficient power in an environmentally sustainable way. The solar power solution has received much publicity and backing from environmental enthusiasts, and is beginning to enter the mainstream.

In solar power systems, rooftop solar panels are used to absorb the Sun's energy and convert it into electrical energy. The electrical energy is sent to a control box using RS-485 serial wires and is monitored by a power meter. Energy providers are looking for an Internet solution for more efficient and flexible management and monitoring of their renewable energy systems. For this type of application, a programmable serial-to-Ethernet communication gateway is needed to convert RS-485 serial data into a format suitable for transmission over the Ethernet.

MOXA's UC-7110 offers an economical and resourceful solution for routing serial data to an existing Ethernet network. Solution providers can embed their own monitoring and protocol conversion software into the UC-7110 to monitor power generation and consumption data.

As a front-end controller, the UC-7110 is conveniently sized and includes customized programming options to convert power meter data into Ethernet packet format. The UC-7110 can be used in place of a PC, significantly reducing costs for solution providers, and its small size gives system managers added installation flexibility.



Benefits

1. Adapts easily to an RS-485 network without requiring cabling of existing structure
2. Includes intuitive BSD-style API for easier programming
3. Replaces front-end PC for significant reduction in maintenance costs
4. Shortens application development time through rich API library support
5. Enables fast time to market by using existing hardware and software design