

UPort USB-to-Serial Products

Break Free of Hardware Limits for Serial Expansion



Benefits

- Easy COM port expansion
- Top serial performance
- Reduction in total cost of ownership
- Management of COM port settings
- Easy integration and maintenance

Introduction

The UPort family is MOXA's line of USB-to-Serial products, and includes a wide range of solutions to extend Windows COM ports using the PC's USB port. Important features of UPort products include:

- Support for Hi-Speed USB 2.0 (480 Mbps)
- Built-in Moxa UART (MU860) and CPU (MoxaART)
- Ability to assign COM port numbers
- Magnetic attachments
- Terminal block mini-adaptor for easy wiring

These unique features make UPort products easy to use and maintain. UPort USB-to-Serial hubs are available with up to 16 independent RS-232/422/485 serial ports, providing a way to connect data acquisition equipment and other serial devices to notebook or desktop PCs.

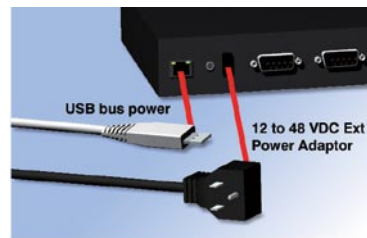
The hassle-free, plug and play USB design makes serial port expansion easy, with no IRQ, DMA, or I/O address resources required. Users no longer need to open the chassis or power down the system for installation, saving on setup time and costs.

Reduce Total Cost of Ownership

Modern peripherals are likely to be connected by Ethernet or USB. The problem is how to integrate these interfaces with older devices. The current solution is to establish Ethernet or USB connections to legacy devices. The total cost of ownership is reduced, not only with short-term hardware investment, but also with long-term management and integration costs. Existing RS-232 or RS-422/485 software can be upgraded to USB connectivity by using the reliable Windows 98/ME/2000/XP/2003 driver.

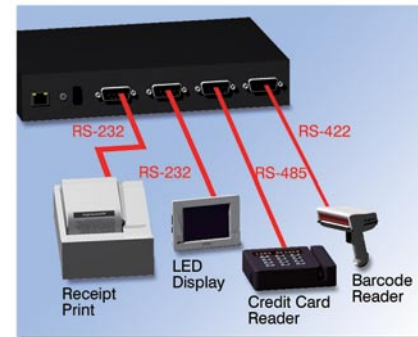
USB Bus Power

UPort 1200, 1400, and 1600 models support both bus power and external power. Bus power can be used with laptop or workstation connections that provide standard 500 mA output for USB devices. External power can be supplied through an adaptor if the UPort is installed on a USB hub that provides only 100 mA of current.



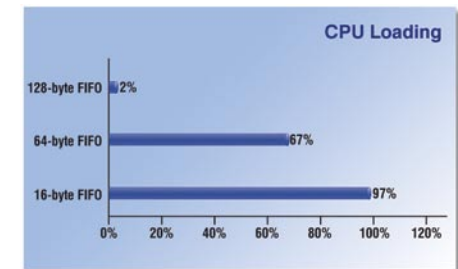
Plug and Play Operation

UPort 1100, 1200, 1400, and 1600 hubs allow your laptop or workstation to communicate with up to 16 RS-232/422/485 serial devices using one USB port. USB is a true plug and play standard that eliminates the need to set IRQs or adjust DIP switches. UPort hubs comply with USB 2.0 specifications and support 480 Mbps operation.



Top Performance with 128-byte FIFO and On-chip Flow Control

MOXA has relied on 20 years of experience in serial board design to produce our new, top-performance serial data transmission chip, the Turbo Serial Engine™. The new technology on this CPU provides UPort 1200, 1400, and 1600 hubs with a 128-byte FIFO, on-chip flow control, and burst data mode. These features help make the UPort 1200, 1400, and 1600 the top-performing USB-to-serial hubs in the world.



UPort USB-to-Serial Products

Connecting Multi-peripherals for Automation



Applications

- KIOSK
- ATM
- POS
- Factory Automation
- Transportation
- Machinery
- Instrument

Table of Contents

| | |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  | UPort 1110 1-port RS-232 Adaptor P.7 |
|  | UPort 1130 1-port RS-422/485 Adaptor P.8 |
|  | UPort 1250/1250I 2-port RS-232/422/485 USB-to-Serial Hubs P.9 |
|  | UPort 1400 Series 4-port RS-232/422/485 USB-to-Serial Hubs P.11 |
|  | UPort 1610-8/1650-8 8-port RS-232/422/485 USB-to-Serial Hubs P.13 |
|  | UPort 1610-16/1650-16 16-port RS-232/422/485 USB-to-Serial Hubs P.15 |
|  | UPort Application Stories P.17 |

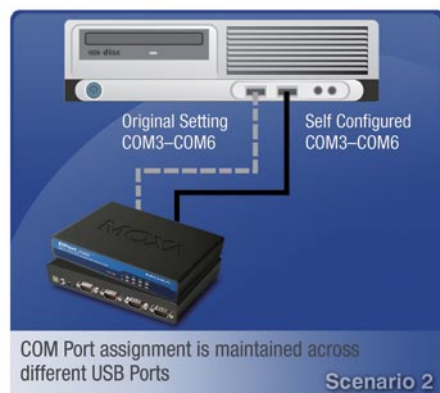
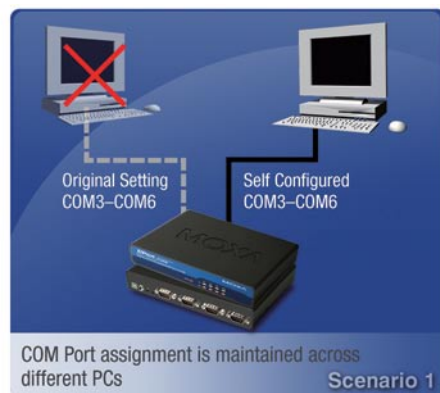
COM Preserver Technology

In typical software applications, COM ports are identified by names such as COM3 and COM4. Unfortunately, existing USB-to-serial products are unable to maintain fixed COM port numbers on the host PC. In other words, the assigned COM port numbers may be different when the device is plugged into a different USB port. Users must then trace the COM port numbers manually in the application.

UPort USB-to-serial hubs include a function that allows COM port numbers to be saved and restored. When the user enables the "COM Preserver" function, the COM port numbers follow the UPort device, and our driver can even recreate the same COM port numbers on a different host PC. With this feature, users no longer need to modify application programs or re-build the entire project every time a new operating system is installed or the computer is upgraded. It is no longer a problem to move the UPort from one USB hub to another, or from one computer to another. Once COM Preserver is enabled, the COM port numbers will follow the hub wherever it is installed.

COM Preserver is disabled by default, so the traditional method of sequentially assigning COM port numbers can also be used.

* Patent Pending



DB9-to-terminal block adaptor for easy wiring

UPort 1100, 1200, 1400, and 1600 hubs include full support for RS-232 modem data and control signals (Tx/D, Rx/D, DTR, DSR, RTS, CTS, DCD), as well as RTS/CTS hardware flow control. Versions that support 4-wire RS-422/485 and 2-wire RS-485 are also available, with a serial data rate of up to 921.6 Kbps and a 128-byte FIFO. DB9 male connectors are standard, making it easy to attach serial devices. A DB9-to-terminal block adaptor is also included to simplify wiring for RS-422 and RS-485 applications.



Magnetic case-mount attachments

Typically, USB-to-serial hubs are placed on a desk near the PC. However, this placement can waste space, and the hubs may be vulnerable to accidental disconnection. MOXA's solution is simple but effective. Magnetic attachments are provided that allow UPort hubs to be mounted on the PC case. Not only does this save space, it also allows the USB cable to be fixed in place, reducing the likelihood of accidental disconnection.

USB-to-Serial Product Selection Guide

| Model Name | UPort 1110 | UPort 1130 | UPort 1250 UPort 1250I |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| USB Speed | 12 Mbps Full-Speed | 12 Mbps Full-Speed | 480 Mbps Hi-Speed |
| USB Specification | 1.1/ 2.0 | 1.1/ 2.0 | 1.1/ 2.0 |
| USB Connector | USB Type A | USB Type A | USB Type B |
| No. of Serial Ports | 1 | 1 | 2 |
| Serial Interface | RS-232 | RS-422/485 | RS-232/422/485 |
| Serial Connector | Male DB9 | Male DB9 | Male DB9 |
| Material | ABS + PC | ABS + PC | Metal |
| Dimensions (W x D x H) | 20.5 x 60 mm | 20.5 x 60 mm | 77 x 111 x 26 mm |
| Optical Isolation | - | - | 2 KV (UPort 1250I) |
| ESD Protection | 15 KV ESD | | |
| Baudrate | 50 bps to 921.6 Kbps | | |
| FIFO | 64 bytes | 64 bytes | 128 bytes |
| Flow Control | RTS/CTS, XON/XOFF | | |
| Operating Temperature | 0 to 55°C (32 to 131°F) | | |
| Operating Humidity | 5 to 95% RH | | |
| Storage Temperature | -20 to 85°C (-4 to 185°F) | -20 to 85°C (-4 to 185°F) | -20 to 75°C (-4 to 167°F) |
| Regulatory Approvals | EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B | EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B | EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV |
| Warranty | 5-year warranty | | |

USB-to-Serial Product Selection Guide

| Model Name | UPort 1410 UPort 1450 UPort 1450I | UPort 1610-8 UPort 1650-8 | UPort 1610-16 UPort 1650-16 |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| USB Speed | 480 Mbps Hi-Speed | 480 Mbps Hi-Speed | 480 Mbps Hi-Speed |
| USB Specification | 1.1/ 2.0 | 1.1/ 2.0 | 1.1/ 2.0 |
| USB Connector | USB Type B | USB Type B | USB Type B |
| No. of Serial Ports | 4 | 8 | 16 |
| Serial Interface | RS-232 (UPort 1410), RS-232/422/485 (UPort 1450/1450I) | RS-232 (UPort 1610-8), RS-232/422/485 (UPort 1650-8) | RS-232 (UPort 1610-16), RS-232/422/485 (UPort 1650-16) |
| Serial Connector | Male DB9 | Male DB9 | Male DB9 |
| Material | Metal | Metal | Metal |
| Dimensions (W x D x H) | 204 x 125 x 30 mm | 204 x 125 x 44 mm | 440 x 198 x 45 mm |
| Optical Isolation | 2 KV (UPort 1450I) | - | - |
| ESD Protection | 15 KV ESD Protection | | |
| Baudrate | 50 bps to 921.6 kbps | | |
| FIFO | 128 bytes | 128 bytes | 128 bytes |
| Flow Control | RTS/CTS, XON/XOFF | | |
| Operating Temperature | 0 to 55°C (32 to 131°F) | | |
| Operating Humidity | 5 to 95% RH | | |
| Storage Temperature | -20 to 75°C (-4 to 167°F) | -20 to 75°C (-4 to 167°F) | -20 to 75°C (-4 to 167°F) |
| Regulatory Approvals | EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV | EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV | EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV |
| Warranty | 5-year warranty | | |

UPort1110

1-port RS-232 USB-to-Serial Adaptor



Specifications

USB

USB Version: 1.1
Connector: USB Type A
Speed: Full-Speed (12 Mbps)

Serial

Interface:
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
Connector: Male DB9
FIFO: 64 bytes

Serial Communication Parameters

Parity: None, Even, Odd, Space, Mark
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2

Flow Control: RTS/CTS, XON/XOFF
Speed: 50 bps to 921.6 Kbps

Power and Environment

Power Consumption: 30 mA @ 5 VDC
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 85°C (-4 to 185°F)
Operating Humidity: 5 to 95% RH

Dimensions:

37.5 x 20.5 x 60 mm (L x W x H)

Mechanical Specifications

Material: ABS + PC
Gross Weight: 60 g (0.13 lb)

ESD Protection: Embedded 15 KV ESD Protection

Regulatory Approvals

EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B

Warranty: 5-year warranty

Features

- Fully compatible with USB 2.0
- Supports 12 Mbps USB data rate
- Serial speeds up to 921.6 Kbps
- Supports Win98/ME/2000/XP/2003 and Linux
- Male DB9 connectors
- LED indicators for serial TxD and RxD signals, active USB
- Built-in 15 KV ESD protection

Ordering Information

UPort 1110:
1-port RS-232 USB-to-Serial Adaptor

Included Items:

- 1 USB-to-Serial Adaptor
- Quick Installation Guide
- Document and Software CD-ROM

UPort1130

1-port RS-422/485 USB-to-Serial Adaptor



Specifications

USB

USB Version: 1.1
Connector: USB Type A
Speed: Full-Speed (12 Mbps)

Serial

Interface:
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
4-wire RS-485: TxD+(B), TxD-(A), RxD+ (B), RxD-(A), GND
2-wire RS-485: Data+(B), Data-(A), GND
Connector: Male DB9
FIFO: 64 bytes

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
I/O Address and IRQ: BIOS assigned
Parity: None, Even, Odd, Space, Mark
Flow Control: XON/XOFF
Speed: 50 bps to 921.6 Kbps

Power and Environment

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)
Dimensions (L x W x H): 37.5 x 20.5 x 60 mm

Mechanical Specifications

Material: ABS + PC
Gross Weight: 60 g (0.13lb)

ESD Protection: Embedded 15 KV ESD protection

Regulatory Approvals

EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, FCC Part 15 Class B

Warranty: 5-year warranty

Features

- Fully compatible with USB 2.0
- RS-422, 4-wire RS-485, and 2-wire RS-485 operation selected in software
- Male DB9 connector and terminal block adaptor for easy wiring
- LED indicators for serial TxD and RxD signals, active USB
- Serial transmission speeds up to 921.6 Kbps
- Supports Win98/ME/2000/XP/2003 and Linux
- Built-in 15 KV ESD protection

Ordering Information

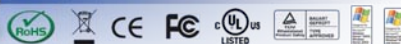
UPort 1130:
1-port RS-422/485 USB-to-Serial Adaptor

Included Items:

- 1 USB-to-Serial Adaptor
- Quick Installation Guide
- Document and Software CD-ROM
- 1 Mini DB9F-to-TB (Female DB9 to Terminal Block)

UPort1250/1250I

2-port USB-to-Serial Hubs



- RS-232/422/485 interface
- USB 2.0 operation at 480 Mbps
- Optical isolation model available
- 5-year warranty

Ordering Information

UPort 1250:

2-port RS-232/422/485 USB-to-Serial Hub

UPort 1250I:

2-port RS-232/422/485 USB-to-Serial Hub with 2 KV Isolation Protection

Optional Accessories

Mini DB9F-to-TB: Female DB9 to terminal block mini-adaptor

Included Items:

- 1 USB-to-Serial Hub and USB Cable
- Quick Installation Guide
- 1 Mini DB9F-to-TB adaptor
- Power Adaptor (UPort 1250I only)
- Document and Software CD-ROM

Features

- Hi-Speed USB 2.0 operation at 480 Mbps
- Serial transmission speeds up to 921.6Kbps
- 128-byte FIFO and on-chip flow control
- No additional I/O or IRQ required
- Built-in 15 KV ESD Protection
- Drivers for Windows 2000 and Windows XP/2003(x86 and x64)
- Easy maintenance with LED display and management software
- Terminal block adaptor for easy wiring
- Supports bus power (UPort 1250) or external power (UPort 1250I)

Specifications

USB

USB Version: 2.0

Connector Type: USB Type B

Speed: Hi-Speed (480 Mbps), Full-Speed (12 Mbps)

Serial

Number of Ports: 2

Interface

Signals:

RS-232:TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422:TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND

4-wire RS-485:TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND

2-wire RS-485: Data+(B), Data-(A), GND

Connector: Male DB9

FIFO:128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Configuration

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

I/O Address and IRQ: BIOS assigned

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Operating Systems: Windows 2000, Windows XP/2003(x86 and x64)

Power and Environment

Power Requirement:

UPort 1250: 360 mA (max) @ 5 VDC bus power

UPort 1250I: 200 mA (max) @ 12 to 48 VDC external power

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

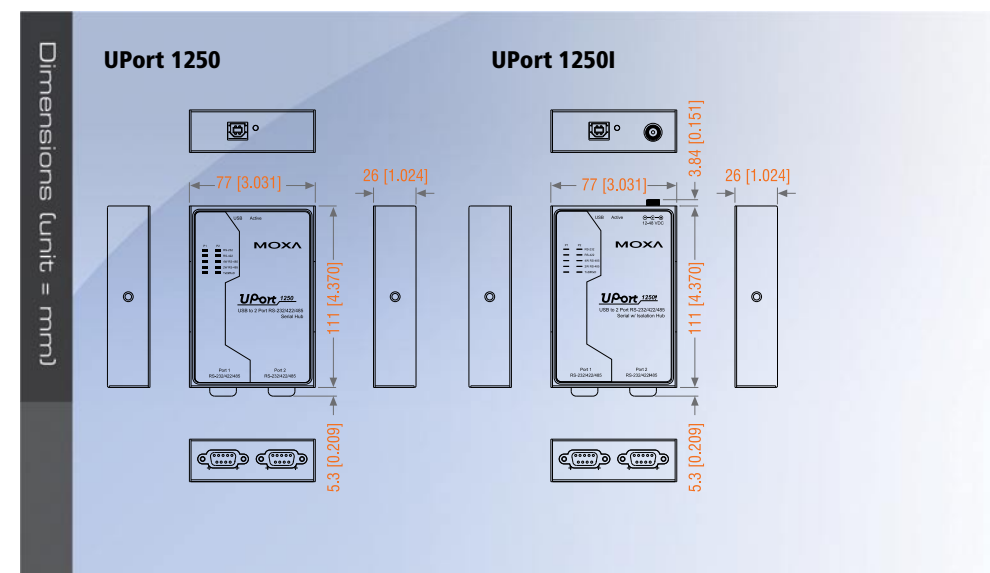
ESD Protection

Embedded 15 KV ESD protection

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5-year warranty



UPort1400 Series

4-port USB-to-Serial Hub



NEW



- RS-232 or RS-232/422/485 models
- USB 2.0 operation at 480 Mbps
- Optical isolation model available
- COM port management
- 5-year warranty

Ordering Information

UPort 1410:

4-port RS-232 USB-to-Serial Hub

UPort 1450:

4-port RS-232/422/485 USB-to-Serial Hub

UPort 1450I:

4-port RS-232/422/485 USB-to-Serial Hub with 2KV Optical Isolation

Optional Accessories

Mini DB9F-to-TB: Female DB9 to terminal block mini-adaptor

Magnets: PC case-mount attachments

Included Items:

- 1 USB-to-Serial Hub and USB Cable
- Quick Installation Guide and CD-ROM
- Power Adaptor (UPort 1450 & 1450I)
- 1 Mini DB9F-to-TB adaptor (UPort 1450 & 1450I)

Features

- Hi-Speed USB 2.0 operation at 480 Mbps
- Serial transmission speeds up to 921.6 Kbps
- 128-byte FIFO and on-chip flow control
- Built-in 15 KV ESD protection
- IP30-rated, rugged metal case
- Fixed COM port assignments across different PCs
- Optional magnetic case-mount attachments
- Terminal block adaptor for easy wiring
- Supports both bus power and external power

Specifications

USB

Speed: High Speed (480 Mbps), Full Speed (12 Mbps)

USB Version: 2.0

Connector Type: USB Type B

Serial

Number of Ports: 4

Interface

Signals:

RS-232: Tx D, Rx D, RTS, CTS, DTR, DSR, DCD, GND

RS-422: Tx D+(B), Tx D-(A), Rx D+ (B), Rx D-(A), GND

4-wire RS-485: Tx D+ (B), Tx D-(A), Rx D+ (B), Rx D-(A), GND

2-wire RS-485: Data+ (B), Data-(A), GND

Connector: Male DB9

FIFO: 128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Configuration

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

I/O Address and IRQ: BIOS assigned

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Operating Systems: Windows 2000, Windows XP/2003 (x86 and x64)

Power and Environment

Power Requirement:

UPort 1410: 180 mA (max) @ 5 VDC bus power

UPort 1450: 260 mA (max) @ 12 VDC external power

UPort 1450I: 360 mA (max) @ 12 VDC external power

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

ESD Protection

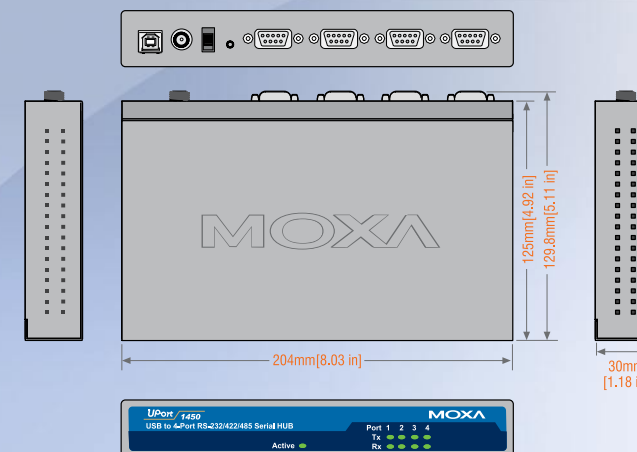
Embedded 15 KV ESD protection

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5-year warranty

Dimensions (unit = mm)



UPort1610-8/1650-8

8-port USB-to-Serial Hubs



NEW



- RS-232 and RS-232/422/485 models
- USB 2.0 operation at 480 Mbps
- COM port management
- 5-year warranty

Features

- Hi-Speed USB 2.0 operation at 480 Mbps
- Serial transmission speeds up to 921.6 Kbps
- 128-byte FIFO and on-chip flow control
- Built-in 15 KV ESD protection
- IP30-rated, rugged metal case
- Fixed COM port assignments across different PCs
- Optional magnetic case-mount attachments
- Terminal block adaptor for easy wiring
- Supports both bus power and external power

Ordering Information

UPort 1610-8:

8-port RS-232 USB-to-Serial Hub

UPort 1650-8:

8-port RS-232/422/485 USB-to-Serial Hub

Optional Accessories

Mini DB9F-to-TB: Female DB9 to terminal block mini-adaptor

All items include:

- 1 USB-to-Serial Hub
- Quick Installation Guide and CD-ROM
- USB Cable and Power Adapter
- 1 Mini DB9F-to-TB adaptor (UPort 1650-8)

Specifications

USB

Speed: Hi-Speed (480 Mbps), Full-Speed (12 Mbps)

USB Version: 2.0

Connector Type: USB Type B

Serial

Number of Ports: 8

Interface

Signals:

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: TxD+(B), TxD-(A), RxD+ (B), RxD-(A), GND

4-wire RS-485: TxD+ (B), TxD-(A), RxD+ (B), RxD-(A), GND

2-wire RS-485: Data+ (B), Data-(A), GND

Connector: Male DB9

FIFO: 128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Configuration

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

I/O Address and IRQ: BIOS assigned

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Operating Systems:

Windows 2000, Windows XP/2003 (x86 and x64)

Power and Environment

Power Requirement:

UPort 1610-8: 230 mA (max) @ 12 VDC external power

UPort 1650-8: 340 mA (max) @ 12 VDC external power

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

ESD Protection

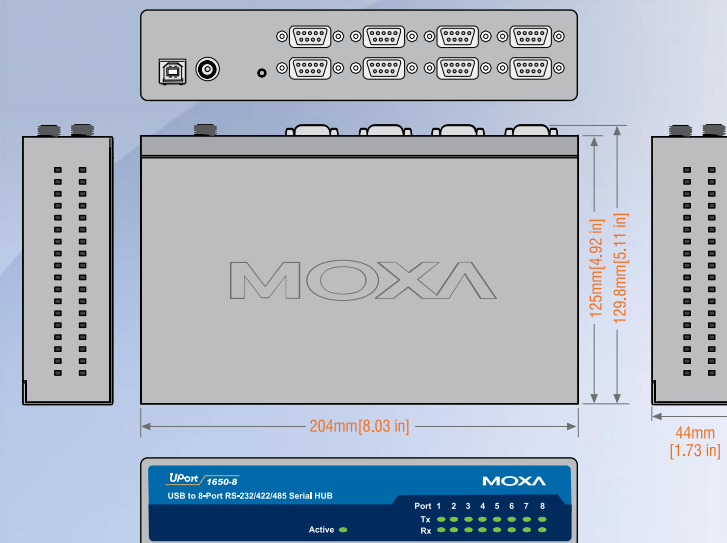
Embedded 15 KV ESD protection

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5-year warranty

Dimensions (unit = mm)



UPort1610-16/1650-16

16-port USB-to-Serial Hubs



- RS-232 and RS-232/422/485 models
- USB 2.0 operation at 480 Mbps
- COM port management
- 5-year warranty

Ordering Information

UPort 1610-16:

16-port RS-232 USB-to-Serial Hub

UPort 1650-16:

16-port RS-232/422/485 USB-to-Serial Hub

Optional Accessories

Mini DB9F-to-TB: Female DB9 to terminal block mini-adaptor

All items include:

- 1 USB-to-Serial Hub
- Quick Installation Guide and CD-ROM
- USB Cable and Power Cord
- 1 Mini DB9F-to-TB adaptor (UPort 1650-16)

Features

- Hi-Speed USB 2.0 operation at 480 Mbps
- Serial transmission speeds up to 921.6 Kbps
- 128-byte FIFO and on-chip flow control
- Standard 19-inch rackmount design
- Built-in 15 KV ESD protection
- IP30-rated, rugged metal case
- Fixed COM port assignments across different PCs
- Optional magnet case-mount attachments
- Terminal block adaptor for easy wiring
- Supports both bus power and external power

Specifications

USB

Speed: Hi-Speed (480 Mbps), Full-Speed (12 Mbps)

USB Version: 2.0

Connector Type: USB Type B

Serial

Number of Ports: 16

Interface

Signals:

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: TxD+(B), TxD-(A), RxD+ (B), RxD-(A), GND

4-wire RS-485: TxD+ (B), TxD-(A), RxD+ (B), RxD-(A), GND

2-wire RS-485: Data+ (B), Data-(A), GND

Connector: Male DB9

FIFO: 128 bytes

Performance

Baudrate: 50 bps to 921.6 Kbps

Configuration

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

I/O Address and IRQ: BIOS assigned

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Operating Systems:

Windows 2000, Windows XP/2003 (x86 and x64)

Power and Environment

Power Requirement:

UPort 1610-16: 130 mA (max) @ 100 VAC

UPort 1650-16: 160 mA (max) @ 100 VAC

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-4 to 167°F)

ESD Protection

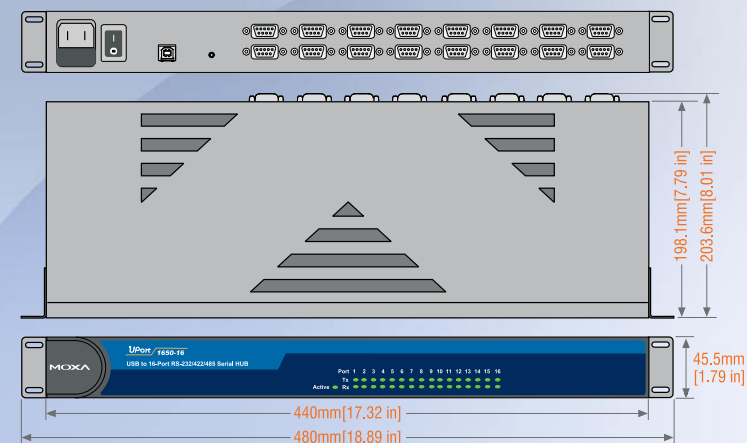
Embedded 15 KV ESD protection

Regulatory Approvals

EN55022 Class A, EN55024, EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, FCC Part 15 Class A, UL, CUL, TÜV

Warranty: 5-year warranty

Dimensions (unit = mm)



Applications

ATM/Kiosk with Multiple Peripherals



Objective:

Coordinate multiple peripherals in an ATM unit

Recommended Product(s):

4-port RS-232 USB-to-Serial Hub (UPort 1410)

Major Benefit:

Overcomes existing hardware limits with instant, plug-and-play device expansion

Background

A key aspect of the banking automation industry involves ATMs that must be available 24 hours a day, 7 days a week. These facilities make bank services more accessible to account holders and help financial institutions cope with growing transaction volume without requiring additional staff.

A financial institution wanted to develop a specialized banking ATM/kiosk that involved the use of multiple peripherals. The core of the unit would be a motherboard that would connect to a local server for all software, data files, and other vital information needed to conduct transactions. Multiple serial peripherals would need to be connected to the motherboard, but the motherboard included only two serial ports for a scanner and a credit-card reader. The financial institution needed a solution for connecting peripherals such as cash dispenser, cash insertion unit, receipt printer, and keypad.

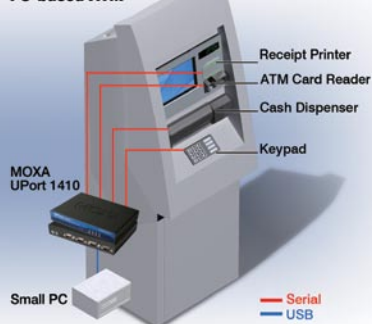
Solution

The financial institution based its infrastructure on PC architecture, which was mature and had a large software base. Since each ATM peripheral would require a COM port, Moxa's UPort 1410 was used to add four RS-232 ports. The UPort 1410 was selected after extensive testing due to its plug-and-play USB installation and Linux driver support. With the additional RS-232 ports, every ATM peripheral could be easily attached to the motherboard.

Benefits

- Provides instant plug-and-play solution
- Supports Linux for reduced software development time

PC-based ATM



Vehicle Diagnostics Station



Objective:

Connect multiple sensors to engine diagnostics system

Recommended Product(s):

4-port RS-232 USB-to-Serial Hub (UPort 1410)

Major Benefit:

Instantly adds 4 COM ports using plug-and-play USB interface

Background

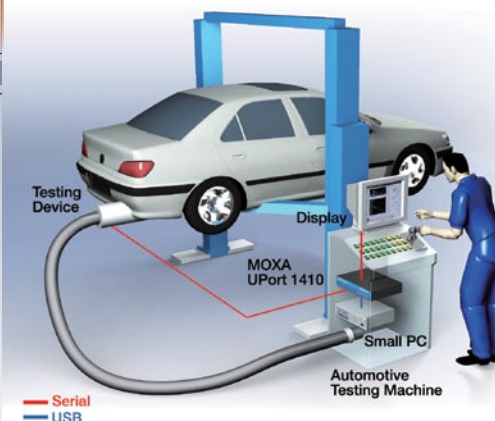
One of the world's leading developers of tool and equipment solutions needed a COM port expansion solution for their SUN Machine 450, which is used for vehicle-specific engine diagnostics for thousands of different vehicle models. The SUN Machine 450 needed RS-232 connections to many sensors, but the industrial PC (IPC) was built with only two serial and two USB ports. Since the controller was the size of a shoebox, it would not be possible to install a multiport serial board.

Solution

Since the IPC did not have enough PCI slots for a multiport serial board, a USB solution was used for COM port expansion. MOXA's UPort 1410 USB-to-serial hub was selected for its easy installation and industrial-grade design, which enabled the manufacturer to create a low-cost, fast-to-market solution. By plugging the UPort 1410 into one of the IPC's USB ports, four serial ports were added almost instantly, enough to attach all testing devices.

Benefits

- Adds four RS-232 ports while using only one USB port
- Installs easily with no I/O or IRQ setting required
- Plug and play for hassle-free operation
- Receives power over USB bus, external source not required



e-ticketing Kiosk uses MOXA's USB-to-serial hub to connect peripherals



- Objective:**
Integrate multiple peripherals inside kiosk
- Recommended Product(s):**
4-port RS-232 USB-to-Serial Hub (UPort 1410)
- Major Benefit:**
Instantly adds 4 COM ports using plug-and-play USB interface

Background

The installation of kiosks is a rapid growth industry. Kiosks are available to provide fast food, different types of merchandise, bill payment, musical entertainment, printing of digital photographs, retail self-checkout, and more. The tremendous growth in the use of kiosks around the world has motivated hardware manufacturers and system integrators to join forces and develop a wide range of innovative kiosks.

Solution

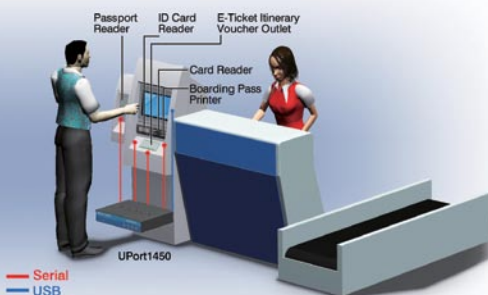
A new type of kiosk, the self-help e-ticketing kiosk, has recently made an appearance in the Shanghai airport. Passengers who have electronic tickets can go to the self-help kiosk to check in without needing to wait for assistance from a human clerk. In addition, passengers only need a valid ID to use the machine; once the ID has been validated, the passenger can use the kiosk to check seating options. The passenger's boarding pass will be printed out automatically.

An IBM slim-panel computer, which has one serial port and two USB ports, serves as the brains of the kiosk. The problem this presented to designers is that the system uses a total of 5 different serial devices (passport reader, e-ticket printer, boarding pass printer, ID card reader, and frequent flyer card reader). To overcome

the hardware limitations, they used MOXA's UPort 1410, a 4-port USB-to-serial hub, to add 4 serial ports through one USB port. This was all done without needing to remove the outer cover of the computer. Another attractive feature was the top transmission performance provided by the UPort 1410. With 921.6 Kbps serial transmission, up to 480 Mbps USB transmission (USB 2.0), and a 128-byte FIFO, the UPort 1410 enhances the self-help kiosk transmission performance and reduces the system's overall loading.

Benefits

- Four RS-232 serial ports for easy expansion
- High speed USB 2.0, for up to 480 Mbps over USB
- Serial transmission speed up to 921.6 Kbps
- Support for all major operating systems



Automated Semiconductor Processing



- Objective:**
Connect multiple FOUPs to IPCs in automated semiconductor processing machines
- Recommended Product(s):**
4-port RS-232 USB-to-Serial Hub (UPort 1410)
- Major Benefit:**
Overcomes existing hardware limits with instant, plug-and-play device expansion

Background

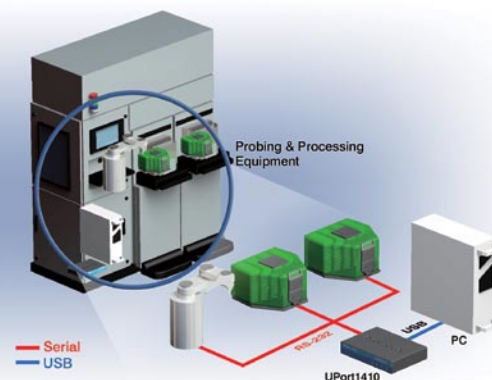
In an automated wafer manufacturing system, wafers are stored in a front open unified pod (FOUP) for inspection or processing. The procedures involved in wafer manufacturing require specific types of equipment with industrial grade PCs (IPCs) built-in. While IPCs can connect to the manufacturing execution system (MES) over Ethernet, some IPCs require a multiport serial board to connect to the SMIF or to the load/unload ports. However, as IPCs grow more and more compact, multiport serial boards are no longer an option due to the limited space that is available.

Solution

The easiest solution is to add COM ports from outside of the PC by using USB-to-serial hubs. MOXA's UPort 1410 adds four RS-232 serial ports to any USB-capable IPC and does not require system integrators to know I/O or IRQ settings for troubleshooting. When compared to multiport serial boards that are installed internally, USB-to-serial solutions are easier to install and maintain, making them ideally suited for the processing equipment used in semiconductor wafer manufacturing.

Benefits

- Simplifies maintenance with external COM expansion
- Overcomes limitations of smaller PCs



Evaluation System for GSM, CDMA, UMTS and TD-SCDMA Networks



Objective:

Improve access to GSM, CDMA, UMTS and TD-SCDMA evaluation systems for inspection engineers

Recommended Product(s):

4-port RS-232 USB-to-Serial Hub (UPort 1410)

Major Benefit:

Enables easy maintenance and high mobility with USB design

Background

Wireless service providers rely on network optimization and evaluation systems, many of which are installed in vehicles for mobility, to ensure reliable, uninterrupted service. Frequent onsite maintenance by a technician is required for maximum effectiveness. However, many pieces of equipment must be managed using a serial console, and lugging a PC between sites is not feasible.

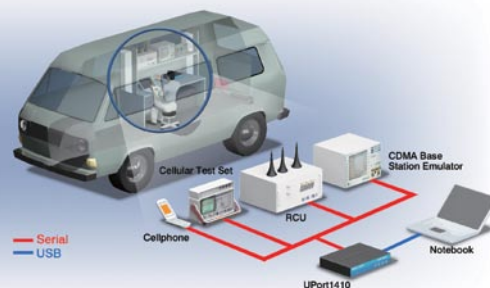
Solution

To keep technicians mobile, a laptop is used instead of a PC for serial console connections. Since laptops typically come with USB ports instead of COM ports, a USB-to-serial hub is a critical accessory.

MOXA's UPort 1410 is a USB-to-serial hub that adds four RS-232 ports through one USB port. The hub is the size of a paperback novel, giving the laptop maximum mobility and functionality. With UPort installed, technicians can be both mobile and well-equipped to perform tests such as handset quality, dial, MOS, C/I, scanner CW, pilot scanning, spectrum, and UMTS video call tests.

Benefits

- Enables easy maintenance and high mobility with USB design
- Overcomes physical limitations of small form factor PC's



Compact GPS Experimental Platform



Objective:

Establish compact GPS experimental platform

Recommended Product(s):

4-port RS-232 USB-to-Serial Hub (UPort 1410)

Major Benefit:

Increases mobility for GPS researchers on infield assignments

Background

With rapid advancements in communication technology, university researchers have been eager to explore the possibilities of wireless communication in a way that can positively impact society.

Conventional GPS-based experimental platforms consist of many GPS signal transmitters using RS-232 as the data communication interface. Researchers must use desktop computers to access the equipment, which reduces their mobility when conducting infield research.

Solution

Reducing the size of the experimental platform allows the testing tools to be more mobile, giving researchers more freedom of movement. The platform is about the size of a typical suitcase. The GPS signal transmitters are connected to a 4-port USB-to-Serial hub and are installed inside the case. The case can be moved around from place to place to perform signal transmission error tests, GPS measurement error tests, and satellite orbit calculations.

Benefits

- Increases mobility during infield assignments.
- Allows students to use laptop to access platform.
- Greatly reduces school's procurement costs.

