UPort® 1600-16 Series

16-port RS-232 and RS-232/422/485 USB-to-serial converters

> Hi-Speed USB 2.0 for up to 480 Mbps USB transmission
> 921.6 Kbps maximum baudrate for super fast data transmission
> 15N high retention USB type B connector
> 128-byte FIFO and on-chip H/W, S/W flow control
> Standard 19-inch rack-mountable
> Built-in 15 KV ESD protection on all serial ports
> IP30-rated, rugged metal housing
> COM port assignments maintained across different PCs
> Mini DB9 female to terminal block adaptor for easy wiring
> Drivers provided for Windows, WinCE, and Linux

Overview

The UPort® 1600-16 USB-to-serial converters allow you to connect 16 RS-232 or RS-232/422/485 devices to your laptop or workstation through the USB (Uni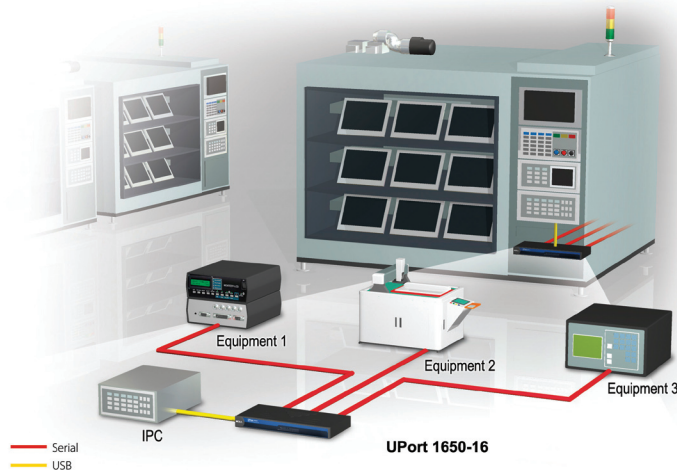versal Serial Bus) port. The UPort® 1600-16 converters are compatible with new and legacy serial devices, and are perfect for instrumentation, and manufacturing applications.

Typical Application—TFT-LCD Manufacturing

Manufacturing TFT-LCD (thin film transistor liquid crystal display) panels is a complicated and highly technical process. The three major stages in TFT-LCD panel production are the array, LC cell, and module assembly processes. In addition, each finished panel must also pass a series of quality inspection tests, which include defect inspection and lighting tests. The most challenging part of the TFT-LCD manufacturing process is achieving zero fault tolerance for high quality and productivity. One of our customers needed a USB-to-serial solution to transmit data between a host and quality inspection equipment in the TFT-LCD manufacturing process. In such a demanding manufacturing environment, adopting multiple ports and Moxa's ruggedly designed UPort® 1650-16 USB-to-serial converter proved to be the best option.

The UPort® 1650-16 has the following features:

• Standard 19-inch rackmount size and metal housing for industrial-grade requirements
• Up to 16 ports for easy USB-to-serial expansion
• 3-in-1 serial ports for a cost-effective solution
• True USB 2.0 Hi-Speed transmission for greater productivity
• 128-byte FIFO and on-chip hardware and software flow control to ensure stable data transmission during inspection
• Each serial port has its own LED indicator for easy troubleshooting

Equipment 1
Equipment 2
Equipment 3
IPC
UPort 1650-16
— Serial
— USB

Specifications

USB Interface
Compliance: USB 1.1/2.0 compliant
Connector: USB type B
Speed: 480 Mbps (Hi-Speed USB) and 12 Mbps (Full-Speed USB)

Serial Interface
Number of Ports: 16
Serial Standards:
UPort 1610-16: RS-232
UPort 1650-16: RS-232/422/485
Connector: DB9 male

Serial Line Protection
ESD Protection: 15 KV embedded

Performance
Baudrate: 50 bps to 921.6 Kbps (including 500 Kbps)

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
FIFO: 128 bytes

Serial Signals
RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Direction: ADDC® (Automatic Data Direction Control)

Driver Support
Operating Systems: Windows 2000, Windows XP/2003/Vista/2008/7 x86/x64, Win CE 5.0/6.0, Linux 2.4, Linux 2.6 x86/x64
Note: Please refer to Moxa's website for the latest driver support information.

Physical Characteristics
Housing: SECC sheet metal (1 mm), IP30 protection
Weight:
Product only: 2475 g (5.45 lb)
Packaged: 3440 g (7.58 lb)
Dimensions: 440 x 45.5 x 198.1 mm (17.32 x 1.79 x 7.80 in)

Environmental Limits
Operating Temperature: 0 to 55°C (32 to 131°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)

Standards and Certifications
Safety: UL 60950-1
EMC: CE, FCC
EMI: EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A
EMS: EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11
Green Product: RoHS, CRoHS, WEEE

Power Requirements
Input Voltage: 100 to 240 VAC external power
Power Consumption:
UPort 1610-16: 130 mA @ 100 VAC
UPort 1650-16: 150 mA @ 100 VAC

MTBF (mean time between failures)
Time:
UPort 1610-16: 138,704 hrs
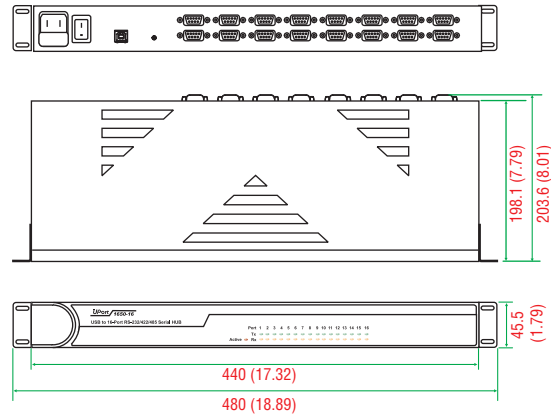UPort 1650-16: 120,001 hrs
Database: MIL-HDBK-217F

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

Ordering Information

Available Models
UPort 1610-16: 16-port RS-232 USB-to-serial converter
UPort 1650-16: 16-port RS-232/422/485 USB-to-serial converter

Optional Accessories (can be purchased separately)
Mini DB9F-to-TB Adaptor: DB9 female to terminal block adaptor for RS-422/485 applications
Rackmount Kit: Metal plates and screws

Package Checklist
- 1 UPort 1600-16 USB-to-serial converter
- USB-IF certified cable
- Power cord
- 1 mini DB9 female to terminal block adaptor (UPort 1650-16 only)
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card