

# 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
- > COM port assignments maintained across different PCs
- > Supports fixed-base COM Utility for setting the initial extended COM port number
- > Mini DB9 female to terminal block adapter 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 (Universal Serial Bus) port. The UPort® 1600-16

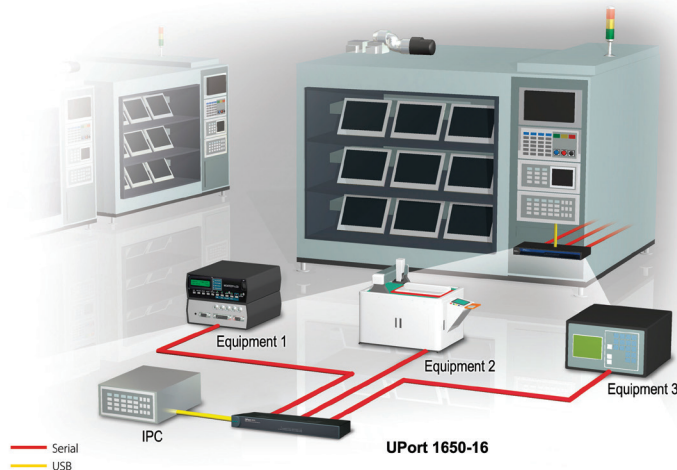
converters are compatible with new and legacy serial devices, and they are perfect for instrumentation and manufacturing applications.

### : 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



## 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

### 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)

### Operating Systems

**Windows Real COM Drivers:** Windows 2000, Windows XP/2003/  
 Vista/2008/7/8/8.1/10 (x86/x64), Windows 2012 (x64), Windows  
 Embedded CE 5.0/6.0

**Linux Real TTY Drivers:** Linux 2.4.x, 2.6.x, 3.x

**Android Driver:** Android 3.1.x and later

*Note: Please refer to Moxa's website for the latest driver support information.*

### Physical Characteristics

**Housing:** SECC sheet metal (1 mm)

#### Weight:

Product only: 2475 g (5.45 lb)

Packaged: 3485 g (7.68 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:** EN 55032/24

**EMI:** CISPR 32, FCC Part 15B Class A

#### EMS:

IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

IEC 61000-4-4 EFT: Power: 1 kV

IEC 61000-4-5 Surge: Power: 1 kV;

IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m

IEC 61000-4-8 PFMF

**Green Product:** RoHS, CRoHS, WEEE

### Power Requirements

**Input Voltage:** 100 to 240 VAC

**Input Current:** 220 mA @ 100 VAC

### MTBF (mean time between failures)

#### Time:

UPort 1610-16: 138,704 hrs

UPort 1650-16: 120,001 hrs

**Standard:** MIL-HDBK-217F

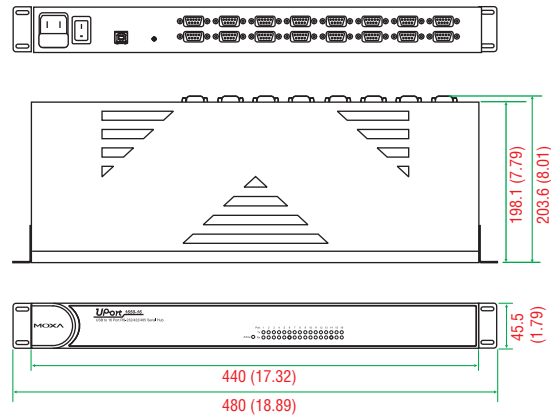
### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://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:** DB9 female to terminal block connector

**CBL-USBA/B-100:** USB Type A to USB Type B cable, 100 cm

**CBL-F9M9-150:** DB9 female to DB9 male serial cable, 150 cm

**CBL-F9M9-20:** DB9 female to DB9 males serial cable, 20 cm

**CBL-RJ45SF9-150:** RJ45 to DB9 female shielded serial cable, 150 cm

**ADP-RJ458P-DB9:** DB9 female to RJ45 connector

**A-ADP-RJ458P-DB9F-ABC01:** DB9 female to RJ45 connector

**WK-44-01:** 19" rackmount L brackets (2 L-shaped plates with 8 screws)

*Note: One power cord suitable for your region is included in the product package. Additional power adapters and power cords can be purchased separately. Please refer to the Power Accessory Selection Guide for details.*

### Package Checklist

- 1 UPort 1600-16 USB-to-serial converter
- USB cable: CBL-USBA/B-100
- 1 power cord suitable for your region
- 1 serial adapter: mini DB9F-to-TB (UPort 1650-16 only)
- 1 pair of 19" rackmount L brackets: WK-44-01
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

# Power Accessory Selection Guide

Barrel Plug Type		Non-locking barrel plug		Locking barrel plug			
O/P		12 VDC, 1.5 A, 100 to 240 VAC		12 VDC, 3 A 100 to 240 VAC (Switch Mode)			
Plug Type		CN	US/JP	EU	AU	UK	CN
Model Name		PWR-12150-CN-S2	PWR-12300-WPUSJP-S1	PWR-12300-WPEU-S1	PWR-12300-WPAU-S1	PWR-12300-WPUK-S1	PWR-12300-WPCN-S1
Appearance							
2 ports	UPort 1250	-	-	-	-	-	-
	UPort 1250I	✓	-	-	-	-	-
	UPort 2210	-	-	-	-	-	-
4 ports	UPort 1410	✓	-	-	-	-	-
	UPort 1450	✓	-	-	-	-	-
	UPort 1450I	✓	-	-	-	-	-
	UPort 2410	-	-	-	-	-	-
	UPort 204	-	✓	✓	✓	✓	✓
7 ports	UPort 404	-	✓	✓	✓	✓	✓
	UPort 207	-	✓	✓	✓	✓	✓
	UPort 407	-	✓	✓	✓	✓	✓
8 ports	UPort 1610-8	✓	-	-	-	-	-
	UPort 1650-8	✓	-	-	-	-	-

Barrel Plug Type		Locking barrel plug						
O/P		12 VDC 2 A, 100 to 240 VAC (desktop type)		2.5A/250 V Power Cord, 183 cm				
Plug Type		Must be used with a power cord		US	JP	EU	AU	UK
Model Name		PWR-12125-DT-S2	PWC-C7US-2B-183	PWC-C7JP-2B-183	PWC-C7EU-2B-183	PWC-C7AU-2B-183	PWC-C7UK-2B-183	
Appearance								
2 ports	UPort 1250	✓	✓	✓	✓	✓	✓	✓
	UPort 1250I	✓	✓	✓	✓	✓	✓	✓
	UPort 2210	-	-	-	-	-	-	-
4 ports	UPort 1410	✓	✓	✓	✓	✓	✓	✓
	UPort 1450	✓	✓	✓	✓	✓	✓	✓
	UPort 1450I	✓	✓	✓	✓	✓	✓	✓
	UPort 2410	-	-	-	-	-	-	-
	UPort 204	-	-	-	-	-	-	-
7 ports	UPort 404	-	-	-	-	-	-	-
	UPort 207	-	-	-	-	-	-	-
	UPort 407	-	-	-	-	-	-	-
8 ports	UPort 1610-8	✓	✓	✓	✓	✓	✓	✓
	UPort 1650-8	✓	✓	✓	✓	✓	✓	✓

Model Name	PWC-C13US-3B-183	PWC-C-13EU-3B-183 (CEE 7/7 to IEC C13)	PWC-C13UK-3B-183	PWC-C13JP-3B-183	PWC-C13AU-3B-183	PWC-C13CN-3B-183
Appearance						
Region	US	EU	UK	JP	AU	CN
Voltage	125 V	250 V	250 V	125 V	250 V	250 V
Thickness	6.3 ± 0.2 mm	6.7 ± 0.2 mm	6.7 ± 0.2 mm	7.0 ± 0.2 mm	6.7 ± 0.2 mm	6.7 ± 0.2 mm
Max. Current	10 A	10 A	10 A	7 A	10 A	10 A
Length	1830 ± 30 mm	1830 ± 30 mm	1830 ± 30 mm	1830 ± 30 mm	1830 ± 30 mm	1830 ± 30 mm
Related Products	UPort 1610-16, UPort 1650-16					