In-line USB Converters
USOPTL4, USPTL4, USO9ML4

B+B SMARTWORX

Powered by **ADVANTECH**

PRODUCT FEATURES

- 2000 V RMS Optical Isolation (isolated models)
- Adds a COM Port to Your PC
- LEDs for Transmit and Receive Data Lines
- USB 1.0, 1.1 and 2.0 Compatible (12 Mbps)
- High Retention USB Port
- Powered by USB Port
- Locked Serial Number option (-LS models)

Models USOPTL4, USPTL4 and USO9ML4 are USB to one port RS-422/485 converters. Supporting 2-wire RS-485 or 4-wire RS-422/485 communications, these devices are great for applications requiring long range or multi-drop capabilities. High retention USB port holds standard USB cables tight.

Models USOPTL4 & USO9ML4 include circuitry with 2000 Volts isolation to protect against ground loops and voltage spikes. Models USOPTL4 and USPTL4 use pluggable terminal blocks on the RS-422/485 side while Model USO9ML4 uses a DB9 connector on the RS-422/485 side. Two LEDs indicate data transmit or receive. The converters draw power from the USB port so no power supply is required.

Simply install the drivers supplied on CD ROM and plug the converter into an available USB port on your computer or USB hub. The device show ups as an additional COM port in the Windows Device Manager, and is compatible with Windows applications.

Universal Serial Bus (USB)
USB has become the connectivity workhorse of today's PCs, replacing classic serial ports. But, many commercial and industrial devices still use RS-422/485 interfaces. To connect these devices to modern PCs, you need robust and reliable conversion solutions. USB ports are becoming more common on commercial and industrial equipment such as point-of-sale peripherals, medical devices, scientific instrumentation, laboratory equipment and other devices or in environments where surges, spikes and ground loops are likely to occur.

RS-485 Control
No special software is required to control the RS-485 receiver or transmit line driver. The driver is automatically enabled during each byte transmitted in RS-485 mode. The transmitter is always enabled in RS-422 mode. The receiver is tri-stated during each byte transmitted in the echo-off mode. The receiver is always enabled in the echo-on mode. There are 4.7k Ohm pull-up/pull-down resistors on the RDA and RDB lines. A termination resistor may be added to R16 if needed. See the B+B Smartworx RS-422/RS-485 Application Note (available on our website) for more information on termination and DC biasing of an RS-485 network.

ORDERING INFORMATION

MODEL NO.	ISOLATION	RS-422/RS-485 CONNECTOR	LOCKED SERIAL NUMBER?
USOPTL4	2 kV	Pluggable Terminal Block	–
USOPTL4-LS	2 kV	Pluggable Terminal Block	Yes
USPTL4	–	Pluggable Terminal Block	–
USPTL4-LS	–	Pluggable Terminal Block	Yes
USO9ML4	2 kV	DB9 Male Connector	–

ACCESSORIES
TB5P508SR-2PK - 5-position terminal block with strain relief paddle board, 2 pack

Locked Serial Numbers Explained

We configure our single-port USB to serial converters in two ways. In standard format, each product has a unique serial number. "Locked serial" format uses the same serial number that is associated with a model type.

If your converter will always be used with the same computer, the standard serialized model is all you need. If the converter is shared among several computers, like field service laptops, the locked serial number model lets you plug and play without having to worry about matching the two.

Description	Serialized	Locked Serial Number
Every unit is assigned a unique COM port	✔	-
Same type model numbers shares the same COM port	-	✔
Ideal applications	Fixed Locations	Field Service

When ordering Locked Serial Number versions, add a "-LS" to the item number. Serialized and Lock Serial Number versions sell for the same price.

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SPECIFICATIONS

SERIAL TECHNOLOGY	
RS-422/485 4-Wire	TDA(-), RDA(-), TDB(+), RDB(+), GND
RS-485 2-Wire	DATA A(-), DATA B(+), GND
Connector	Terminal block (USOPTL4, USOPTL4-LS, USPTL4, USPTL4-LS) DB9 male connector (USO9ML4)
Data Rate	460.8 Kbps
Isolation	2 kV RMS (USOPTL4, USOPTL4-LS, USO9ML4)
Surge Protection	15kV ESD
Industrial Bus	Modbus ASCII/RTU
Bias	4.7 KΩ on receive lines in RS-422/485 mode
USB TECHNOLOGY	
USB Compatibility	1.1 and 2.0
Speed	1.5, 12 Mbps
Connector	Type B High Retention (15 N / 3.4 lbs-force withdrawal)
Operating System	Windows 2000, XP (32/64 bit), Vista (32/64 bit), 7 (32/64 bit), 8 (32/64 bit), 10 (32/64 bit) 2003 & 2008 Server (32/64 bit) **Download Windows 10 drivers at: *www.advantech-bb.com***
POWER	
USB	Low power device (draws <100 mA)
INDICATORS	
LEDs	Transmit Data, Receive Data
MECHANICAL	
Dimensions	8.9 x 4.3 x 2.1 cm (3.5 x 1.7 x 0.8 in)
Enclosure	IP30, Plastic
MTBF USOPTL4-xx	2,267,7779 hours
MTBF USPTL4-xx	1,012,584 hours
MTBF USO9ML4	380,087 hours
MTBF Calc. Method	MIL 217F Parts Count Reliability
ENVIRONMENTAL	
Operating Temperature	0 to 70 °C (32 to 158 °F)
Operating Humidity	0 to 95% Non-condensing

APPROVALS / CERTIFICATIONS	
2004/108/EC	Electromagnetic Compatibility Directive
2011/65/EU	Reduction of Hazardous Substances Directive
EN55022: Class B	Information technology equipment - RF Emissions
EN55024	Information technology equipment - Immunity
EN 6100-6-1	Generic Standards for Residential, Commercial and Light-Industrial Environments
EN61000-4-2	ESD Immunity
EN61000-4-3: +A2	Radiated Immunity
EN61000-4-4	EFT/Burst Immunity
EN61000-4-6	RF Conducted Immunity

MECHANICAL DIAGRAM

4.3 cm
1.7 in

8.9 cm
3.5 in

2.1 cm
0.8 in