



Models: USOPTL4 and USPTL4

## Connect and Isolate an RS-422/485 Network to your USB Port

### Features

- 2000 V RMS optical isolation
- 15KV ESD surge protection
- Adds a COM port to your PC
- Protects against surges, spikes and ground loops
- LEDs for transmit and receive lines
- USB 1.0, 1.1 and 2.0 compatible (12 Mbps)
- Automatic configuration on Windows 98, ME, 2000, XP, Vista
- No power supply required (powered from USB bus)
- Includes 1 meter USB cable

### Applications

- Factory floor
- Medical
- Kiosk
- Point of sale
- SCADA



*Connects PCs or laptops with USB ports to devices with RS-232, RS-422, or RS-485 ports.*

Models USOPTL4 and USPTL4 are USB to one port RS-422/485 converters. Supporting 2-wire RS-485 or a 4-wire RS-422/485 communications, these devices are great for any application that requires long range or multi-drop capabilities. Both models use pluggable terminal blocks on the RS-422/485 side and have a pair of LEDs that indicate data being transmitted or received. Model USOPTL4 includes special circuitry that adds 2000 volts isolation protection against ground loops and voltage spikes. Both products draw power from the USB port so no power supply is required.

Simply plug the converter into an available USB port on your computer or USB hub and the device will show up as an additional COM port in the Windows Device Manager. Configured as an additional COM port, the converter is now compatible with your Windows applications.

Universal Serial Bus (USB) has become the connectivity workhorse of today's PCs, replacing the familiar 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. At the same time, 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. Sometimes these are used 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 B&B's RS-422/RS-485 Application Note (available on our website) for more information on termination and DC biasing of an RS-485 network.

## Dip Switch Set-up

Dip switches allow the module to be configured for two-wire or four-wire, RS-422 or RS-485 modes. In two-wire mode the TDA (-) and RDA (-) are tied together and so are TDB (+) and RDB (+), making multi-dropping this converter into an existing network easy.

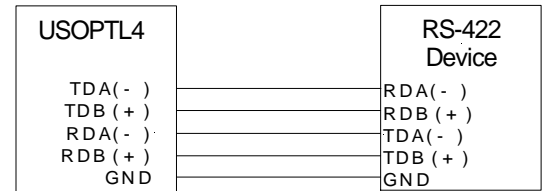
| Switch | OFF                                   | ON   |
|--------|---------------------------------------|--|
| One    | TD always enabled<br><b>(TD 422)</b>  | TD only enabled during data transmission.<br><b>(TD 485)</b> |
| Two    | RD always enabled<br><b>(ECHO ON)</b> | RD disabled during data transmission.<br><b>(ECHO OFF)</b>   |
| Three  | Four-wire mode<br><b>(4-Wire)</b>     | Two-wire mode<br><b>(2-Wire)</b>                             |
| Four   | Four-wire mode<br><b>(4-Wire)</b>     | Two-wire mode<br><b>(2-Wire)</b>                             |

## Specifications

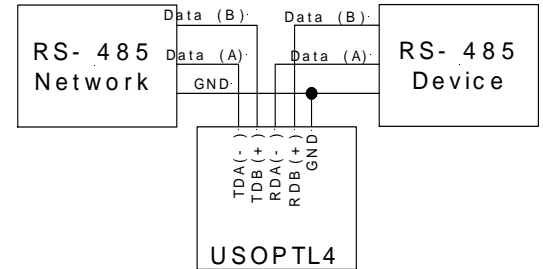
|                       |   |
|-----------------------|---|
| Dimensions:           | 3.5 x 1.7 x 0.8 in (8.9 x 4.3 x 2.1 cm) |
| Temperature Range:    | 0 to 70°C (32 to 158°F)                 |
| RS-422/485 Baud Rate: | Up to 460.8 kbps                        |
| RS-422/485 Connector: | Pluggable (removable) terminal blocks   |
| USB Baud Rate:        | 12 Mbps                                 |
| USB Connector:        | USB type-B female                       |
| USB Power:            | Low power device (draws < 100mA)        |
| Operating System:     | Windows 98/SE, 2000, ME, XP, Vista      |
| Accessories:          | Driver CD, USB Cable                    |
| Isolation:            | 2000 V RMS (excludes model USPTL4)      |
| Surge Protection:     | 15KV ESD                                |

## Ordering Information

| Model   | Description                                    |
|---------|--|
| USOPTL4 | USB to RS-422/485 Optically Isolated Converter |
| USPTL4  | USB to RS-422/485 Converter                    |



*USOPTL4 in a four-wire set-up with all switches in the OFF position.*



*USOPTL4 in a two-wire set-up with all switches in the ON position.*

### DECLARATION OF CONFORMITY

Manufacturer's Name: B&B Electronics Manufacturing Company  
 Manufacturer's Address: P.O. Box 1040  
 707 Dayton Road  
 Ottawa, IL 61350 USA  
 Model Numbers: USOPTL4, USPTL4  
 Description: Optically Isolated USB to RS-422/485 Converter  
 Type: Light industrial equipment  
 Application of Council Directive: 89/336/EEC  
 Standards: EN 55022  
 EN 61000-6-1  
 EN 61000 (-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11)

*Michael J. Fahrion*



Michael J. Fahrion, Director of Engineering



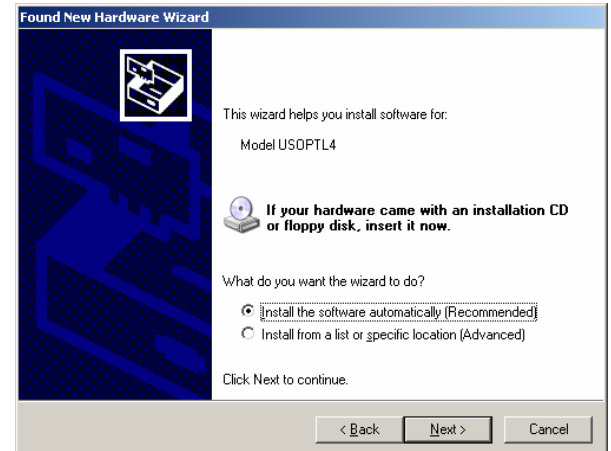
**International Headquarters:** 707 Dayton Road PO Box 1040 Ottawa, IL 61350 USA  
 815-433-5100 Fax 433-5104 [www.bb-elec.com](http://www.bb-elec.com) [orders@bb-elec.com](mailto:orders@bb-elec.com) [support@bb-elec.com](mailto:support@bb-elec.com)

**European Headquarters:** Westlink Commercial Park Oranmore Co. Galway Ireland  
 +353 91 792444 Fax +353 91 792445 [www.bb-europe.com](http://www.bb-europe.com) [orders@bb-europe.com](mailto:orders@bb-europe.com) [support@bb-europe.com](mailto:support@bb-europe.com)

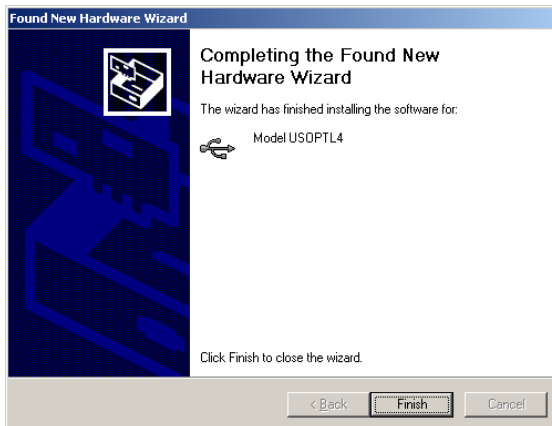
## Installation for Windows - using model USOPTL4



#1. Plug the USOPTL4 into an available USB port on your computer or connected hub. The screen above appears, telling you that there is a new device plugged into the USB bus. Click on *No, not this time*, then the **Next>** button.



#2. The screen above appears. Make sure *Install the software automatically* is selected. Then select the **Next>** button.



#3. The screen above will appear. Click the **Finish** button to complete the installation.



#4. You will also need to continue to install the serial port the same as installing the converter. Click the **Next** button followed by the **Finish** button. It will take a couple seconds for the serial port to be installed.