



Models: USOPTL4DR & USOPTL4DR-2
 DIN Rail Mount, Isolated, USB to 1 or 2 Port RS-422/485 Converter



Features

- ✓ Connects multiple RS-422/485 devices to your USB Port
- ✓ 3000 V RMS Port-to-port Optical Isolation
- ✓ 15 KV ESD Surge Protection
- ✓ USB Port Powered
- ✓ Supports USB 2.0 (Backward Compatible)
- ✓ RS-422/485 Data Rates up to 921.6 kbps
- ✓ LED's to indicate data flow on Serial Ports
- ✓ High retention USB interface ensures a reliable connection
- ✓ Removable terminal block on serial ports make wiring easy
- ✓ Automatic Configuration for Windows 98, ME, 2000, XP, and Vista



Functional Description

Connect RS-422 and RS-485 (2-Wire and 4-Wire) devices to a USB port and gain 3000 V RMS Isolation from voltage spikes and ground loops. Universal Serial Bus (USB) has become the connectivity workhorse of today's PCs, replacing the familiar serial ports. However, many commercial and industrial devices still use the RS-422/485 interface. To connect these devices to modern PCs and provide protection from electrical transients, you need a simple and reliable conversion solution. The USOPTL4DR and USOPTL4DR-2 offer this solution and are great for any application that requires long range or multi-drop capabilities. Both models offer a high retention USB interface, removable terminal blocks on the serial side and have LED's to indicate data flow. Simply plug the converter into an available USB port on your computer or USB hub and install the drivers supplied on CD ROM. The device will show up as additional COM ports in the Windows Device Manager, which are fully compatible with your Windows applications. A one meter USB cable is included.

Ordering Information

Model Number	Description
USOPTL4DR	Isolated USB to 1 Port RS-422/485 Converter
USOPTL4DR-2	Isolated USB to 2 Port RS-422/485 Converter
Accessory Items	
USBAMBM-3F (One Included)	1 m (3ft) USB Cable
USBAMBM-6F	2 m (6ft) USB Cable



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Operation

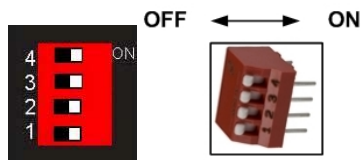
- Drivers are on the Compact Disk included with the converter. Simply connect it to an available USB port and insert the CD into the drive. The “Found New Hardware Wizard” will guide you through the installation process. These drivers are not available via Microsoft Windows Updates. When prompted to connect to Windows Updates to search for drivers, select “No, not at this time” and follow the instructions for installing from the CD. Installation is complete once the drivers for each serial port are installed.
- When the driver software is installed, the USOPTL4DR or USOPTL4DR-2 will show up in Windows Device Manager as the next available COM ports and will be labeled “RS-485 Isolated Port.” “Model USOPTL4DR” will also be listed under USB Controllers. Follow the instructions in the “readme” file to uninstall the drivers.
- LED’s on each serial port indicate transmit and receive data.
- DIP Switches are used to configure each port. The ports can be configured for RS-422 or RS-485 (2/4-Wire) operation. In 2-Wire RS-485, the TDA(-) and RDA(-) are tied together and so are the TDB(+) and RDB(+), making multi-dropping this converter into an existing network easy. The switches are located front of the unit. Table 1 explains the function of each switch.
- 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 4.7 kΩ pull-up/pull-down resistors in the RDA and RDB lines. In 4-wire mode, transmit line bias must be provided by the end of line slave device. If termination is required, it must be installed external to the converter.
- For more information visit the product information page and the technical library at <http://www.bb-elec.com>

General Specifications

Input Power	5VDC from USB Port
Power Consumption	High Power Device (>500 mA)
Isolation	3 KV (Port-to-port) Optical
Surge Protection	15 KV ESD
Operating Temperature	32 to 158 °F (0 to 70 °C)
Operating Humidity	0 to 95% Non-condensing
USB Connector	USB type B Female (High Retention)
RS-422/485 Connectors	Removable Terminal Blocks
USB Data Rate	12 Mbps
RS-422/485 Data Rate	921.6 kbps (max)
USB Standard	2.0 (Backward Compatible)
Dimensions	4.6 x 3.5 x 1.2 in (11.8 x 9.0 x 3.0 cm)
MTBF (USOPTL4DR)	184556 hours
MTFB (USOPTL4DR-2)	79551 hours
Approvals	CE, FCC

Table 1 - DIP Switch Legend

SW	OFF (Left / Up)	ON (Right / Down)
4	Four Wire Mode	Two Wire Mode
3	Four Wire Mode	Two Wire Mode
2	Echo On (RD Always Enabled)	Echo Off (RD disabled during transmission)
1	RS-444 (TD Always Enabled)	RS-485 (TD Enabled during transmission)



CE Declaration of Conformity

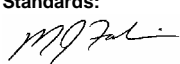
Manufacturer's Name:	B&B Electronics Manufacturing Company
Manufacturer's Address:	PO Box 1040 707 Dayton Road Ottawa, IL 61350 USA
Model Number:	USOPTL4DR / USOPTL4DR-2
Description:	Isolated USB to RS-422/485 Converter
Type:	Light Industrial ITE Equipment
Application of Council Directive:	89/336/EEC
Standards:	EN55022 EN 61000-6-1 EN 61000 (-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11)
 Michael J. Fahrion, Director of Engineering	

Table 2 – Terminal Board

Label	Function
T+	TDB (+)
T-	TDA (-)
R+	RDB (+)
R-	RDB (-)
G	Ground

Note:
Terminal board layout is top to bottom. Label mark is visible only when the terminal block plug is removed.



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