

**USB-485B**

**USB 2.0 To RS-485 Adapter - DB9**

Datasheet Revision 2.4

**GENERAL FEATURES:**

- Plug-and-Play (hot-pluggable)
- Adds one RS-485 port to USB port
- Terminal block with optional 120 Ohm termination included
- USB 1.1 and 2.0 compatible
- Port powered - no external power needed
- Supports 300 baud to 1Mbps rates
- 3 feet (1m) cable for convenience
- Transmit / Receive LED indicators
- Data direction auto-turnaround - no flow control necessary
- Internal 128/385 byte TX / RX buffers
- No IRQs, IO, DMA required. No IRQ conflicts
- Supports remote wakeup and power management
- Easy to install included drivers
- Built-in surge and static protection
- 5 Year manufacturer's warranty
- RoHS, CE, and FCC certified



**DESCRIPTION:**

The SerialComm USB-485B is a bi-directional USB-powered USB to RS-485 converter with built-in 120 ohm termination option, which makes a half-duplex RS-485 available to a PC via the USB port. The USB-485B has a db-9 male connector on the RS-485 port, and a USB type A female on the USB port. The adapter is powered from the USB port and no external power is needed. USB cable, terminal block, and drivers are included in the package.

The USB-485B uses the latest FTDI chipset and is fully compatible with Windows 8 32/64, Windows 7 32/64, Vista 32/64, Server 2003, Server 2008, Server 2008 R2, XP 32/64, 2000 98Se, CE, Mac 8/9/x, Linux.

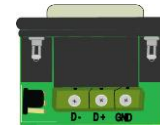
**CERTIFICATIONS:**



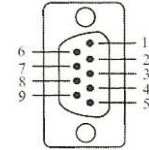
**PINOUT CONFIGURATION:  
RS-485 SIDE – DB9 MALE**

RS-485	D-	D+			GND
PIN #	1	2	3	4	5

If you are using the terminal block for the RS-485 application, please use the 3 position terminal block with optional built-in 120 ohm termination.



**MALE DB9**

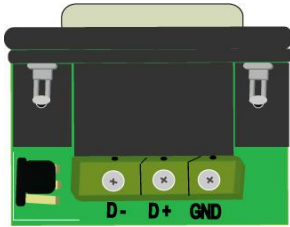


**SPECIFICATIONS:**

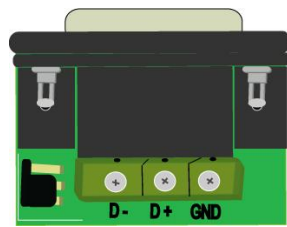
COMMUNICATION	
<b>STANDARDS:</b>	USB 2.0 and 1.1 Standards - RS-485 Standard
<b>OPERATING SYSTEM:</b>	Windows 10 (32/64), Windows 8.1 (32/64), Windows 8 (32/64), Windows 7 (32/64), Vista (32/64), Server 2012, Server 2008 R2, Server 2008, Server 2003, XP (32/64), 2000, 98Se, CE, Mac 8/9/X, Linux and Android
<b>BAUD RATES:</b>	From 300 dps To 1 mbps
<b>CONNECTOR TYPES:</b>	USB Side: Type A Female and RS-485 Side: DB9 Male or 3 Position Terminal Block
<b>DISTANCE:</b>	USB Side: 10ft (3m) and RS-485 Side: 4000 ft (1.2km)
<b>LED INDICATIONS:</b>	RX (GREEN) and TX (RED)
<b>DRIVERS:</b>	FTDI drivers are included in package
ELECTRICAL	
<b>POWER SOURCE:</b>	Port Powered From USB Port
<b>CURRENT CONSUMPTION:</b>	Less Than 100 mA
<b>STATIC PROTECTION:</b>	15KV Electric Static Discharge (ESD) Protection
<b>SURGE PROTECTION:</b>	600W/Sec Surge Protection
<b>CONVERSION IC:</b>	FTDI FT232RL
MECHANICAL	
<b>WEIGHT:</b>	2.7oz (76 grams)
<b>DIMENSIONS:</b>	<b>RS-485 Housing Without Terminal Block:</b> 1.98" X 1.43" X 0.72" (50.2 mm X 36.2 mm X 18.2 mm) <b>RS-485 Housing With Terminal Block:</b> 3.03" X 1.43" X 0.72" (76.9 mm X 36.2 mm X 18.2 mm)
ENVIRONMENTAL	
<b>OPERATING TEMP.:</b>	14° F to 140° F (-10°C to 60° C)
<b>STORAGE TEMP:</b>	-40° F to 185° F (-40°C to 85° C)
<b>OPERATING HUMIDITY:</b>	5% To 95% - No Condensation
QUALITY	
<b>PRODUCT SAFETY:</b>	CE, FCC and RoHS Conformance Certified
<b>QUALITY MANAGEMENT:</b>	Manufactured and Distributed to ISO 9001:2008
<b>RELIABILITY:</b>	Low Failure Rate – 99+% Reliability Since Inception
<b>WARRANTY:</b>	5 Year Replacement Warranty

## TERMINATION GUIDE:

The USB-485B terminal block has optional built-in 120 ohm termination. 120 ohm termination is an advanced feature typically used to reduce noise and signal reflections. It is recommended to use 120 ohm termination if you are exceeding 600 feet in distance, 19.6K baud or in a noisy environment. The terminal blocks are shipped with 120 Ohm termination off but can be turned on using the convenient jumper setting located on the left bottom of the terminal block.



3 POSITION WITH 120 OHM OFF



3 POSITION WITH 120 OHM ON

## RS-485 TROUBLESHOOTING INSTRUCTIONS:

Testing RS-485 using two USB-485B Units:

1. Perform a loop back test on two units:
  - a) Connect the two D+ to D+ and D- to D- on two USB-485B RS-485 ports.
  - b) Connect the two USB connectors on both units to a USB ports on the computer.
  - c) Install the USB-485B FTDI driver on the computer per instructions provided.
  - d) Running hyper terminal programs on both PCs, send ASCII characters to the USB-485B converter from one PC port, and check that the characters are received at the 2<sup>nd</sup> PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of the USB-485B unit is working properly.
  - e) When there is constant RX data you should see the GREEN light blink. When there is constant TX data you should see the RED light blink.

## APPLICATIONS:

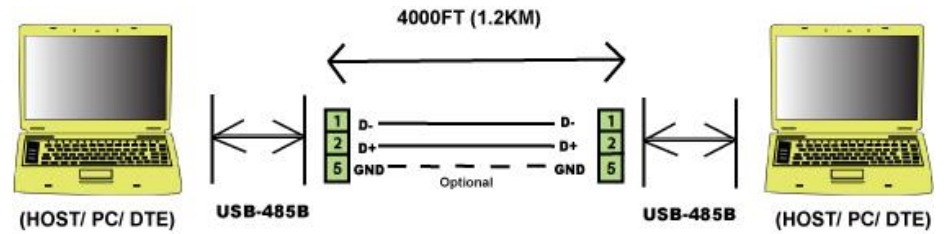


FIGURE 1: CONVERTING USB TO RS-485 POINT-TO-POINT

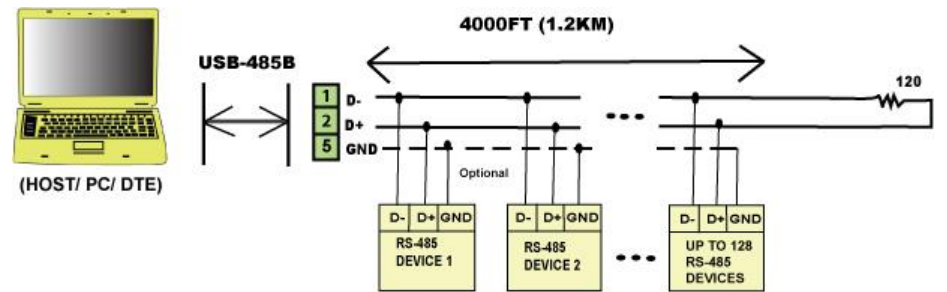


FIGURE 2: MASTER/SLAVE MULTIPLE DROP CONFIGURATION