SerialComm

Data Conversion Experts

SERIALCOMM.COM

USB-485C

USB 2.0 To RS-485/RS-422 Adapter -DB9

Datasheet Revision 2.8

GENERAL FEATURES:

- Plug-and-Play (hot-pluggable)
- Adds one RS-485/RS-422 port to USB port
- Terminal blocks with built-in 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 replacement manufacturer's warranty
- CE, FCC, RoHS and REACH certified

DESCRIPTION:

The SerialComm USB-485C is a bi-directional USB-powered USB to RS-485/RS-422 converter with built-in 120-ohm termination option, which makes a half-duplex RS-485 or a full-duplex RS-422 available to a PC via the USB port. The USB-485C a DB9 male connector on the RS-485/RS-422 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, two terminal blocks, and drivers are included in the package.

The USB-485C uses the latest FTDI chipset and is fully compatible with Windows 10 32/64, 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 OPTION – 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.

RS-422 OPTION – DB9 MALE

RS-422	T-	T+	R+	R-	GND
PIN #	1	2	3	4	5

If you are using the terminal block for the RS-422 application, please use the 5-position terminal block with optional built-in 120-ohm termination.
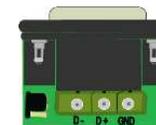
MALE DB9
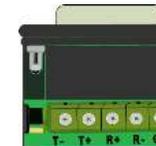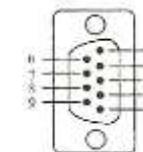
MALE DB9
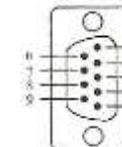
SPECIFICATIONS:

COMMUNICATION	
STANDARDS:	USB 2.0 & 1.1 Standards - RS-485 & RS-422 Standards
OPERATING SYSTEM:	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
BAUD RATES:	From 300 bps to 1 mbps
CONNECTOR TYPES:	USB Side: Type A Female and RS-485 /RS-422 Side: DB9 Male or 3 or 5 Position Terminal Block
DISTANCE:	USB Side 10ft (3m) & RS485/422 Side: 4000 ft (1.2km)
LED INDICATIONS:	RX (GREEN) and TX (RED)
DRIVERS:	FTDI drivers are included in package

ELECTRICAL	
POWER SOURCE:	Port Powered from USB Port
CURRENT CONSUMPTION:	Less Than 100 mA
STATIC PROTECTION:	15KV Electric Static Discharge (ESD) Protection
SURGE PROTECTION:	600W Surge Protection
CONVERSION IC:	FTDI FT232RL

MECHANICAL	
WEIGHT:	2.7oz (76 grams)
DIMENSIONS:	**RS-485/RS-422 Housing Without Terminal Block**: 1.98" X 1.43" X 0.72" (50.2 mm X 36.2 mm X 18.2 mm) **RS-485/RS-422 Housing With Terminal Block**: 3.03" X 1.43" X 0.72" (76.9 mm X 36.2 mm X 18.2 mm)

ENVIRONMENTAL	
OPERATING TEMP.:	14° F to 140° F (-10°C to 60° C)
STORAGE TEMP:	-40° F to 185° F (-40°C to 85° C)
OPERATING HUMIDITY:	5% To 95% - No Condensation

| QUALITY	
PRODUCT SAFETY:	CE, FCC, RoHS and REACH Third-party Certified
QUALITY MANAGEMENT:	Manufactured and Distributed to ISO 9001:2015 QMS
MEAN TIME BEFORE FAILURE:	421972 Hours
RELIABILITY:	Low Failure Rate – 99+% Reliability Since Inception
WARRANTY:	5 Year Replacement Warranty

TERMINATION GUIDE:

The USB-485C terminal blocks have 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 blocks.
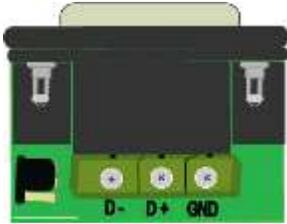
3-POSITION WITH 120-OHM OFF
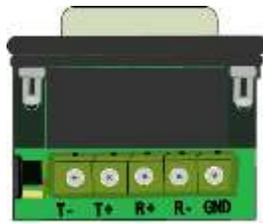
5-POSITION WITH 120-OHM OFF
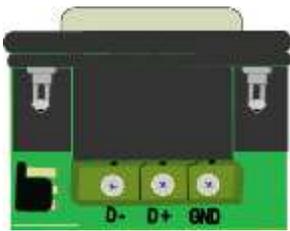
3-POSITION WITH 120-OHM ON
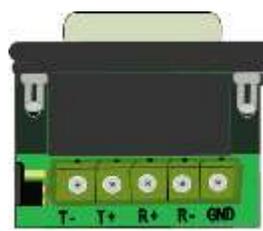
5-POSITION WITH 120-OHM ON

RS-485 TROUBLESHOOTING INSTRUCTIONS:

Testing RS-485 using two USB-485C Units:
1. Perform a loop back test on two units:
    a) Connect the two D+ to D+ and D- to D- on two USB-485C RS-485 ports.
    b) Connect the two USB connectors on both units to a USB ports on the computer.
    c) Install the USB-485C FTDI driver on the computer per instructions provided.
    d) Running hyper terminal programs on both PCs, send ASCII characters to the USB-485C converter from one PC port, and check that the characters are received at the 2nd PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of the USB-485C 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.

RS-422 TROUBLESHOOTING INSTRUCTIONS:

Testing RS-422 using one USB-485C unit:
1. Perform a loop back test on one port:
    a) Connect the TX+ to RX+ and TX- to RX- on the RS-422 port..
    b) Connect the USB connector on the cable to the USB port of the computer.
    c) Install the USB-485C FTDI driver on the computer per instructions provided.
    d) Running a hyper terminal program on the PC, send ASCII characters to the USB-485C converter from one PC port, and check that the characters are received at the same PC port. This tests that the transmit and receive functions of the USB-485C 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:
RS-232 TO RS-485 MODE OPTION:
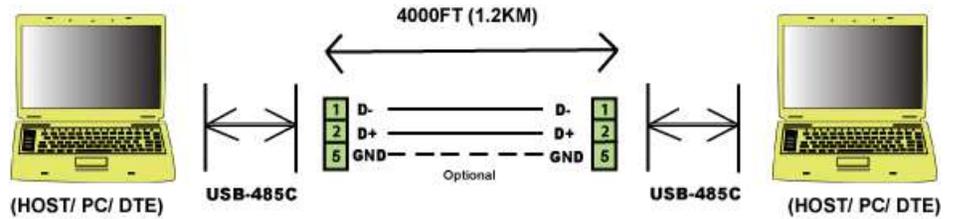
FIGURE 1: EXTENDING USB DATA DISTANCE IN RS-485 MODE
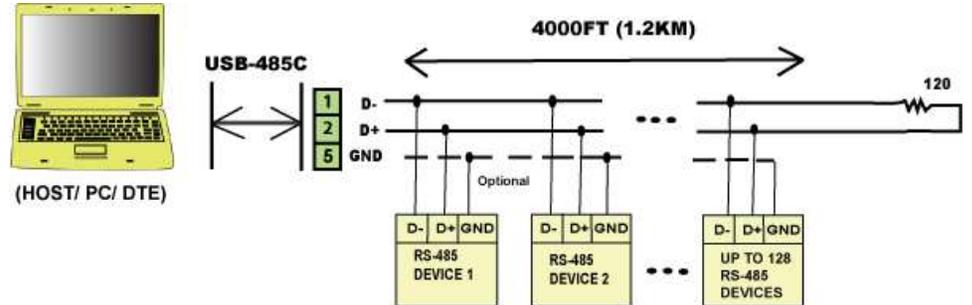
FIGURE 2: MASTER/SLAVE MULTIPLE DROP CONFIG. IN RS-485 MODE

## RS-232 TO RS-422 MODE OPTION:
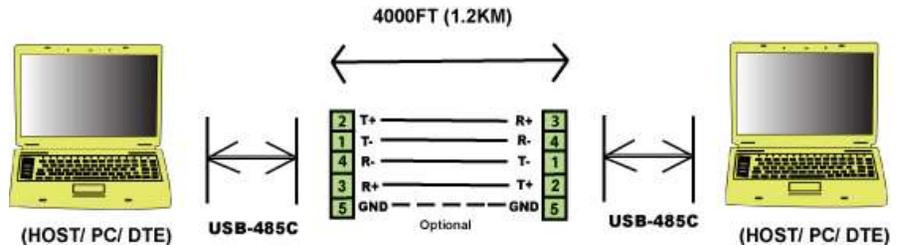
FIGURE 3: EXTENDING RS-232 DATA DISTANCE IN RS-422 MODE
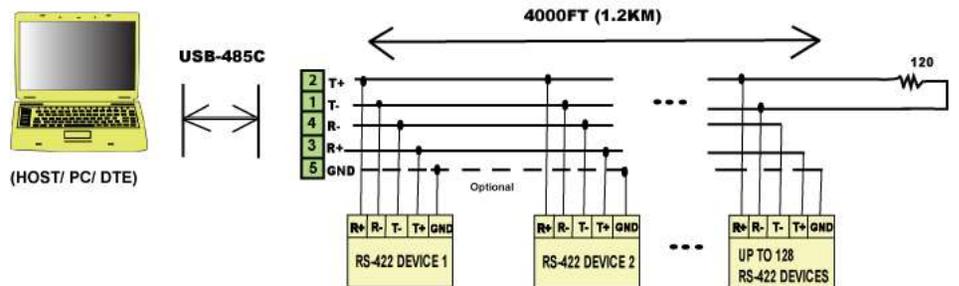
FIGURE 4: MASTER/SLAVE MULTIPLE DROP CONFIG. IN RS-422 MODE