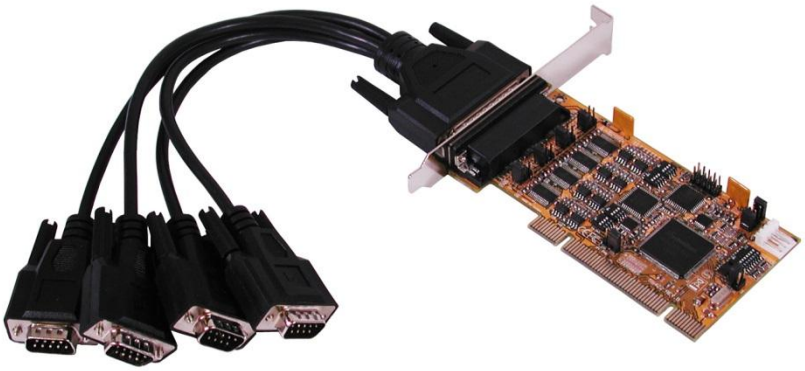
MSC-104CL

Universal 4-Port RS232/422/485 3-in-1 Serial PCI Card



User Manual

Version 1.0

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Universal Multiport Serial Card

Universal PCI Serial RS232/422/485

User Manual
Version 1.0 (November 2014)

This manual supports the following models:

- MSC-104CL

This document is the current official release manual. Please check our website (www.antaira.com) for any updated manual or contact us by e-mail (support@antaira.com).

Table of Contents

1. Introduction

The MSC-104CL is a 4-port RS232/422/485 3-in-1 serial PCI card. The MSC-104CL universal add in card connects to a PC or server through the PCI Bus, providing high-speed serial connectivity. The serial ports are fully compatible with RS232/422/485 standards by the bundled serial COM port drivers. Each port can be set at any mode (RS232, RS485 2-wire or 4-wire and RS422) and operate simultaneously.

1.1 Product Overview

Antaira's MSC-104CL is a multiport serial card that supports up to four configurable serial ports. The serial ports on the MSC-104CL are 3-in-1 mode selectable allowing the user to use any of the RS232/422/485 serial standards. The MSC-104CL also supports either 2-wire or 4-wire configuration for an RS485 configuration. The MSC-104CL will easily connect through the users PCI Bus, providing high-speed serial connectivity. The MSC card is fully plug-and-play and does not require IRQ or I/O addresses to be configured. The unit will come with the software drivers required for most major operating systems.

This product provides a standard operating temperature range (0°C to 55°C). It also is designed with high ESD protection to prevent any unregulated voltage for universal networking applications in process control automation, intelligent transportation systems (ITS), power/utility, water wastewater treatment plants, and any outdoor or harsh environment.

1.2 Product Features

- Fully PCI Bus 2.3 and PCI Power Management1.1 Compliant
- Fully 16C1050 High performance UART channels
- Baud rate up to 921.6 Kbps in asynchronous mode
- 256-byte deep FIFO per transmitter and receiver
- Software/Hardware Flow Control
  - Xoff Re-Transmit Function
- Supports Windows 98/ME, 2000, XP, Vista, Windows 7, 8, 8.1
- Supports Linux

1.3 Product Hardware Features

- System Interface and Performance
  - 4-port RS232/422/485
  - All serial ports are 3-in-1 selectable
  - Connects through the PCI Bus
  - +/- 15kV IEC1000-4-2 ESD Protection for RS-232 I/O's
- Power Input
  - The unit is powered through the PCI Bus
  - Supports 5V or 12V over DB44 connector pins.
- Operating Temperature
  - Standard operating temperature models: 0°C to 55°C
- Case/Installation
  - PCB circuit card that connects to a PCI Bus
  - Installation in pollution degree to environment

1.4 Package Contents

- 1– MSC-104CL: 4-Port RS232/422/485 3-in-1 Universal Multiport Serial Card
- 1 – DB44M to DB9M fan out cable
- 1 – Low Profile short bracket
- 1 – Product CD
- 1 – Installation Guide

2. Hardware Description

2.1 Physical Layout

Figure 2.1, below, shows the physical layout of Antaira's MSC-104CL universal multiport serial card with 4-ports of RS232/422/485 3-in-1 serial mode selection. The MSC-104CL supports both 2-wire and 4-wire RS-485 connectivity.

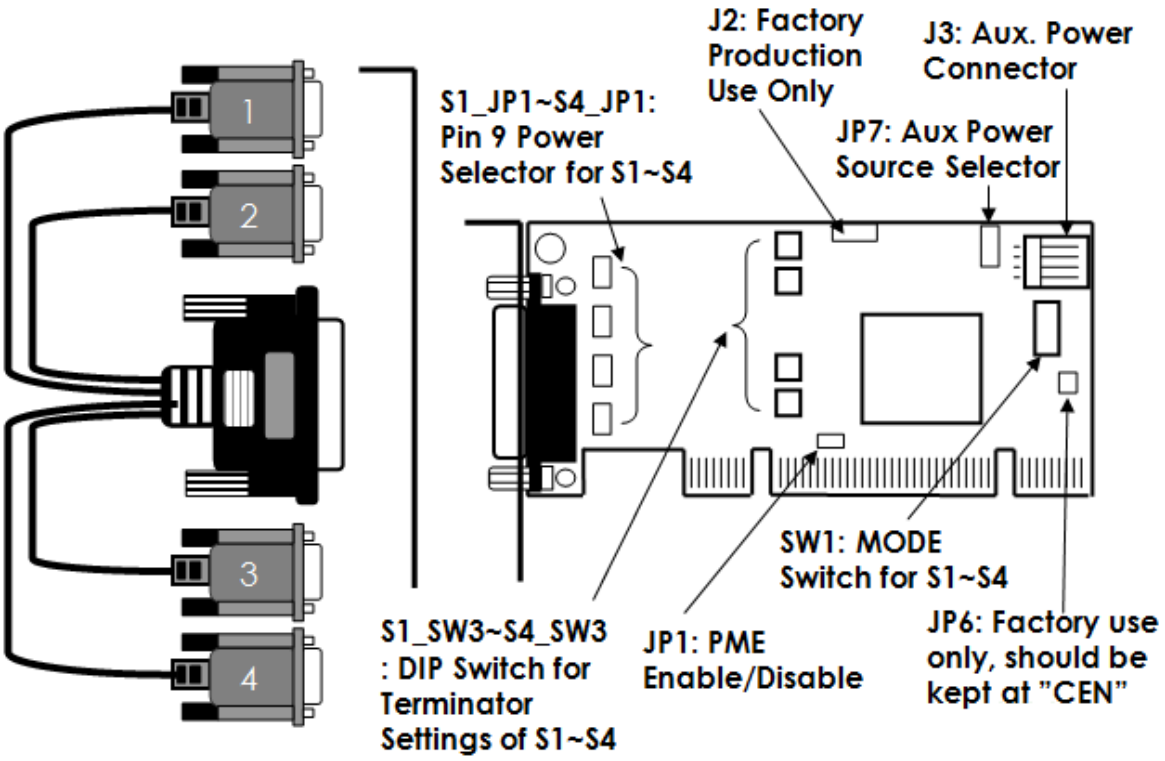


Figure2.1

MSC-104CL Physical Layout

2.2 Connection Layout

The major hardware connection points for the MSC-104CL universal multiport serial card are shown below in *Figure 2.2*.

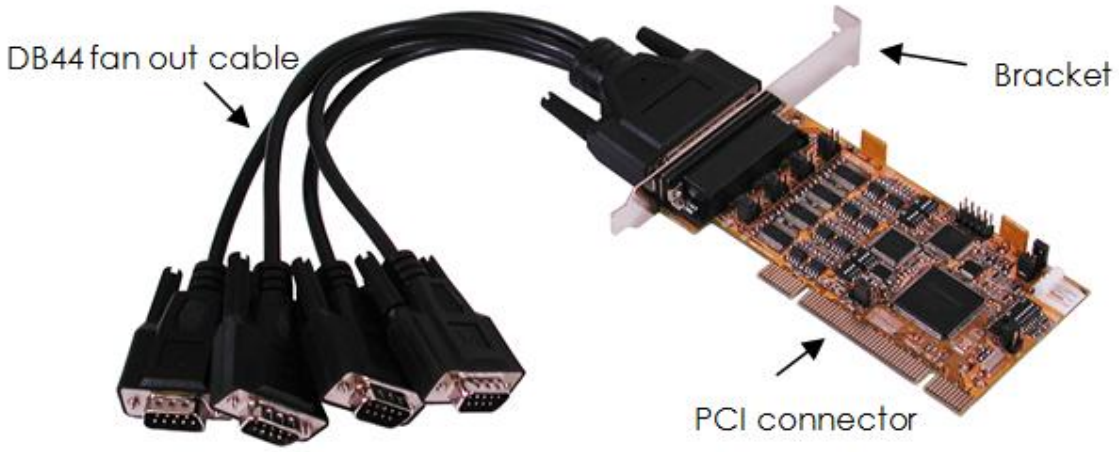
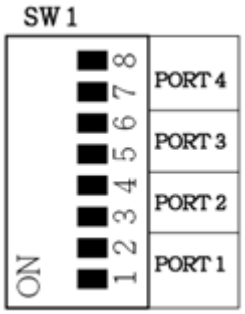


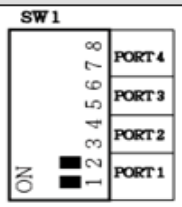
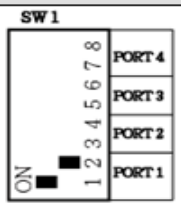
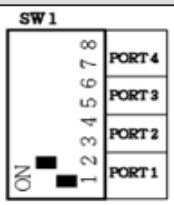
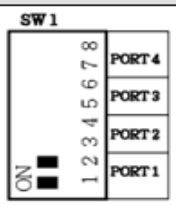
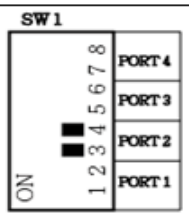
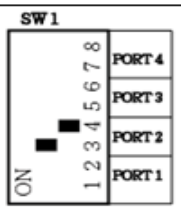
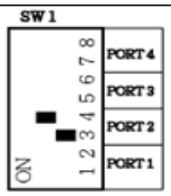
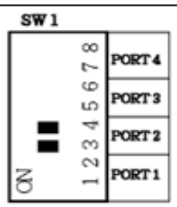
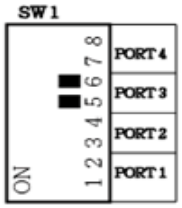
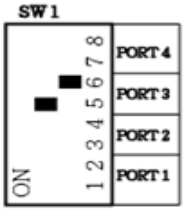
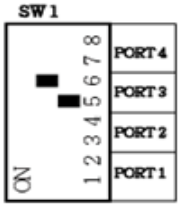
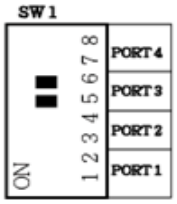
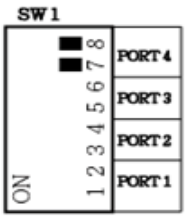
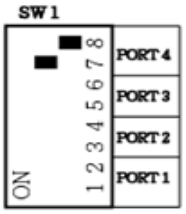
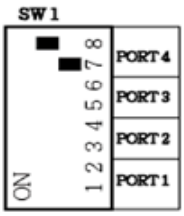
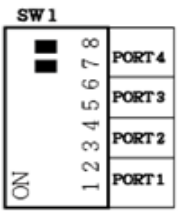
Figure2.2
MSC-104CL

2.3 Jumper and DIP Switch Settings

The 3-in-1 serial PCI card supports four modes of communication; RS232, RS422, RS485 2-Wire and RS485 4-Wire. Each port needs two DIP switch pins; 4-ports will need eight DIP switch pins. The SW1 is an 8-pin DIP switch, which is labeled on the back side of the PCB for easy reference.



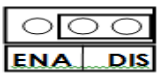
2.3.1 DIP Switch Settings for Different Modes

Modes	RS232	RS485-2	RS485-4	RS422
PORT 1				
PORT 2				
PORT 3				
PORT 4				

2.4 Jumper Pins

2.4.1 PME Jumper

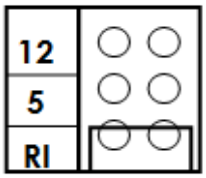
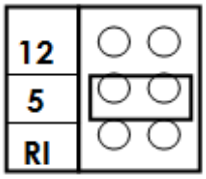
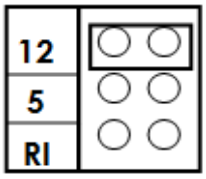
The PME Enable/Disable jumper provides an option to enable the PCI card to wake up the system by its serial ports. The default setting for the MSC-104CL is set to “DIS” for disabled.

JP1	Settings
PME Disabled	 (default)
PME Enabled	

2.4.2 Pin-9 Power Jumper Settings

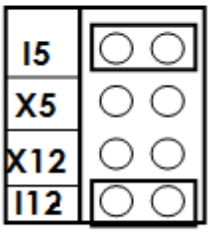
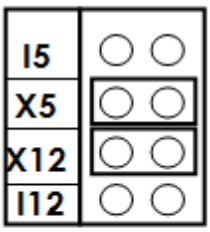
The power pin jumper settings for S1, S2, S3 and S4 are shown below. The design of each DB9 male connector has on option to supply DC power to its Pin-9. The Pin-9 on the DB9 connector was defined for an RS232 Ring Indicator (RI) signal. For applications that do NOT use this signal, the Pin-9 can be used to deliver DC power for the serial device. The MSC-104CL provides two settings for the power, +5V and +12V. The default factory setting is set at “RI” and no power will currently be going to Pin-9.

Pin-9 Power Setting Table:

S1_JP1, S2_JP1, S3_JP1, S4_JP1 Settings	Description
 (default)	**No Power Supplied on Pin-9 (Default)**
	+5V DC on Pin-9
	+12V DC on Pin-9

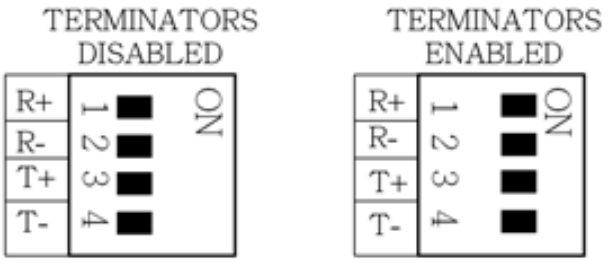
2.4.3 5V and 12V Power Source

To supply power to Pin-9 of the DB9 connectors, the user will need a +5V and +12V power source. Both can be sourced from either the PCI golden fingers or from the J3 AUX power connector. If the user chooses the J3 AUX connection, then a power cable will need to be connected to the system's power supply.

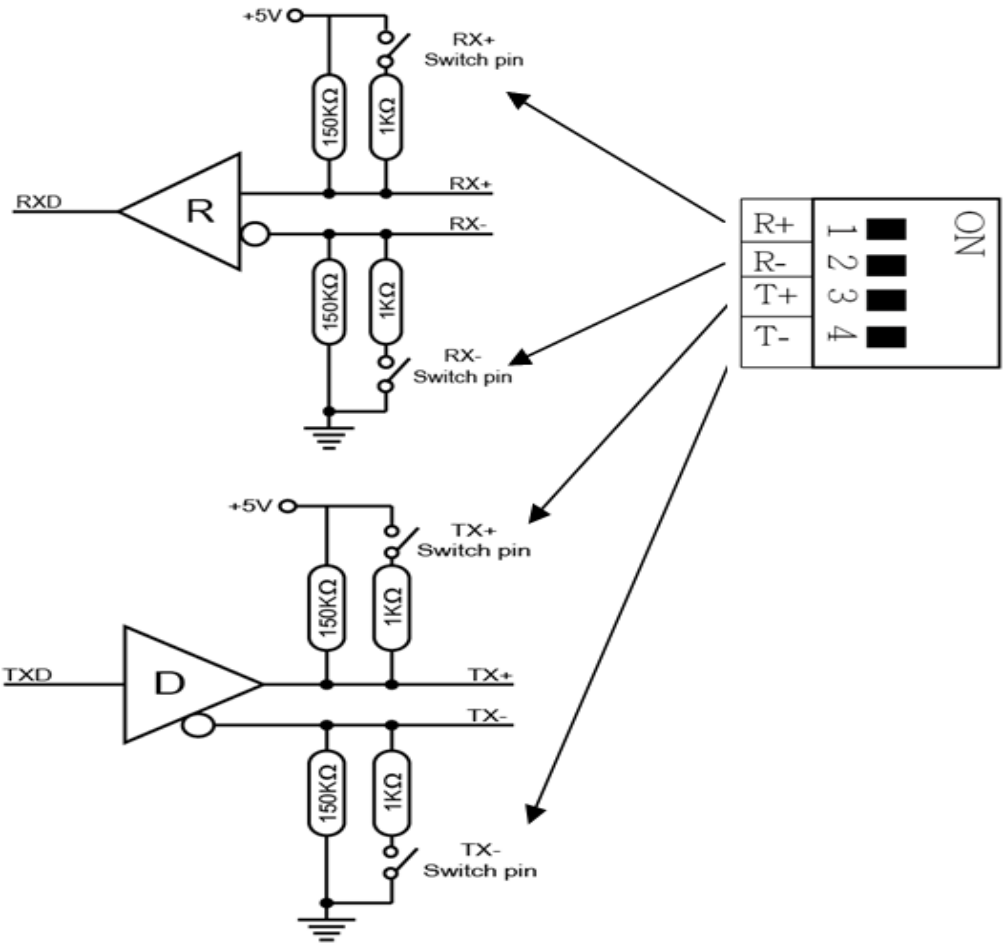
JP7	Description
 (default)	**Both +5V and +12V are from PCI golden fingers (Default)**
	Both +5V and +12V are from J3 4-pin AUX power connector

2.5 Terminator Settings

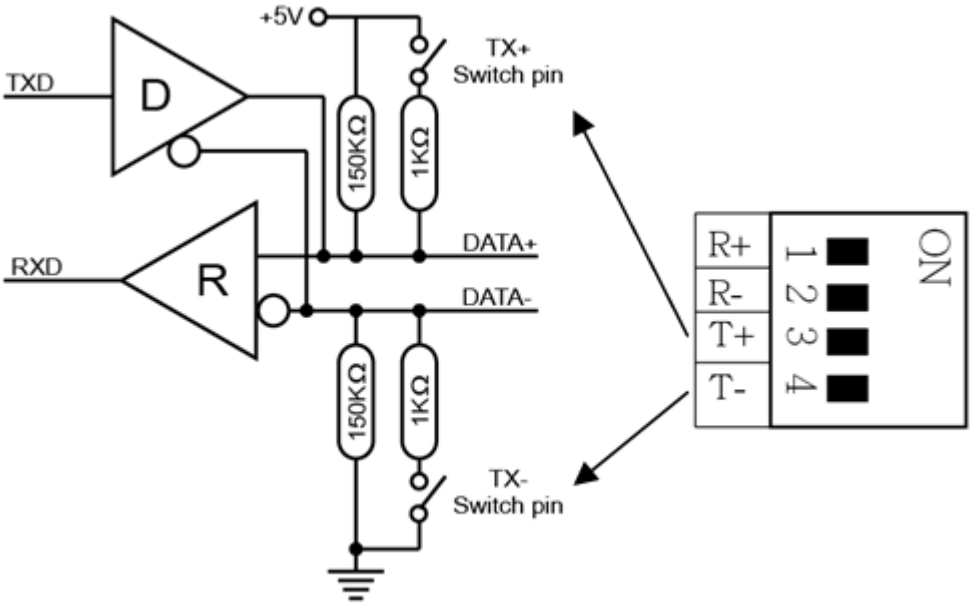
Each port has a 4-pin terminator setting. The four DIP switch pins control the terminators for RX+, RX-, TX+ and TX- signals. The 4-Pin DIP switches are marked S1_SW3 for Port 1, S2_SW3 for Port 2 and so on. The 2-wire terminator and 4-wire terminators will be different. Please see the diagrams below for the different options.



2.5.1 RS422 and 4-Wire RS485



2.5.2 RS485 2-Wire

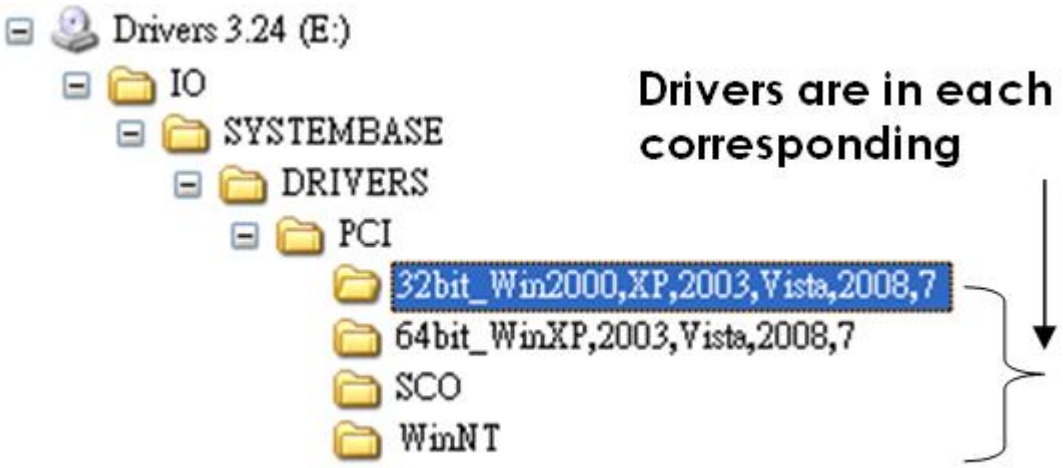


3. Software Installation

***Note: **DO NOT** let windows auto search for the drivers on the CD. This will create a problem with the INF files conflicting.

3.1 Correct Software Installation

Using the CD that came with the MSC-104CL, please manually browse to the correct folder location based off the specific operating system being used.

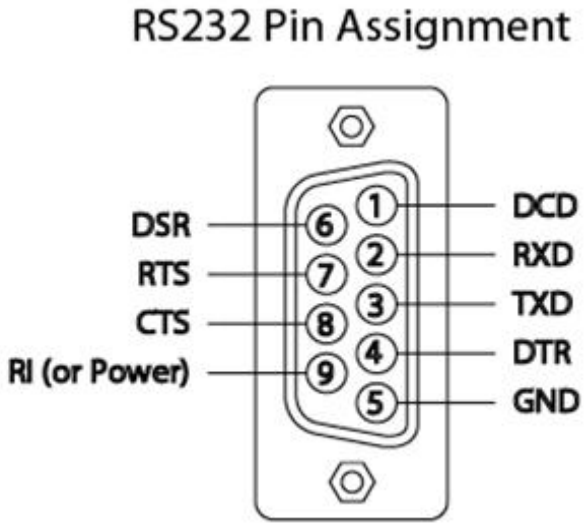


4. Pin Assignments

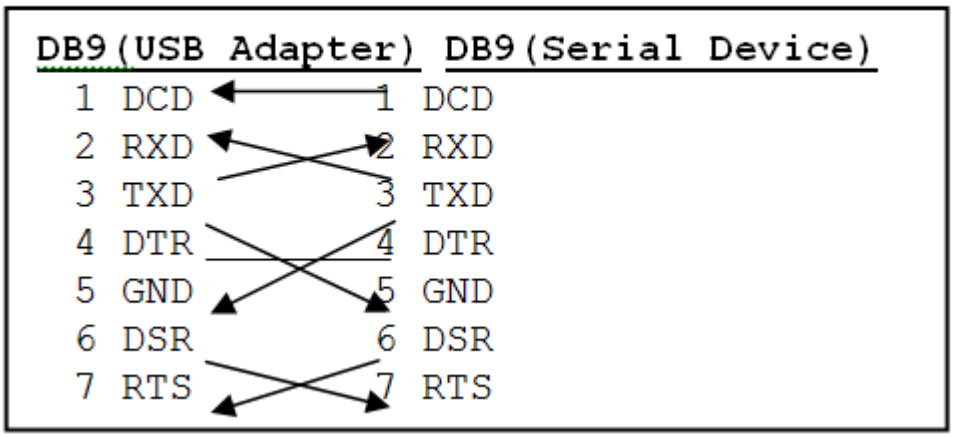
The PIN assignments for the DB9 connector will be dependent upon the operation mode. Please refer to the correct operation mode for the correct pin assignments.

4.1 RS232

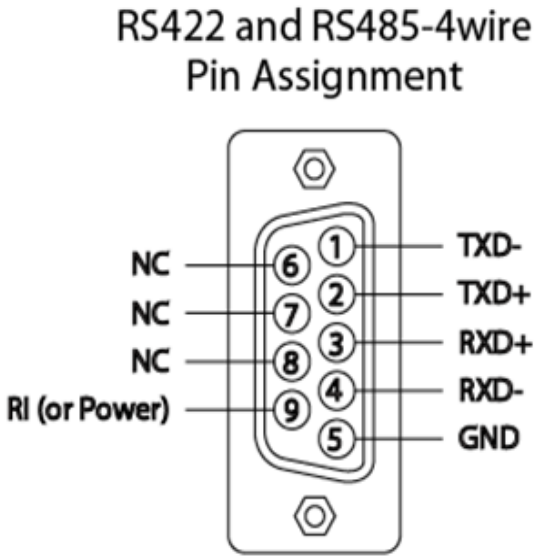
The DB9 pin assignment and wiring diagram can be seen below.



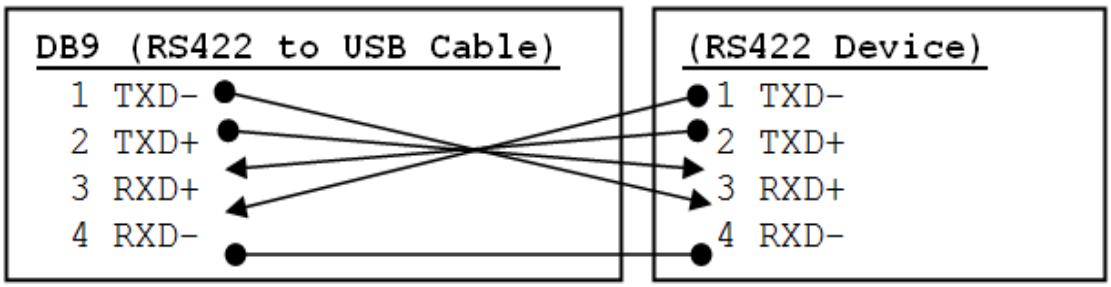
DB9(Male) to DB9(Male) Wiring:



4.2 RS422 and RS485 4-Wire



RS422 Cable Wiring:



5. Specifications

Type	Specifications
Connectors	DB44 Female
Cable	DB44M-to-DB9MX4 Octopus type
Bus Interface	32-bit PCI
Number of Ports	4
RS-232 Signals	TXD, RXD, RTS, CTS, DTR, DSR, DCD, GND
RS422 Signals	TXD+, TXD-, RXD+, RXD-, GND
RS485-4wire Signals	TXD+, TXD-, RXD+, RXD-, GND
RS485-2wire	DATA+(B)/DATA-(A)
Baud Rate	110 bps to 921.6Kbps
Data Bits	5,6,7,8
Stop Bits	1, 1.5, 2
I/O address/IRQ	Plug-and-Play (various)
Parity	None, Even, Odd
Flow Control	RTS/CTS, XON/XOFF
Power Requirement	3.3V/400mA
Operating Temperature	0 to 55°C(32 to 132°F)
Operating Humidity	5 to 95% RH
Storage Temperature	-20 to 85°C (-4 to 185°F)