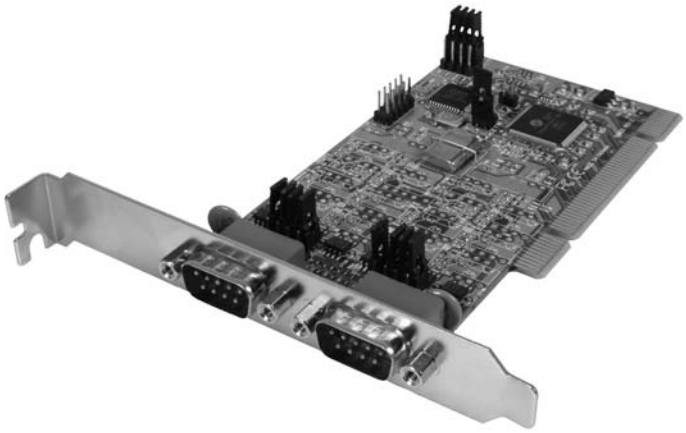
PCI RS-422/485 Card

2 port PCI RS-422/485 Card with DB9

PCI2S485

Instruction Manual



Actual product may vary from photo

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FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

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Introduction

Thank you for purchasing a StarTech.com PCI RS-422/485 Card. This high performance RS-422/485 multiport serial PCI card works well with two-wire (with Auto Transceiver Turn Around feature, ATTA™) and four-wire configurations and offers 16C950 compliant UARTs for broad serial device compatibility.

Features

- RS-485 mode supports Auto Transceiver Turn Around (ATTA)
- Easily fits a 3.3V/ 5V PCI and PCI X slot
- PCI 2.2 specification compliant
- 128-byte deep FIFO per transmitter and receiver
- High Performance 16C950 UART with maximum data transfer rate up to 921kbps

Before you begin

System requirements:

- An IBM compatible computer with a 486 or faster processor (Pentium or higher recommended)
- Operating systems: Windows 95/98/ME/2000/XP, NT 4.0, Linux
- An available PCI slot

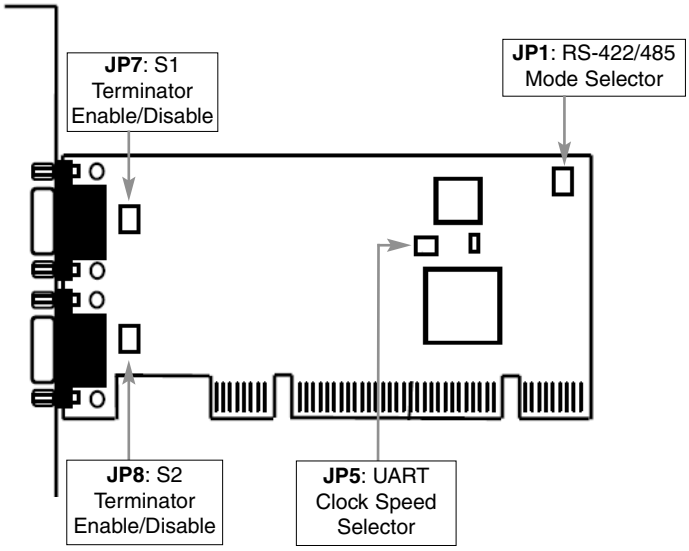
Package contents:

This package should contain:

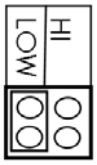
- 1 x Serial PCI Card
- 1 x Instruction Manual
- 1 x Driver CD

Hardware Guide

Board Layout



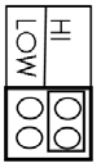
JP5: UART Input Clock Speed Selector



UART Input Clock Speed = 1.8432MHz.

Maximum baud rate is 115.2Kbps

Default setting

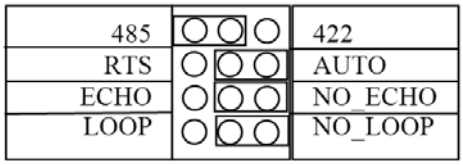


UART Input Closk Speed = 14.7456MHz

Maximum baud rate is 926.1Kbps

Hardware Guide - cont'd

JP1: RS-422/485 Mode Selector



Jumper Name	Jumper Positions	Mode and Termination Resistor Setting
485/422	**485 (Default)**	2-wire RS-485 mode
	422	4-wire RS-422 mode
RTS/AUTO	RTS	RS-485 Transmitter Buffer Enable is Controlled by RTS (active high)
	AUTO (Default)	RS-485 Transmitter Buffer is controlled automatically by ATTATM hardware circuit
ECHO/NO_ECHO	ECHO	Transmitting data will be echoed back
	NO_ECHO (Default)	No echo data
LOOP/NO_LOOP	LOOP	RTS will be connected to CTS
	NO_LOOP (Default)	RTS and CTS operate normally

Please note: When set to "422" mode, the other settings (AUTO, ECHO and LOOP settings) will have no effect.

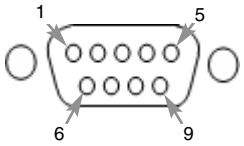
Echo mode is used to detect data collisions. If the echoed data was not equal to the transmitted data, then data collisions are occurring.

If you want to set the RS-485 transceiver to "AUTO" mode, you must duplicate this setting from the Windows Device Manager. You only need to perform this step once, as this information will be retained by Windows.

Please note that S1 and S2 have individual settings, and need to be configured separately.

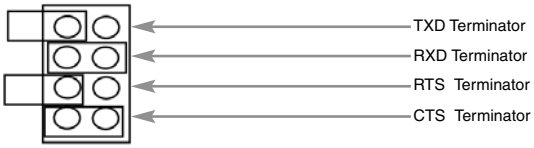
Hardware Guide - Cont'd

S1, S2 Connector Pin Assignments



Pin	Signal
1	TXD- (DATA-)
2	TXD+ (DATA+)
3	RXD+
4	RXD-
5	GND
6	RTS-
7	RTS+
8	CTS+
9	CTS-

S1, S2 Terminator Settings



Jumper Name	Jumper Settings	Termination Resistor Setting
JP7 (TXD)	IN	TXD Terminator Enabled
	OUT (Default)	TXD Terminator Disabled
JP7 (RXD)	IN (Default)	RXD Terminator Enabled
	OUT	RXD Terminator Disabled
JP7 (RTS)	IN	RTS Terminator Enabled
	OUT (Default)	RTS Terminator Disabled
JP7 (CTS)	IN(Default)	CTS Terminator Enabled
	OUT	CTS Terminator Disabled

Jumper Name	Jumper Settings	Termination Resistor Setting
JP8 (TXD)	IN	TXD Terminator Enabled
	OUT (Default)	TXD Terminator Disabled
JP8 (RXD)	IN (Default)	RXD Terminator Enabled
	OUT	RXD Terminator Disabled
JP8 (RTS)	IN	RTS Terminator Enabled
	OUT (Default)	RTS Terminator Disabled
JP8 (CTS)	IN(Default)	CTS Terminator Enabled
	OUT	CTS Terminator Disabled

Please note: **IN** represents that the jumper is installed
OUT represents that the jumper is *not* installed

Installation

WARNING! PCI cards, like all computer equipment, can be severely damaged by static electricity. Be sure that you are properly grounded before opening your computer case or touching your card. StarTech.com recommends that you wear an anti-static strap when installing any computer component. If an anti-static strap is unavailable, discharge yourself of any static electricity build-up by touching a large grounded metal surface (such as the computer case) for several seconds. Also, be careful to handle the card by its edges and not the gold connectors.

Hardware Installation

1. Remove the computer cover. For more detailed instruction on how to perform this step, please refer to the documentation that was included with your computer at the time of purchase.

2. Locate an empty PCI slot and remove the metal bracket covering the accompanying empty port/socket.

3. Position the card above the open PCI slot, ensuring that the card is properly aligned with the slot. Insert the card firmly into the slot, distributing force evenly across the length of the board. Once inserted, secure the card into the adjoining socket (previously covered by metal bracket), using the correct size screw.

4. Replace the computer cover and re-connect all power to the computer.

Software Installation

Windows 98, ME, 2000, XP, 2003

The necessary driver files are in ZIP format (e.g. V6515_RS422_485.ZIP) and are located in E:\IO\OXFORD\RS422_485 (where E: denotes the CD/DVD-ROM drive. Please copy the file to your local hard drive (presumably C:) and unzip it before proceeding with installation.

1. When the **Found New Hardware Wizard** appears, click **Next** to continue.

2. Select **Install from a list or specific location (advanced)** and click **Next**.

3. Select **Include this location in the search** and click **Browse** to specify the driver's location.

4. Click **Next** to continue, then click on **Finish** to complete installation.

Windows NT

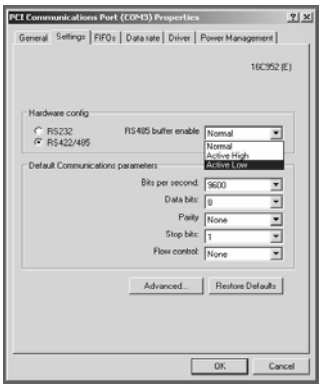
Because Windows NT does not support plug and play, you will need to locate the **Install_Serial.exe** file (in the **D:\IO\OXFORD\WinNT4** folder), and double click on the executable file. Follow the prompts to complete installation.

Configuration

Windows 2000, XP

1. In the **PCI Communications Port Properties** window, click on the **Settings** tab.

2. Under **Hardware config**, select **RS422/485**, and change the **RS485 buffer enable** to **Active Low**, using the dropdown box provided.

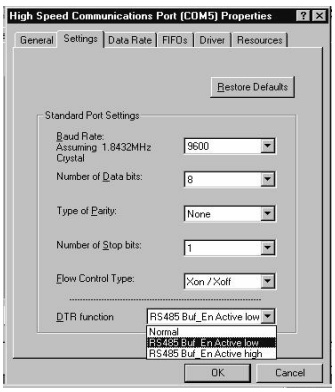


3. Repeat steps 1 and 2 for the remaining port.

Windows 98, ME

1. In the **PCI Communications Port Properties** window, click on the **Settings** tab.

2. Change the DTR function to **RS485 Buf_En Active high**, using the dropdown box provided.



3. Repeat the steps 1 and 2 to set the remaining port.

Baud Rate

By default, PCI2S485 is set to a baud rate of 115.2Kbps (maximum). To increase the baud rate to 921.6Kbps maximum:

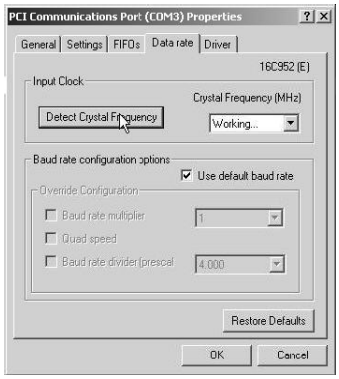
Windows 2000/XP

1. Change the UART input clock jumper (JP5) to **HI**, as mentioned in the section entitled **JP5: UART Input Clock Speed Selector.**

2. Right-click on **My Computer** and select **Manage**.

3. Choose **Device Manager** and double-click on **Ports**.

4. You will notice the added ports, listed as **PCI Communications Port**(s). Double-click on the COM Port you wish to configure, select **Data rate**, click on **Detect Crystal Frequency**, then **OK**. Repeat this step for the remaining port.



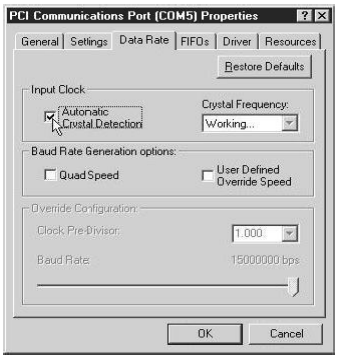
Windows 98/ME

1. Change the UART input clock jumper (JP5) to **HI**, as mentioned in the section entitled **JP5: UART Input Clock Speed Selector.**

2. Right-click on **My Computer** and select **Properties**.

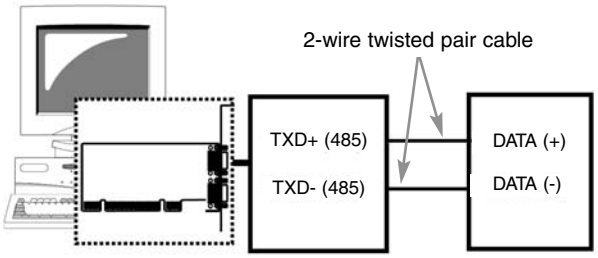
3. Choose **Device Manager** and double-click on **Ports**.

4. You will notice the added ports, listed as **PCI Communications Port**(s). Double-click on the COM Port you wish to configure, select **Data rate**, and put a checkmark next to **Detect Crystal Frequency**, by clicking in the box provided. Click on **OK** to save this setting. Repeat this step for the remaining port.



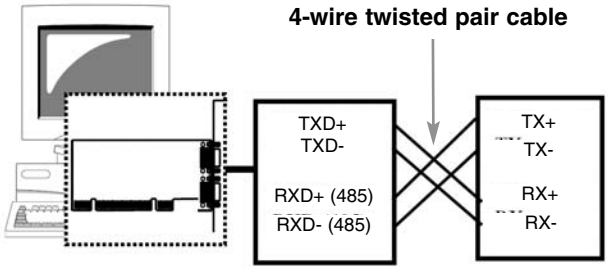
Application Wiring

RS-485 (Transmitter is controlled by ATTA™ Hardware)



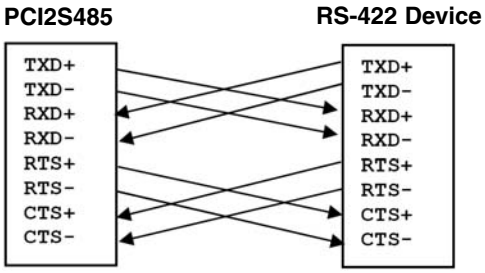
Please note that PCI2S485 supports optional auto echo mode operation. When enabled, data sent to the connected RS-485 transmitter is simultaneously sent to the receiver. The current application can then use the "echoed" data to check for data collisions.

RS-422 (Transmitter buffer always enabled)



Please note that PCI2S485 supports 4-wire RS-422 mode, which requires cross-over twisted pair cable.

PCI2S485 also provides two handshaking signals, RTS+/RTS- and CTS+/CTS- to perform hardware flow control, which requires the following wiring scheme:



Specifications

Regulatory Certifications	ROHS, FCC, CE
Bus Type	3.3/5V PCI
Connectors	2 x DB9 Male Connectors
Maximum Data Transfer Rate	921kbps
OS Support	Windows98/ME/NT/2000/XP/Vista/LINUX
Bits Data Framing Supports	5/6/7/8/9

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14 August 2007 (Rev. A)