Industrial-Grade RS-485/422 PCI-E Multi-Serial-Port Card (2-Port)

Ⅰ. General

Industrial-grade PCI-E conversion card, which is RS-422/RS-485 compatible, can convert single-ended PCI-E signals to balanced differential RS-422/RS-485 signals. A fast-reacted transient voltage suppressor is equipped and designed to protect the RS-422/RS-485 interface. The currently advanced transient voltage suppressor (TVS) is adopted. The TVS tube is under a high impedance state in normal conditions, but if both ends of the TVS tube are experiencing a transient high energy impact, the TVS tube can reduce impedance at both sides at a very high speed and absorb a big current so that the voltage on both sides can be suppressed to a preset value, thus protecting the rear circuit elements fro damage caused by the transient high voltage impact. This TVS protector can effectively suppress lightning and ESD, provide 600W of lightning surge protection power for each wire and protect against surge voltage and transient voltage on the lines due to various reasons. The extremely small inter-electrode capacitance ensures high-speed transmission of RS-422/RS-485 interface.

Ⅱ. Product Features

Hardware interface
  Connection type: 2 DB9, male
  Bus: X1 2.5 Gbps PCI Express
Signal:
  RS-422: T/R+, T/R-, RXD+, RXD-, GND
  RS-485: Data+(A) Data-(B) GND
Transmission rate: 300 bps - 921.6 Kbps
Data bit: 5, 6, 7, 8
Stop bit: 1, 1.5, 2
Check bit: None, Even, Odd, Space, Mark
Stream control: RTS/CTS XON/XOFF
Operating temperature: -40℃ ~ 85℃
Interface protection: 600 W surge protection and ±15 K V electrostatic protection for each wire of RS-422, RS-485 interface
Transmission distance: RS-485/422 communication distance up to 1.2 km
Support system: Win2000/XP/Vista/Win7/NT4.0/CE 4.2/5.0/6.0/
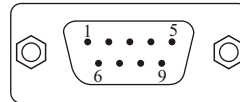   VxWorks/Linux 2.4.x/2.6.x

The RS-422/485 has an interface rate up to 921.6 Kbps and supports 256-byte FIFO driver and built-in hardware/software flow control. The PCI-E universal port is adopted.
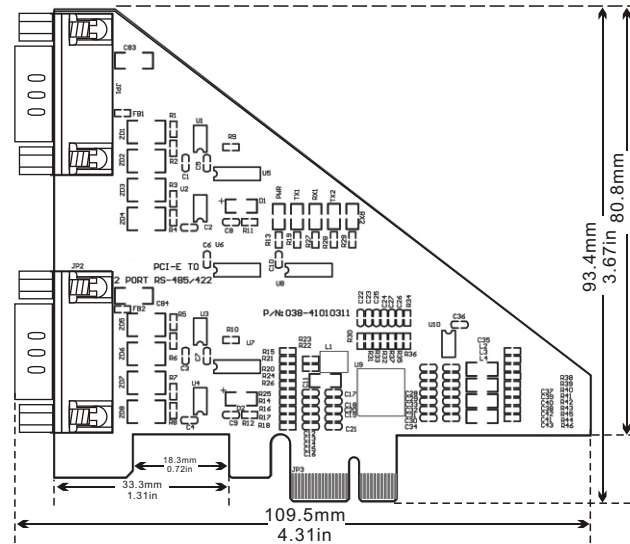
Ⅲ. Connector and Signal

1.DB9 PIN type: RS-485/RS-422 output signal and connection terminal PIN configuration (Port1-Port2) are as below.

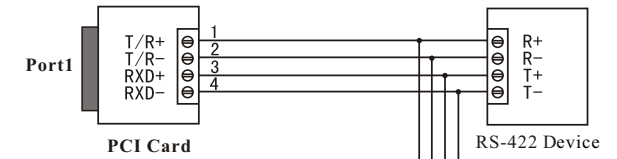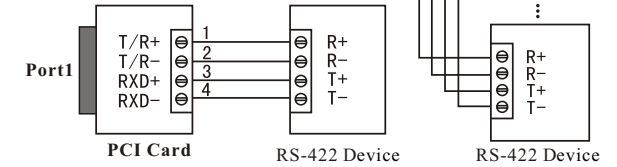| DB9 (PIN)	Output Signal	RS-422 Duplex Connection	RS-485 Half-duplex Connection
1	T/R+	Transmitting (A+)	RS-485 (A+)
2	T/R-	Transmitting (B-)	RS-485 (B-)
3	RXD+	Receiving (A+)	N/C
4	RXD-	Receiving (B-)	N/C
5	GND	Earth wire	Earth wire
6	N/C		
7	N/C		
8	N/C		
9	N/C		

DB9 PIN
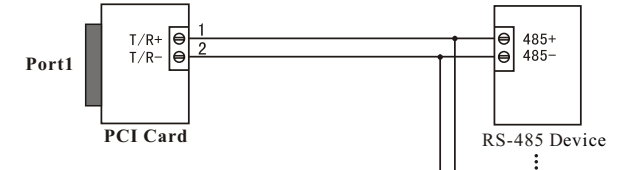

Ⅳ. Product Design

Ⅴ.Connection Diagram

1.RS-422 Point-to-multipoint/four-wire FDX
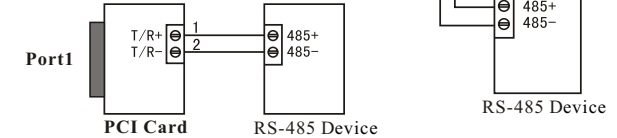

2. RS-422 Point-to-point/four-wire FDX communication

3. RS-485 Point-to-multipoint/two-wire HDX

4. RS-485 Point-to-multipoint/two-wire HDX

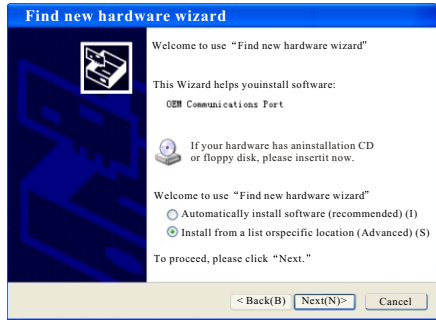## Ⅵ. Fault and Troubleshooting

1. Failure in data communication
A. Check PCI-E interfaces.
B. Check whether RS-485/RS-422 output interfaces are wired correctly.
C. Check whether power supply is normal and whether power indicator lamp lights up constantly.
D. Check whether the connection terminal is connected properly.
E. Observe whether the receiving indicator lamp flashes upon receiving.
F. Observe whether the transmitting indicator lamp flashes upon transmitting.
2. Data loss or error
A. Check whether the data rate and format are consistent at both ends of data communication device.
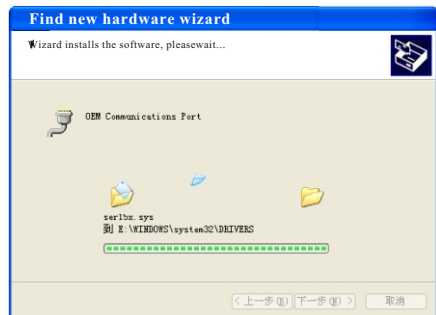
VII. Driver Setup Procedures

Once the Card is inserted, the system will automatically pop up the following window for you to select [Install from a list or specific location (Advanced)]. Then click [Next].
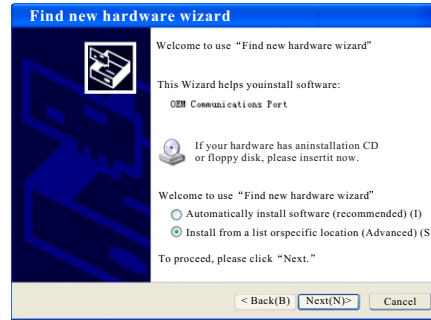

As shown in the following picture, the system will pop up a window to select the installation path and options. Select [Search for best driver in these locations], check [Include this location in searching] and then click [Browse] to select the folder on the disc. If your system is an XP system, then click the Win2KXP file. For other systems, click the corresponding file. Click [Next].

Search and find the driver files are being installed

The dialogue box of new hardware guide appears for the driver installation of the remaining three serial ports. Select [Install from a list or specific location (Advanced)]. Then click [Next].

Install drivers of the remaining three serial ports as per the steps as described above. Then, it is ready for use.

After the driver installation is finished, open the device manager to check whether the virtual COM port is shown in the port list. If no other serial port driver is installed on the system, the default COM port will be COM3, 4, as shown in the following picture. Here, installation of all drivers is finished for Card.