

# **How to use P422I card in monitor and backup application**

## **1. Function description :**

One P422I card can support two ground isolated RS422/RS485 port.

## **2. Application environment :**

In industrial control environment it is very popular to use RS485 interface. We can use RS485 connection for one PC to communicate with multiple RS485 device. As we know that RS485 interface is half-duplex structure for data transmission. We can only have one device to send data in one period. If there were two RS485 device to send data simultaneously, nobody can receive such data successfully. Generally, there are many reasons to let RS485 device lose their data. We try to offer some information to help user to fix the reason.

## **3. The limitation in traditional RS232 to RS485 converter :**

Because RS485 interface is not standard interface in PC COM port. We only have RS232 interface in PC COM port. When we need to use RS485 interface in our application. We need to use one RS232 to RS485 interface converter to connect with PC COM port. Because there are no power supply in PC COM port. So we must have one power supply to offer the power source for converter. Now we have one problem in power ON/OFF condition. You may have power ON condition in PC and power OFF condition in converter. Or you may have power OFF condition in PC and power ON condition in converter. Both condition is not good in interface IC and no correct function available.

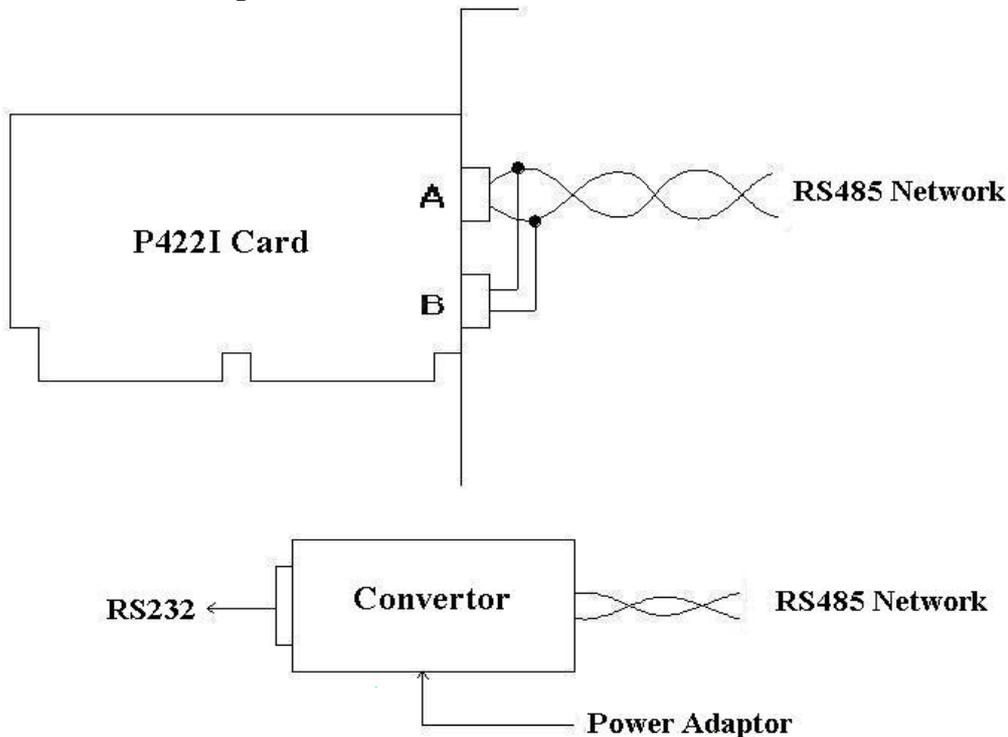
The other problem in this structure is data integrity. When one PC can not receive data. It may be due to wrong function in converter or in RS485 interface connection. If we need to check this condition, we may need to use other converter to replace. Maybe you have another converter stand by. But we can not confirm that this converter is good or not. Now, we try to use P422I card to solve your problem.

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## 4. P422I card support on-line monitor function and backup feature :

One P422I card can support two ground isolated RS485 port and insert in PCI slot. So we don't need to prepare extra power supply and there are no power ON/OFF problem.

Now, we let both ports in P422I card to connect in same RS485 network. In normal condition we use port A in P422I card as working port. Due to RS485 interface is half-duplex structure, so we may use poll & ack procedure in RS485 network. We may use port A as master port to poll every slave port. Slave port will respond and send data to port A. We will send/receive data in port A. Now, we can open one terminal emulation window to receive all data in RS485 network. In this window we can monitor all action in RS485 network. So we can say port B of P422I card is on-line monitor port.



When there are some problem in RS485 network, we can see something wrong in port B monitor window. Then we can analyze data and try to find the reason.

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Condition 1 : We do not poll in port A (master port) and we can receive data in port B (monitor port). It means that some RS485 device may not follow the rule in poll & ack structure. It is very important for every RS485 device to follow same poll & ack rule to transmit data. Or we may have more than two device to send data simultaneously. And this will let other port receive wrong data. Now we need remove RS485 device from RS485 network one by one. Then we can monitor to find which one to send data.

Condition 2 : We try to send data in port A and we can not receive in port B. It may be due to transceiver IC in port A damaged or other RS485 device damaged (or RS485 device do not follow poll & ack rule to send data randomly). Now we can remove RS485 network from other RS485 device. We just keep RS485 network to include port A and port B. If we sent data in port A and received in port B, then we can suggest that other RS485 device have problem. If we sent data in port A and could not receive in port B, then we can suggest transceiver IC in port A or B damaged. Now we can use port A only to connect with other RS485 device to test. Then we can confirm port A damaged or not. We can also use port B only to connect with other RS485 device to test. So you can find one damaged port and use correct one to work.

## **5. Conclusion :**

The two RS485 port in P422I card can be monitor port and backup port. Any port is damaged, the other port is backup port. Because all the function is worked in on-line condition. So we can know the condition for both ports. Any port have problem we can find immediately. So we can use P422I card to replace traditional RS232 to RS485 converter. It is very simple structure in your system. And you can have high reliability backup system in your application.