# How to use iLOG110 RS232 Isolator

Traditionally **RS232** interface is **common GROUND point-to-point** connection method. In rigid environment we may have big potential difference between **RS232** devices. In this condition we may have problem in **data error** and **IC burnt**.

So we may need to use **RS232 Isolator** between both RS232 devices. Then we can remove the **GROUND loop** between both RS232 devices and reduce the potential difference problem in GROUND connection.

But you may have another consideration to use **RS232 isolator**. Originally you have cable connected between both RS232 devices directly. So it is very easy to define the possible point in data communication problem of both RS232 devices. Now you have one RS232 Isolator between both RS232 devices. All data will be transmitted to RS232 Isolator from one RS232 device and re-transmitted from RS232 Isolator to the other RS232 device. It is not easy to define the possible point in data communication problem of both RS232 devices.

Fortunately, RAYON Technology's **iLOG110 box** can solve such condition. We can monitor the data communication process in RS232 via LAN connection.
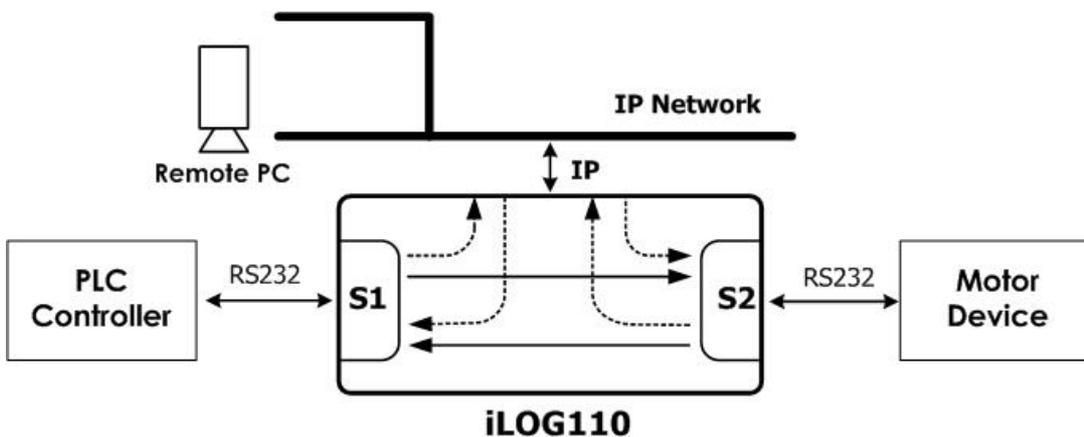
iLOG110 box can support two **RS232** DB9 connectors and one **LAN** RJ45 connector. In serial port 1 we have **same signal GROUND** pin as local power input. In serial port 2 we have **ISOLATED GROUND** with local power input. Generally we may connect serial port 1 with RS232 device near **iLOG110 box**. And we will connect serial port 2 with RS232 device far away with iLOG110 box. Through LAN connection we can create two

virtual COM ports in remote PC.

In **monitor** application purpose we will receive data in serial port 1, we will re-transmit such data in serial port 2 and virtual COM port 1 simultaneously. So any data received in serial port 1 will be monitored in virtual COM 1 of remote PC. So we will receive data in serial port 2, then we will re-transmit such data in serial port 1 and virtual COM port 2 simultaneously. So any data received in serial port 2 will be monitored in virtual COM port 2 of remote PC.

Sometimes we may need to check the RS232 cable is good or not. Then we may send data in virtual COM port to target RS232 device. Right now we can send data in virtual COM port 1 and such data will be transmitted in serial port 1. We can send data in virtual COM port 2 and such data will be transmitted in serial port 2.

For example, we may have one **PLC controller** to connect with one **Motor controller** via RS232 connection. Because the operation condition in Motor may generate big GROUND bounce, so we will use one RS232 Isolator between PLC controller and Motor controller.

Some day we may find problem in Motor operation. Then we need to find the reason for such problem. It may be software problem in PLC controller. It may be hardware problem in Motor controller. It may be data error in RS232 transmission. Traditionally it is not easy to find the reason for such problem. Because you do not have same operation environment and you may not have similar problem happened again.

Now, we can use **iLOG110** box as **RS232 Isolator** in normal operation environment. But we will have LAN connection to iLOG110 box. In one PC we will create two virtual COM ports to **record** the data received in serial port 1 and 2 of iLOG110 box. Now we can record RS232 communication between PLC controller and Motor controller. It just likes one black box of airplane. When we have some wrong condition happened, then we can analyze the data recorded in PC. You may find one data error from PLC controller or from Motor controller. You may find wrong command from PLC controller or wrong response from Motor controller.

Now we can **simulate** one Motor controller in virtual COM port 1 to send data to PLC controller and communicate with PLC controller. So we can confirm the software in PLC controller run correctly or not. We can **simulate** one PLC controller in virtual COM port 2 to send data to Motor controller and communicate with Motor controller. So we can confirm the hardware in Motor controller without problem. So it is very

easy for us to define possible problem.

   In one airplane we can have **black box** to help us to find possible problem in airplane. In RS232 communication system we can use iLOG110 box to help us. We can **record** the data transmission in RS232 and **analyze** such data in real time condition. When we find something wrong, we may send **warning message** quickly. Because we **monitor** such data via **LAN** connection, so we may monitor in one PC located in computer center. But our RS232 devices and iLOG110 box may be in rigid environment. The major point is we do not modify any RS232 application environment. But we can record and monitor RS232 transmission.