# RAYREAL application note

1. Single serial port monitored environment

Even though RAYREAL application software can assign two serial ports to receive data simultaneously. But we can use one serial port in RS485 environment to receive any data transmitted in RS485 network. So we just need one serial ports to receive data and monitor data in RS485 network.

Traditionally we can use "Hyperterm" or other terminal emulation software to receive and monitor data in RS485 network. But such terminal emulator software may just display ASCII character for received data. Because some control code is not displayed as readable ASCII character. So it is not easy to read such data and analyze data transmission procedure.

Even though we can support monitor mode in our "RAYMON" terminal emulator software to display received data as hexadecimal code (00--FF). But we can only display all data received in RS485 network. As we know that we may use "Poll" and "ACK" procedure in RS485 network. If we could not know the data received time frame, then it is not easy to analyze received data.
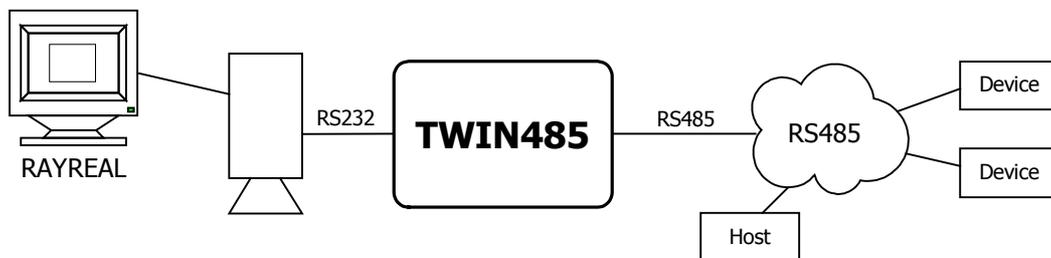

Fortunately we can use "RAYREAL" to display the received data with time frame. We can assign the period to receive data. So we can display the data for "POLL" and data for "ACK" with time frame. Now you can analyze the data received and find any possible problem.

Originally "RAYREAL" software is designed to monitor two serial ports' data transmission. So we can assign the target COM port number for serial port A and serial port B. Now we just need to monitor one serial port. So we can set serial port B in "disable" state. Then we will not "open" serial port B and just receive data from serial port A.

2. Two serial ports monitored environment

In RS485 network environment it is not easy to debug one connection via RS232 to RS485 converter. Because RS232 is full duplex data transmission and RS485 is half duplex data transmission protocol. When there are some problems in RS485 network, it is not easy to define the problem in RS232 or RS485 circuitry.

Now we can use "RAYREAL" to monitor RS232 and RS485 data transmission simultaneously. If you could use our iLOG101 box, then it is more flexible to solve such problem. Because iLOG101 box is RS232 to ground isolated RS485 converter with IP access feature. We can have two virtual COM ports in Windows system for RS232 serial port and RS485 serial port. We can run "RAYREAL" to monitor both COM ports. Any data received in RS232 serial port will be sent to "RAYREAL" and convert to RS485 signal for RS485 network. Any data received in RS485 serial port will be sent to "RAYREAL" and convert to RS232 signal for RS232 device. So we can monitor the data received in RS232 and RS485 serial port. But we don't influence the function for RS232 to RS485 converter.
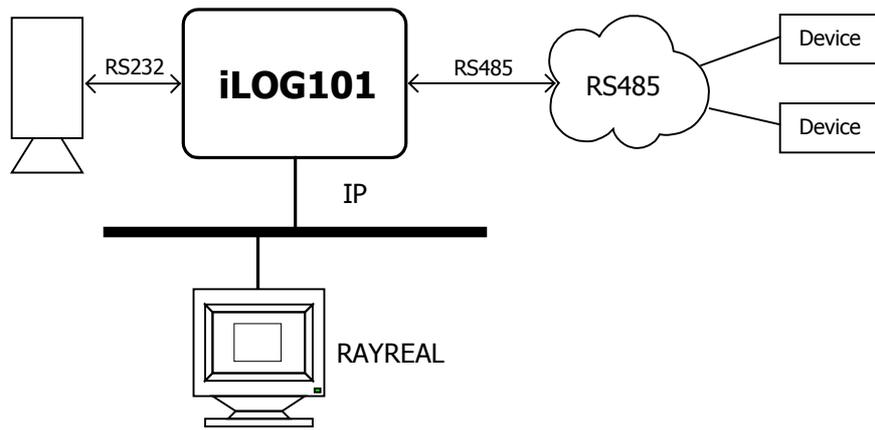
In traditional RS232 to RS485 converter environment we will add more loading in RS232 signal and RS485 signal to monitor. Because we need to connect RS232 and RS485 signal to our monitor COM port. To replace traditional RS232 to RS485 converter with iLOG101 box do not modify the application environment. Because we have RS232 signal to TTL logic signal and convert to RS485 signal. We use the data in TTL logic signal. So we just see one loading in RS232 side and RS485 side. Now we can access RS232 serial port and RS485 serial port via IP network.

Because we offer all source files of "RAYREAL" utility to our customer. So everyone can modify our source file to meet target application requirement. For example, some one may modify our source file to save received data in file periodically. It is similar as one video security system to record the video signal. So we can analyze the received data anytime.

In "RAYREAL" we will use different color display for serial port A and serial port B. So it is very easy to analyze the "POLL" and "ACK" procedure in RS232 and RS485.