

RAYREAL user guide

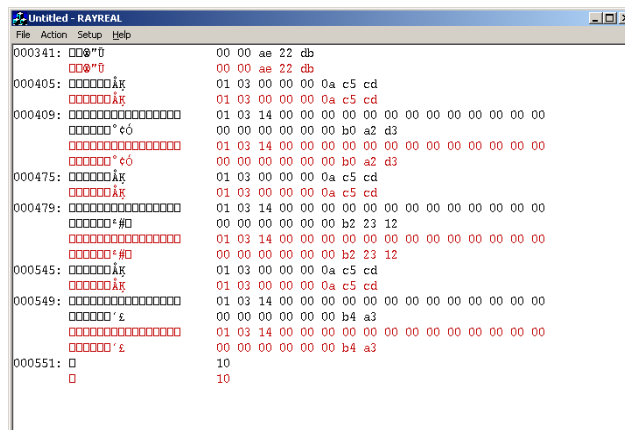
■ Introduction

RAYON Technology introduces ULOG485 and iLOG101 box for RS232 to ground isolated RS485 converter with monitor feature. Generally we may use TERATERM or other terminal emulator software to monitor the data in RS232 side and RS485 side. We will have two terminal windows to display ASCII code in RS232 side and RS485 side. Because we may have displayable ASCII code to be read and control code (0x00-0x1F) is not easy to read. So it is not easy to analyze the data received and displayed in terminal emulator screen. Even though RAYON also offers "RAYMON" terminal emulator program to display HEX code in screen. But you can only see the received code continuously.

Generally we may use "POLL & ACK" procedure in RS485 environment. It is very important to know the time point for "POLL" packet to send and "ACK" packet to receive. When we use terminal emulator software to monitor the data, we can not know the relationship in both terminal display. So RAYON Technology releases new "RAYREAL" serial port monitor software. We can monitor and display received data in two COM ports with time count. In "RAYREAL" screen you know see the received data in ASCII and HEX code with time count. So it is very easy to analyze the "POLL & ACK" procedure in RS485 environment.

■ RAYREAL usage

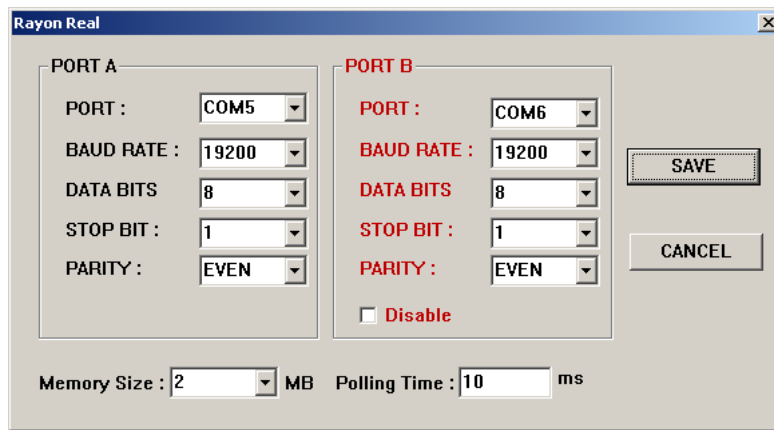
1. When we run "RAYREAL" , we can setup serial port A and B to receive data. The screen will display data from serial port A in black color and data from serial port B in red color.



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File Action Setup Help
000341: 00 00 ae 22 db
000341: 00 00 ae 22 db
000405: 01 03 00 00 00 0a c5 cd
000405: 01 03 00 00 00 0a c5 cd
000409: 01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
000409: 00 00 00 00 00 00 b0 a2 d3
000409: 01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
000409: 00 00 00 00 00 00 b0 a2 d3
000475: 01 03 00 00 00 0a c5 cd
000475: 01 03 00 00 00 0a c5 cd
000479: 01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
000479: 00 00 00 00 00 00 b2 23 12
000479: 01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
000479: 00 00 00 00 00 00 b2 23 12
000545: 01 03 00 00 00 0a c5 cd
000545: 01 03 00 00 00 0a c5 cd
000549: 01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
000549: 00 00 00 00 00 00 b4 a3
000549: 01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
000549: 00 00 00 00 00 00 b4 a3
000551: 10
000551: 10
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2. There are three fields to display.

- a) the first field is the time count for data received. This value is the count number to count from RAYREAL start to run. The counter unit is the period to check data input (the Polling Time is set by user). For example, we may set "Polling Time" to be 10ms. Then the counter unit is 10ms. When we receive data in count 10001 and the other data in count 10003. It means that we have the other data in $(10003-10001)*10ms=20ms$ later.
- b) the second field is the ASCII code to display for received data in this time point. Because we may see displayable character and some strange character, so it is not easy to analyze data for control code.
- c) the third field is HEX code to display for received data in this time point. We can see all 00--FF code for each byte of received data. So it is very easy for us to analyze data for control code here.



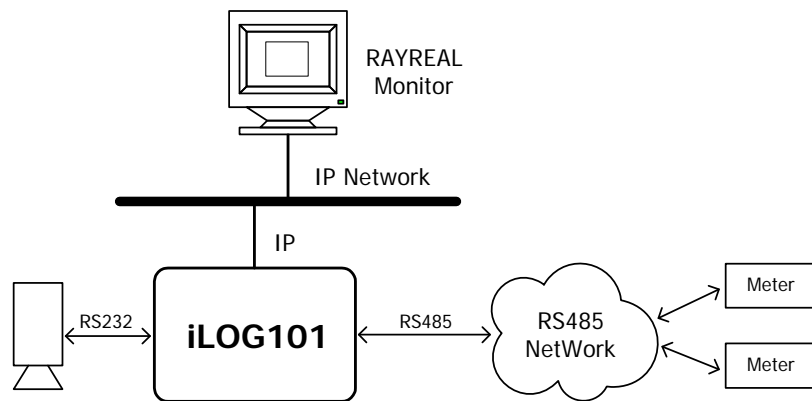
3. There are setup field in upper line.

- a) In "File" we can use "Read File" to read the backup file for monitor data to be saved before. It may be the file recorded in this system or other system. (Maybe your customer will log the error environment and ask you to analyze). We can use "Write File" to save the current monitor data in buffer. So we can analyze monitor data later. Or we can send such data to other people for help.
- b) In "Action" we can use "Connect" to start the monitor procedure. All the data received will display and save in buffer. We can use "Disconnect" to stop the monitor procedure. Now you can use "Write File" to save the monitor data in buffer as one file.
- c) In "setup" we can setup the COM port number for serial port A and B. You can assign the "Baud rate" "Data bits" "Stop Bits" "Parity".
- d) Generally we may have same protocol for serial port A and B to monitor. But we can also set different protocol for serial port A and B. Because we may have special application environment to monitor.
- e) Because we will display received data from serial port A in black color and data from serial port B in red color. So we have black color for serial port A setup field and red color for serial port B field.
- f) Because some application environment may just need to use one serial port to monitor. So we can set "Disable" in serial port B. Then we will not open serial port B to receive data.
- g) Because we may need to save the monitor data in one file, so we can assign the buffer size for monitor data. We can set "memory Size" to meet our target environment. The size too large may save to too large file size to send. The size too small may not monitor the possible time point for problem happened.
- h) We can set the period to check data received. The "Polling Time" can be set from 1ms to 999ms. This value is the counter unit to display. Because the possible value of period for Windows to count is different for different hardware. So the counter value is used for reference. It is not accurate value for timing. Generally we will check the baud rate for serial port to assign this value. Because we will display 16 data bytes received per line. If "Polling Time" assigned value were too large, we will receive too many data bytes and display in multiple lines. Then it is not easy to read and analyze data. If "Polling Time" assigned value were too small, we will receive too small data bytes to analyze. So user can modify this value to meet target application environment.
- i) After setup all data we can use "SAVE" to save and use this new setup parameter. Or we can use "CANCEL" to skip this setup and use old parameter.

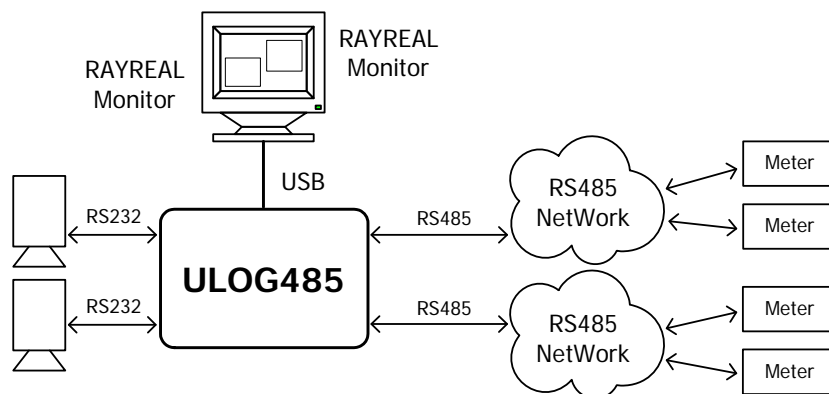
4. In some condition we see some error message. For example we use "Read File" to read one assigned file. But such file is not saved by RAYREAL. So we can't use such file and show error message. Or we may assign one COM port number for serial port A and B. But we can't open such COM port (maybe your system do not have such COM port or other software use such COM port).

■ RAYREAL application

1. In iLOG101 box we can have RS232 to ground isolated RS485 converter function. We can install virtual COM driver in Windows to create two COM ports for RS232 serial port and RS485 serial port in iLOG101 box. Now we can run "RAYREAL" in Windows system to monitor such two COM ports. So we can monitor the RS232 to ground isolated RS485 converter function via IP network in remote site. If there were some error condition, we can analyze monitored data to analyze the possible reason.



2. In ULOG485 box we can have two sets RS232 to ground isolated RS485 converter function. We can connect ULOG485 to PC via USB connection. Now we can create four COM ports in Windows for serial port A, B, C, D. We can use such COM port to send/receive data in each serial port. Now we can run "RAYREAL" to monitor each set of RS232 to ground isolated RS485 converter function.



■ Conclusion

Because we offer all source files of "RAYREAL" utility to our customer. So user can modify "RAYREAL" source file to meet their target application environment and extra feature. For example, we may modify to save monitored data in one file for every 10MByte or every day. Then it is just like video security system to record. It will be your RS485 application environment record system. You can analyze your RS485 function anytime. When you have report in RS485 device for error condition. Then you can check RS485 function in "data byte" level. It may be data lost condition. It may be data contention condition. It may be time out condition. Because "RAYREAL" can record received data with time point information to analyze→