APORT111 can overcome traditional

IP serial device server's drawback

Traditionally, one IP serial device server may have one serial port connector to set in target RS232, RS422/RS485 interface.

As we know that RS232 signal may have different voltage level with RS422/RS485 signal. If we connect one RS232 signal with one RS422/RS485 signal, we may have big problem. Let us see one condition. One RS232 TXD signal may need to output in −12V signal level (mark state). If we connect this RS232 TXD signal with one RS422 TXD+ signal in +4V signal level (mark state). When RS232 interface IC need to promise −5V signal level output (RS232 transmitter site) and drain current from external side. Now RS422 interface IC need to promise +2V signal level output (RS422 transmitter site) and source current to external side. In this condition we may have RS232 interface IC or RS422 interface IC burnt.

When you have one serial port connector in IP serial device server, we can connect RS232, RS422/RS485 device to this connector. So we can set the target interface in IP serial device server. But we may have wrong setting in interface type for IP serial device server by mistake. So you may have dangerous condition as above description. To overcome this condition we may need to have two connectors in IP serial device server. One connector is for RS232 connection. The other connector is for RS422/RS485 connection. Now you can have RS232 device to connect with RS232 connector and RS422/RS485 device to connect with RS422/RS485 connector.

Generally, RS422/RS485 signal will use differential type transmission and will be used for long distance environment. We may have GROUND voltage differential between two devices. When we have longer distance between two devices, we may have bigger GROUND voltage differential value. Because we still have common mode voltage limitation in RS422/RS485 interface IC, so GROUND voltage differential value can be problem in application environment. Such GROUND voltage differential value may add to your signal and let RS422/RS485 interface IC have wrong data received. In worse condition your may have signal voltage level higher than RS422/RS485 interface IC's limitation and damage it. Generally we would like to have GROUND isolated feature in RS422/RS485 connection. GROUND isolated feature can reduce the problem based on GROUND voltage differential value and save your system.

APORT111 box can overcome such drawback in traditional IP serial device server. APORT111 box can offer one connector for RS232 device and the other connector with GROUND isolated feature for RS422/RS485 connection.

Generally we can have RS232 device to connect with RS232 connector (Serial 1) and RS422/RS485 device to connect with RS422/RS485 connector (Serial 2) simultaneously. But we just have one UART controller to handle your data. So we can not have to receive data from both connector simultaneously. If you need to connect both devices simultaneously, we must have software protocol to promise this condition (both devices can not send data simultaneously). If we could not promise in software protocol, then we can not connect both devices simultaneously. Of course user can use APORT101 box to let both devices communicate simultaneously. Because APORT101 box can support two UART controllers in RS232 connector (Serial 1) and RS422/RS485 connector (Serial 2) for different virtual COM ports.

In MODBUS application environment we can let APORT111 box with virtual COM port in master host. Then we can have RS232 connector to connect with RS232 slave device and RS422/RS485 connector to connect with RS485 slave device. If user may have multiple RS232 slave devices to connect, we can use S232 or S272 serial port sharer to help this condition. The RS232 connector in APORT111 box will connect with S232 or S272 box's master connector. All RS232 slave devices will connect to S232 or S272 box's slave connector. Now you can have one APORT111 box with some S232/S272 box to handle your RS232 slave device and RS485 device in MODBUS application environment.