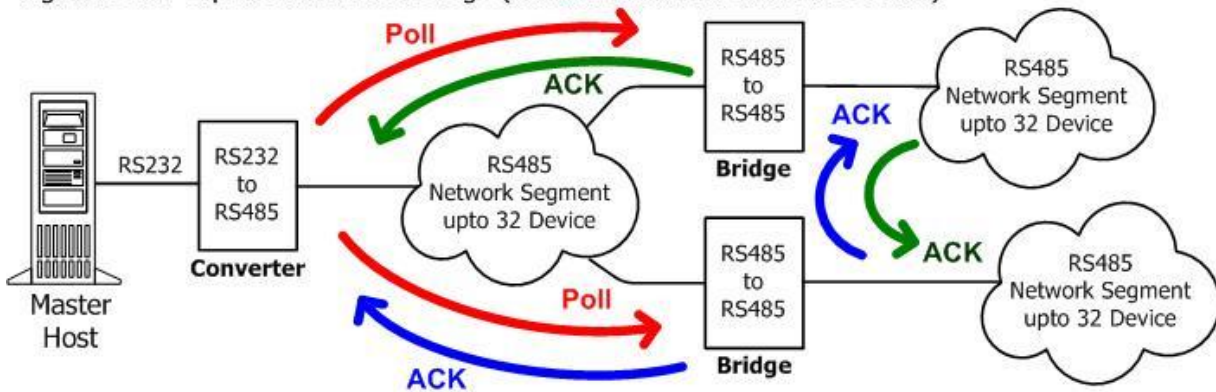


How to use S234io box in data collection system

Introduction:

In our live environment we have some many systems to charge our usage. We may have flow meter to count our water usage. We may have Gas Electronic Recorder to count our Gas usage. We may have Watt Meter to count our power usage. Traditionally we may have one guy to record such counter value by hand every month. Then they will ask you to pay every month. Sometimes you may find unreasonable charges. It may be one guy just write one wrong data to you by hand. Or you may have wrong number written from your neighbor's meter (you may be single and stay in home one week per month. But your neighbor is large family). So it is best to use data collection system to record your meter. Now we may have meter with RS485 connection. One data collection system may use RS485 connection to connect your meter. Because one RS485 segment can connect up to 32 devices, so we may use one RS485 bridge box to support more RS485 segment and devices. But this structure is very complex and not easy to find the reason for wrong condition. We will use S234io box in one apartment flow meter data collection system environment.

Fig 1: RS485 expand Via RS485 Bridge (data broadcast in all RS485 device)

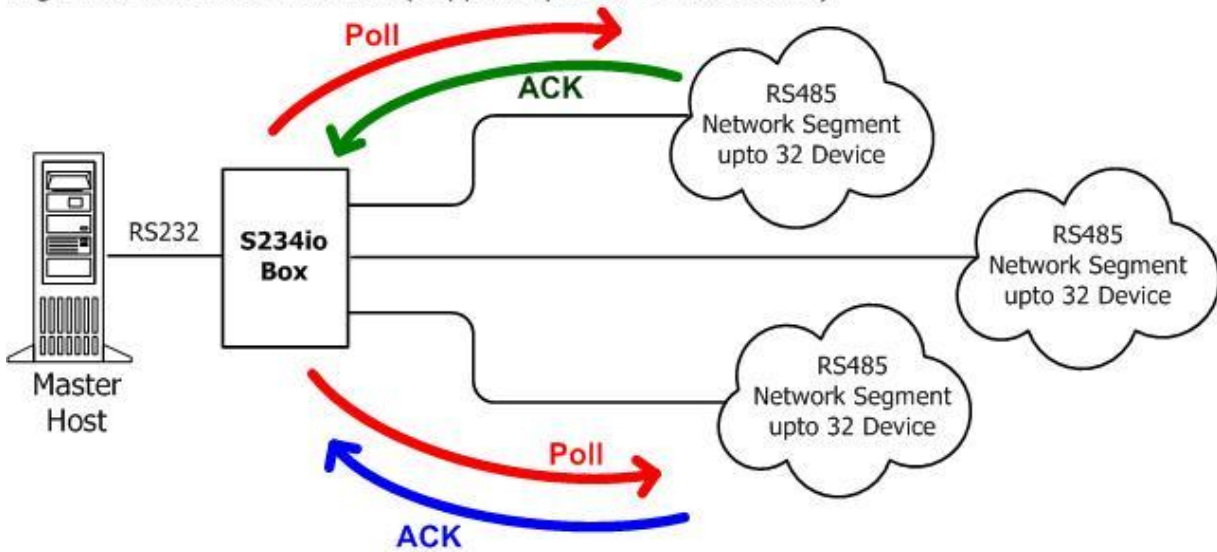


S234io box function:

S234io box is one serial port sharer to have one master Ground isolated RS232 serial port A and three slave Ground isolated RS485 serial port B, C, D. Any data received in master port A will be retransmitted in slave port B, C, D simultaneously. Any data received in slave port B, C, D will be retransmitted in master port A only. So we will connect data collection system host (may be one PLC or one PC. In this application environment they use PC) to master port A of S234io box. Each slave port B,C,D of S234io box is connected to flow meter. When data collection system host send POLL

data to target flow meter, such data will broadcast to all meters. The target meter will send back ACK data to host only. In traditional RS485 bridge structure such ACK data will be broadcasted to all meters also. When we find something wrong in RS485 network. It is very easy for S234io environment to find the possible reason (Because we just have POLL data from host to broadcast in all meters.). And it is not easy for traditional RS485 bridge environment to find possible reason (Because all POLL and ACK data will broadcast to all meters).

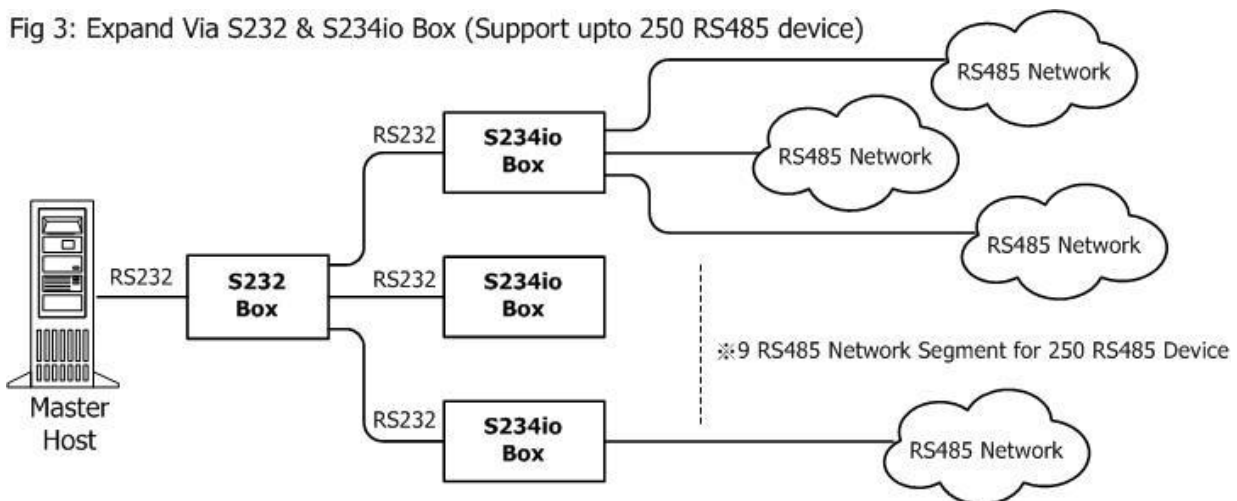
Fig 2: RS485 Via S234io Box (Support upto 90 RS485 device)



Application environment consideration:

From hardware point of view we can have one S234io box to support 3 RS485 segments. Each RS485 segment can support 32 RS485 devices. So it is suitable for one S234io box to support 90 meters in data collection system host.

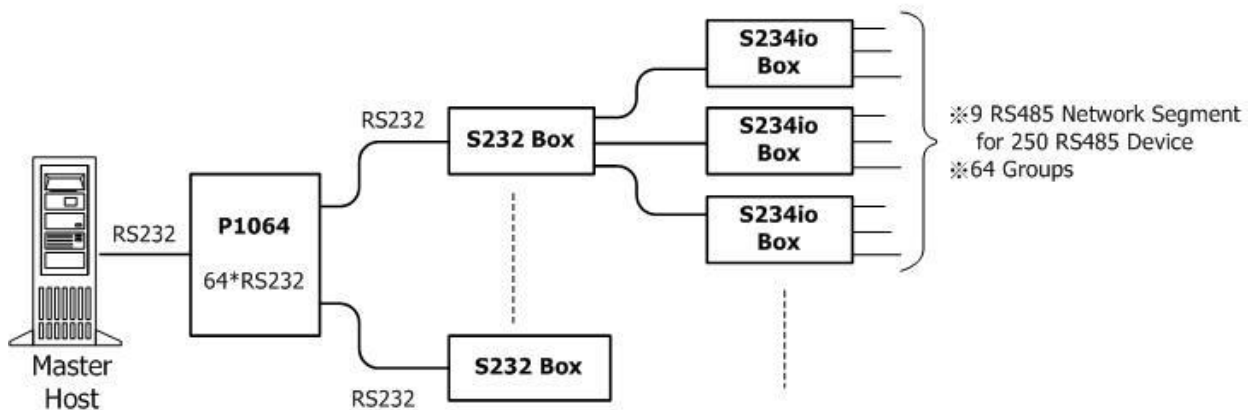
Fig 3: Expand Via S232 & S234io Box (Support upto 250 RS485 device)



From software point of view we can have one RS485 connection to access up to 250 meters. Now we can have one S232 box and 3 S234io boxes to support 9 RS485 segment and 250 meters in data collection system host.

For more large data collection system's application we can have one PC to use RAYON's P1064 card for 64 RS232 serial port connections. Now we can have each RS232 serial port to work with one S232 box and 3 S234io boxes for 250 meters. So we can have 64 RS232 serial ports to support 64 groups and up to 16000 meters.

Fig 4 : Expand Via P1064 & S234io Box (Support upto 16000 RS485 device in 64 Groups)



Conclusion:

When we use one S234io box to connect with RS485 meter. One data collection system can support up to 90 meters. When we add one extra S232 box to work with 3 S234io boxes. One data collection system can support up to 250 meters. In this simple structure environment it is very easy for you to have small 90 meters data collection system up to 16000 meters large system. In traditional RS485 bridge environment it is not easy for you to maintain small 90 meters data collection system and 16000 meters system.

The major point is S234io box can let you broadcast POLL data and get ACK data back to host only. In RS485 fiber connection environment S234io box is more attractive to you. If you had more application consideration, please mail to rayon@ms1.hinet.net for fully support.